23rd Annual Meeting of the
International Society for Anthrozoology (ISAZ)

ISAZ 2014

Animals and Humans together:
Integration in Society

Abstract Book

edited by:
Julia Schöllauf
Franziska Luckabauer

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ABOUT ISAZ

The International Society for Anthrozoology (ISAZ) was formed in 1991 as a supportive organization for the scientific and scholarly study of human-animal interactions. ISAZ is a nonprofit, nonpolitical organization with a worldwide, multi-disciplinary membership of students, scholars, and interested professionals. For more information on ISAZ, please visit www.isaz.net.

The mission of ISAZ is to serve the growing community of scholars and scientists working in the field of Anthrozoology (the study of human-animal interactions and relationships) by supporting research, publishing, disseminating new insights and discoveries, and promoting the exchange of knowledge and expertise within the field.

To become a member of ISAZ, please visit http://www.isaz.net/membership.html.

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Anthrozoös: A Multidisciplinary Journal of the Interaction of People and Animals

Official journal of the International Society for Anthrozoology
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Anthrozoös is a quarterly, peer-reviewed publication focusing on reporting the results of studies, from a wide array of disciplines, on the interactions of people and animals. Academic disciplines represented include anthropology, archaeozoology, art and literature, education, ethology, history, human medicine, psychology, sociology, and veterinary medicine. Anthrozoös is published by Bloomsbury Publishing, and subscription to the journal is part of the official ISAZ membership package.

Previous ISAZ Meetings

Year	*Program*	*Location*
1991	The Domestic Dog: Its Evolution, Behavior and Interaction with People	Cambridge, UK
1992	Methodologies in Anthrozoological Research	Montreal, Quebec, Canada
1993	Ethological and Behavioral Approaches to the Study of Human-Animal Interactions	Davis, California, USA
1994	International Society for Anthrozoology	New York, USA
1995	Cultural & Historical Perspectives on Human-Animal Interactions	Geneva, Switzerland
1996	The Animal Contract: Exploring the Relationships Between Humans and Other Animals	Cambridge, UK
1997	International Society for Anthrozoology	Boston, Massachusetts, USA
1998	Human-Companion Animal Communication: Understandings and Misunderstandings	Prague, Czech Republic
1999	Men, Women and Animals: The Influence of Gender on Our Relations with Animals and Nature	Philadelphia, Pennsylvania, USA
2000	Issues in Companion Animal Welfare	Amsterdam, The Netherlands
2001	Human-Animal Conflict: Exploring the Relationships with Conflict Between Humans and Other Animals	Davis, California, USA
2002	Animal Arenas: Spaces, Performances and Exhibitions	London, UK
2003	The Social Lives of Animals: Human/Non-Human Cognition, Interactions, Relationships	Canton, Ohio, USA

Year	*Program*	*Location*
2004	Advances in the Science and Application of Animal Training	Glasgow, Scotland, UK
2005	Exploring Human-Animal Relationships	Niagara Falls, New York, USA
2006	The Importance of Attitudes, Values, and Economics on the Welfare and Conservation of Animals	Barcelona, Spain
2007	The Power of Animals: Approaches to Identifying New Roles for Animals in Society	Tokyo, Japan
2008	Human Animal Bond: Theory, Research & Practice	Toronto, Ontario, Canada
2009	Human-Animal Interaction: Impacting Multiple Species	Kansas City, Missouri, USA
2010	Cross-Cultural Perspectives on Human-Animal Interactions	Stockholm, Sweden
2011	Human-Animal Interactions: Challenges and Rewards	Indianapolis, Indiana, USA
2012	Arts and Sciences of Human-Animal Interactions	Cambridge, UK
2013	Evidence-Based Approaches to the Study of Human-Animal Interactions: Past, Current, and Future Research Directions	Chicago, USA

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WELCOME TO THE ISAZ 2014 CONFERENCE

Dear Delegate,

On behalf of the International Society For Anthrozoology, it is with great pleasure that I welcome you to our annual conference, held for the first time in the beautiful city of Vienna. We sincerely hope that you enjoy the intellectual stimulation the conference has to offer, and that you avail yourself of the many opportunities provided for making new friends, meeting new colleagues, sharing ideas and experiencing new things.

The small but rapidly growing field of anthrozoology is renowned for the camaraderie that exists between scientists drawn from all corners of the globe. What you will experience at the conference is a shared quest to understand more about human-animal interactions of many different types and in many different contexts. The program planners have selected a wonderfully diverse range of presentations and posters for you to enjoy and learn from, with social activities that will enhance your trip and facilitate the informal conversations so important for intellectual growth.

Our annual conference would not be possible without the generous support of our sponsors. Each of these organizations shares our vision of a world in which human-interactions are better understood through the careful application of science and, importantly, are willing to help us achieve this vision by supporting our activities.

Our Principal Sponsor, Mars-Waltham, has been particularly generous in supporting our conference for many years. We thank them for this continued support and also for supporting other ISAZ activities, including the ISAZ/Waltham Award and the student prizes offered at the conference.

We also thank our other major sponsors, Mars Austria, Nestle Purina and the International Fund for Animal Welfare (IFAW), our silver sponsors, Happy Dog, Royal Canin and Wr. Tierschutzombudsstelle, and our wonderful conference organizers from Vienna, who together have made this meeting possible.

Finally, we wish to thank you, our delegates, for attending our conference and for providing your input into our discussions and debates. If you are not already a member of ISAZ please consider joining. The strength of our Society comes from having a diverse and engaged membership.

We sincerely hope that you enjoy your time in Vienna and join us at future conferences.

Pauleen Bennett

ISAZ President

A welcome by the organizers

We are happy and proud to host the 23rd ISAZ, for the first time in Vienna. A cheerful welcome to you all! As usual, this ISAZ meeting will feature an exciting range of plenaries, talks, symposia and posters in topical, cultural and social continuity with the wonderful 2013 meeting in Chicago. Vienna teems with culture, arts and architecture from the middle ages via imperial baroque and Gründerzeit right into contemporary arts. We hope, and urge you, to find some time to enjoy Vienna. To provide a taste of typical Viennese lifestyle, we will have our congress dinner in a traditional “Heurigen”.

Over more than a decade, Vienna has developed into a hot spot of human-animal research, embedded in a potent scientific frame of university-based behavioral and cognitive sciences. Aside of our own group at the University of Vienna, there is the Messerli Research Institute at the University of Veterinary Medicine and a few other groups, all together more than 150 colleagues engaged in the kind of behavioral biology which embeds human-animal research. At the same time, practical applications, such as animal-assisted pedagogy and therapy are steeply on the rise in Europe and particularly, in Austria, leaving also footprints in daily life. For example, the Austrian Ministery of Education, as the first of its kind in the world, issued a recommendation for the use of dogs at schools by teachers on its homepage. We are sure that the field in Austria and in Europe in general will receive a big boost via this congress.

The topic of our meeting is “Animals and Humans together: Integration in society”. This is in honor of recent developments that animals, companion and wildlife, are increasingly not just seen as utilities at disposal for their human masters, but as agents in their own right and that people have the right to live in the company of animals. Companion animal partners are no longer mere attributes of lifestyle, but are more and more seen as an integral part of our lives. The city of Vienna, for example, provides a great environment for socially compatible human-dog partnerships, with a growing consciousness even on side of administrators and decision makers that a dog-friendly city is also a most suitable environment for its children and adult citizens.

It is a great pleasure to mention that the field as it flourishes today in science and practice, would virtually not exist without the long-term engagement and interest of the Mars company. Therefore, we are particularly proud and happy to have Waltham-Mars aboard as the principal sponsor and Mars Austria as a key founder. We are also very happy to have IFAW and Nestle Purina as key founders, Happy Dog, the Vienna Tierschutzombudsstelle and Royal Canin as Silver sponsors of ISAZ 2014. Only due to all of this support we could offer such reasonable congress fees for our participants, including basic lunches and the congress dinner.

We are sure that this will all contribute to a lively meeting, with much scientific progress and lots of networking, in service of a bright future of human-animal research and practice. Such, the ISAZ 2014 congress shall produce an important keystone for advancing the kind of science framing and promoting the further development of the integration of humans and animals in society.

With best wishes and regards,

The organizing committee

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HAPPY DOG

Wir sind die Heimat
gesunder Tiernahrung.

Tierschutz
Ombudsstelle Wien

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Acknowledgements

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- University of Vienna, Department of Behavioural Biology, Work Group for Human-Animal Relationship
- Messerli Research Institute, University of Veterinary Medicine, Vienna
- Foundation Bündnis Mensch & Tier

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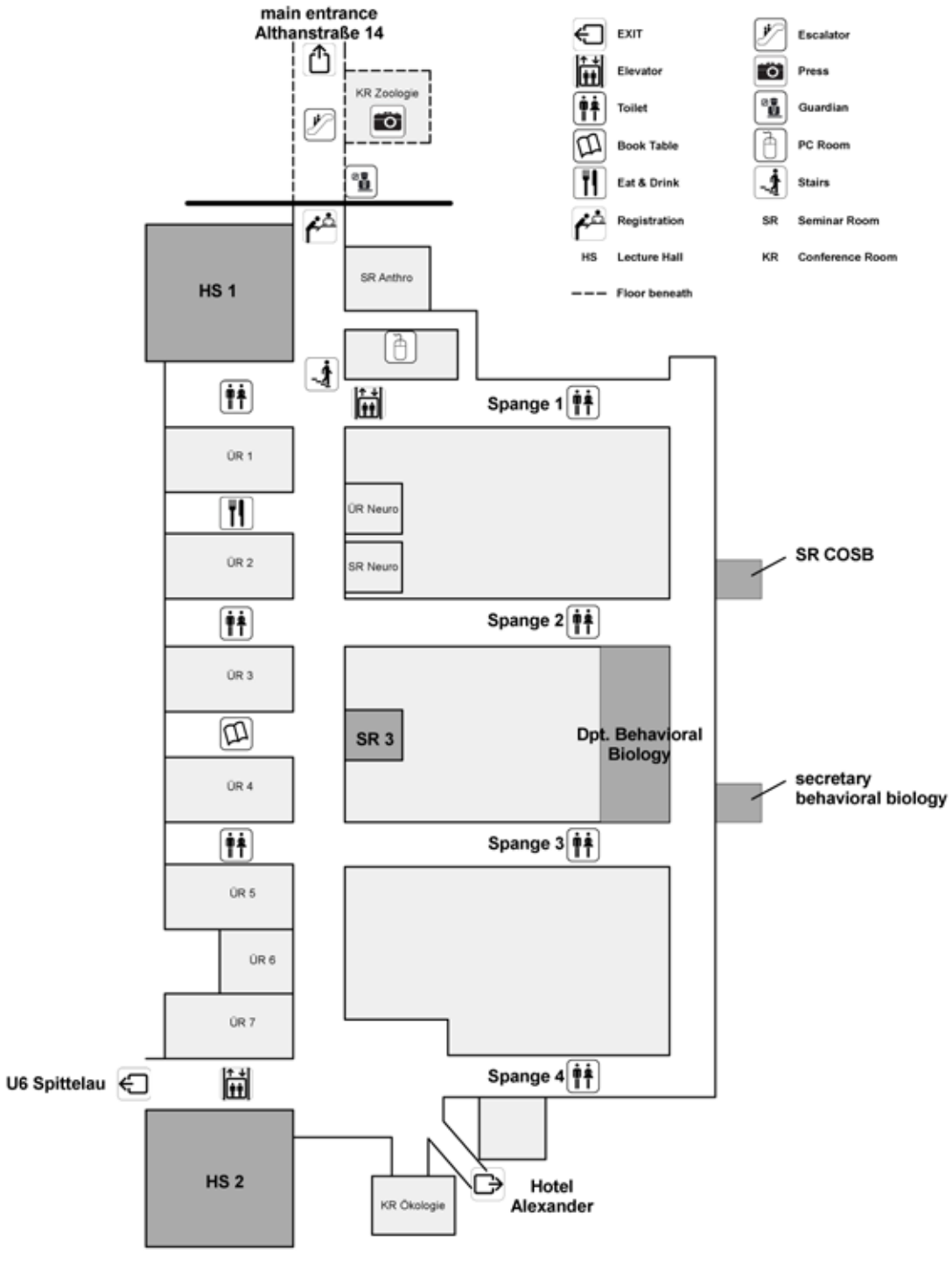
Surroundings of Biocenter Althanstraße

Biocenter Althanstraße



Conference Venue ISAZ

Biocenter (UZAI), Althanstrasse 14, 1090 Vienna, Lecture Hall 1, Lecture Hall 2 and Seminar Room 3. The Biocenter is part of the University of Vienna.

Short History of the University of Vienna

The University of Vienna was founded by Duke Rudolph IV in 1365, “Alma Mater Rudolphina Vindobonensis” as it has been called by literary sources. The members of this “universitas magistrorum et scholarium” (the community of teachers and learners) were exempt from taxes and military service, they had their own dress code and jurisdiction, the latter carried out by the Rector himself.

The year of the revolution 1848 greatly influenced the University of Vienna. Students demanded the freedom of teaching and learning, and the end of any suppression of academic life. To this day, the most important success of their endeavours has been the – still valid – Article 17 of the Austrian Basic Law on the General Rights of Nationals: “Science and its teaching are free”. Minister of Education Leo Graf Thun-Hohenstein reformed the system of tertiary education radically and invited a great number of professors to Vienna.

In 1884, Emperor Franz Joseph I inaugurated the new Main Building of the University of Vienna on Ringstrasse, which had been erected by Heinrich von Ferstel. This splendid historicist building was designed to resemble the renowned Italian Renaissance universities. However, it could never lay claim to be the central university building even in the early days, and there was never enough room for all departments. The up-and-coming Viennese Medical School required more space, and by 1915 numerous buildings had been erected in the vicinity of the Main Building to house the “homeless” departments.

Free university admission in the 1970s triggered an educational boom and resulted in a vast expansion of the University of Vienna. Increasing numbers of students necessitated the construction of new buildings and the redevelopment of old ones: This also included the Universitätszentrum (University Centre Althanstrasse, UZA I), which was built in 1982.

Currently, the University of Vienna comprises 15 faculties and four centres (excluding the Medical Faculty, which became a separate university in 2004). 92,500 students can choose from more than 180 degree programmes, and 9,500 employees, 6,700 of which academic, work at more than 60 locations of the University of Vienna.

The University of Vienna will celebrate its 650th Anniversary in 2015.

General Information ISAZ

Registration & Info Desk

Registration & Info Desk can be found on the second floor next to the Lecture Hall 1.

Opening hours:

Saturday, 19 July 2014:	15:00–18:00
Sunday, 20 July 2013:	08:00–12:30 & 13:30–17:00
Monday, 21 July 2013:	08:00–12:30 & 13:30–18:00

e-mail: hai.behaviour@univie.ac.at

Phone: 0043 660 469 54 75

Conference Location

Biocenter UZA 1, Lecture Hall 1, Lecture Hall 2 and Seminar Room 3.

Conference Badge

Participants will receive a badge upon registration. You can only enter the conference area with a valid badge. Together with the badge, you will also receive your tickets for the events you booked, e.g. for the conference dinner, for the satellite meeting and for the excursion. So, please keep the conference badge with you until the end of the conference.

Computer and Internet Access

The university provides a wireless network accessible in the entire Biocenter. In addition, we provide computers for viewing presentations and internet access in a room next to the registration desk. The access code for both, the wireless network and the computers, will be in your badge.

Coffee Breaks and Lunches

Coffee/tea and snacks during the coffee breaks and also lunch is free for registered participants. Coffee to go is available for free from July 20 in the morning until July 21 in the evening. Coffee and lunch will be served in the foyer between Lecture Halls 1 and 2.

Dogs

Dogs are generally not allowed at the ISAZ conference, but you can of course bring service dogs.

Smoking

Smoking is not permitted inside the conference building.

Banking service, currency

Euro (€) is the official currency in Austria. Exchange offices are available at the airport or at Stephansplatz in the City Center; the exchange offices are open approximately 6.00–23.00.

Emergency calls

112 European emergency call (in Austria: call-through to the police)

+43 Country code Austria

122 Fire department

133 Police

144 Ambulance

Instructions for presentations

Oral presentations

Plenary talks will be 45 minutes including discussion. Contributed talks will be 20 minutes including 5 minutes of discussion. Please bring your presentation on a USB flash drive in the morning of the presenting day or in the evening before to the Lecture Hall where you will give your talk. A laptop will be provided and presentations will be uploaded and tested there, also video files can be presented. You cannot use your own computer.

Poster presentations

Poster boards will be set up in the foyer between Lecture Halls 1 and 2. Posters will be fixed with tape which will be available. The poster session will be on July 20 between 13.30 and 14.15. Please stay at your poster during this time. Poster numbers, identifying the location of your poster, can be found in this abstract book. All posters can be left at the poster boards from 19 July evening until the end of the conference. Please remove your poster on July 21 during the last coffee break at the latest.

Social program for participants

Opening and public talk

Saturday, July 19, 2014, 6.00–10.00pm
Biocenter, UZA 1, Althanstrasse 14, 1090 Vienna

The public talks will take place in Lecture Hall 1 at the Biocenter. The get-together will be in the foyer between Lecture Hall 1 and Lecture Hall 2.

This will be an enjoyable event with public talks by two founding fathers of Human-Animal Interaction Research: James Serpell (University of Pennsylvania), “Humans and animals in society, past and present”, and Ben Hart & Lynette Hart (University of California, Davis), “Pets and Our Responsibilities: Perspectives on Neutering and Living Together.” This evening is open to the public free of charge.

The plenary talks are followed by a networking get-together with snacks and Austrian wine.

ISAZ Conference Dinner for all delegates

Sunday, July 20, 2014, 7.30 pm–open end
Kahlenberger Straße 22, 1190 Vienna – Nußdorf

The Conference Dinner will be held at a traditional Austrian “Heurigen”, a tavern, where wine growers serve their wines and local food. Schübl-Auer is one of the wine growers in Nußdorf. The conference dinner is included in the registration fee. The exact location and directions are provided on a separate sheet you will receive at the Registration & Info Desk.

Excursion

Wednesday, July 23, 2014, 8:30 am to 3:30 pm

You will have the opportunity to visit the Clever Dog Lab (CDL) and Wolf Science Center (WSC). Both together cost 30 Euro and has to be paid at the conference venue. In the morning of 23 July, a bus will leave from the Biocenter to the CDL, where you will see the facilities and the work. The bus will then continue to the WSC. Another bus will go directly to the WSC, where we offer a guided tour to the facilities. You will see some dogs and wolves at work there and get to the CDL in the afternoon. You can get lunch (not included in the excursion fee), either at the University of Veterinary Medicine or in Ernstbrunn. The time schedule and information where to meet for the bus trip is provided on a separate sheet which you will receive at the Registration & Info Desk.

The Clever Dog Lab

The Clever Dog Lab is located at the University of Veterinary Medicine, Vienna. Since pet dogs live in the human environment and share our homes and offices with us, the five test rooms at the Clever Dog Lab are comparable to their natural environment. The dogs’ problem solving abilities can be tested in a familar setting with their owners nearby, while a monitoring system in each of the rooms allows us to observe and record the dogs’ behavior. There is also special equipment, such as two different touch screens, a projection and a sound replaying system as well as an eye-tracker, which allow for displaying carefully designed visual and acoustic stimuli for the dogs and for recording certain details of their behavior. No dogs are kept in the Clever Dog Lab. Pet dogs and their owners from Vienna and also from more distant regions visit the Lab.

http://www.vetmeduni.ac.at/en/messerli/science/cognition/clever-dog-lab

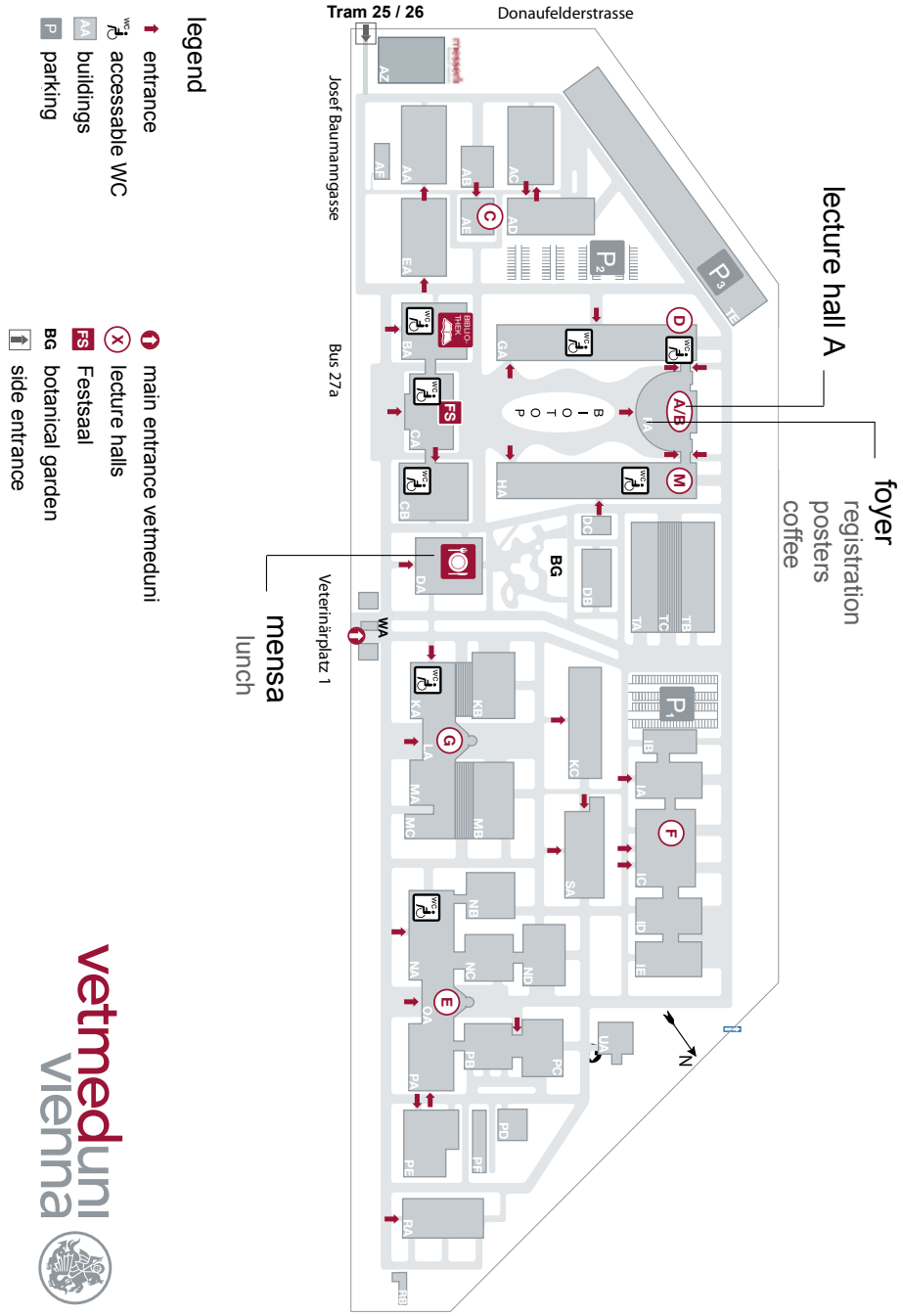
The Wolf Science Center

The Wolf Science Center in the Wildpark Ernstbrunn (game park) was founded in 2008 to investigate the common characteristics shared by wolves, dogs and humans. The wolves and dogs are raised by hand and kept in the same way by scientists and trainers. They take part in regular experimental tasks (brain jogging) to investigate their cooperative and cognitive abilities. The WSC staff maintains a close and mutually satisfying relationship, allowing to explore the cognitive capabilities and keeping the animals mentally and physically fit. Within the last five years, the WSC has developed into the only research institution with a sufficient number of wolves and dogs to address a multitude of questions in a scientifically sound way. With over 70,000m² of enclosures and a number of other facilities, it is also the biggest wolf and dog research facility worldwide.

http://www.wolfscience.at/

SATELLITE MEETING
JULY 22, 2014

Campus vetmeduni



Venue Satellite Meeting

The Satellite Meeting takes place at the University of Veterinary Medicine, Vienna (Veterinaerplatz 1, 1210 Vienna, Austria) in Lecture Hall A, building FA.

From a military school to an independent university

The Veterinary School's history has been extremely colorful. The School started life as the "Royal and Imperial School for Curing and Operating Horses" and was assigned to the military. It became a college in 1897 and was granted the title of "Hochschule". It became independent in 1905, was accorded the right to award degrees in 1908 and was finally renamed the University of Veterinary Medicine, Vienna in 1975.

From Vienna's 3rd district to the 21st district

What remained unchanged from 1777 was the location in Vienna's third district, although the idea of moving was discussed as long ago as shortly before the first World War. It took until 1996 for further plans to be made and rejected – having survived and recovered from various wars and crises – and the new campus in the "Donaufeld" in Vienna's 21st district to be built and occupied.

A specialized university that is one of a kind

The University of Veterinary Medicine, Vienna is now unique in Austria as a university that focuses on a single subject. It does not only train and educate the vets of the future, but is also constantly pushing back the frontiers of research and further education in the areas of animal health and of man and the environment – in a multidisciplinary manner and an international context.

The teaching, research and servises provided by the University of Veterinary Medicine, Vienna are centered on animals, in particular their health, well-being and needs. The newly established Messerli Research Institute is not just dedicated to working on human-animal interactions on an intensive, scientific basis, but is also ensuring veterinary medicine benefits from new research findings.

Messerli Research Institute

Center of Competence for Research into Human-Animal Interactions

The Messerli Research Institute was founded in 2010 with support from the Messerli Foundation (Sörenberg, Switzerland) under the management of the University of Veterinary Medicine, Vienna in cooperation with the Medical University of Vienna and the University of Vienna.

The research is devoted to the interaction between humans and animals, as well as its theoretical principles in animal cognition and behavior, comparative medicine and ethics. Its work is characterized by its broad interdisciplinary approach (biology, human medicine, veterinary medicine, philosophy, psychology, law) and strong international focus.

Research findings are an integral part of the academic curriculum in a Master's program and are also designed to provide guidelines for the responsible and acceptable treatment of animals. Thus, the Messerli Research Institute sees one of the main responsibilities in providing scientific information to help people responsible in the field of human-animal interactions.

The Messerli Research Institute strives to achieve a balance between excellent basic and applied research. Key findings stemming from scientific work carried out at the Messerli Research Institute are the platform on which human-animal interactions can be examined in a practically oriented manner. For instance, knowledge on cognitive, emotional and social skills in animals from the field of comparative cognitive research may not only change the general perception and the understanding of animals but also the way we humans see ourselves.

The institute comprises three units and several associated centers that work in cooperation with the partner universities. In this setting, the units cover three important aspects of human-animal interactions in research and teaching:

- Comparative Cognition
- Comparative Medicine
- Ethics and Human-Animal Studies

Research in the Unit of Comparative Cognition (head: Prof. Ludwig Huber) is dedicated to current questions of cognition and emotion in animals from a comparative and integrative point of view. Cognitive abilities are not unique to humans, but can be found in more or less similar forms in non-human species. The institute focuses on a variety of vertebrate species – among them dogs and wolves, mountain parrots, pigeons, woodpeckers and tortoises – according to specific research questions. The fact that cognition can only be understood as a complex biological phenomenon requires the combination of various biological and psychological methods and approaches, which are exclusively non-invasive at the unit, as well as the integration of research at various levels of complexity (genetic, neuronal, individual, social, cultural level). The studies are conducted under both natural and semi-natural conditions, where the animals' abilities to solve species-related problems in a cognitive manner are tested. The Unit of Comparative Cognition attempts to contribute to the development of good practice in animal keeping, training, management and the health care of animals kept as pets, as well as in captive (industrial, zoo, lab, etc.) settings.

Most of the research projects of the Unit of Comparative Cognition are conducted at three centers/labs: the Clever Dog Lab (located at the campus of the Vetmeduni Vienna), the Haidlhof Research Station for Cognition and Communication (located south of Vienna near Bad Vöslau) and the Wolf Science Center (located north of Vienna near Ernstbrunn).

The team at the Unit of Ethics and Human-Animal Studies (head: Prof. Herwig Grimm) is an interdisciplinary group working on questions relating to our moral relationship to animals. Human-animal interactions are currently undergoing change. This involves the increased need for orientation. The disciplines represented in the unit – philosophy, veterinary medicine, biology, literature studies and history – mirror the various aspects and the heterogeneity of these new questions in human-animal interactions. This variety and the scientific profiles of the staff shape the unit's work. Changing perception of the moral relationship between humans and animals is leading to fundamental reflections – in the field of livestock and lab animals as well as of pets and wild animals.

Against this backdrop, the scientists are focusing mainly on two fields. They pose socially relevant ethical questions in an applied-oriented manner, develop possible solutions and bring them into the social dialogue. This refers to, for instance, animal testing, veterinary medical practice and the keeping of livestock. The second field is the theoretical foundations of these socially relevant questions. The scientists are trying to develop new approaches and theories in human-animal interactions.

Interdisciplinary collaboration between the humanities and science is central, in particular in regards to socio-politically relevant questions. The principles of the 3Rs (replacement, reduction, refinement), for instance, combine normative criteria and scientific knowledge in the field of animal testing. But direct collaboration between the disciplines is also essential for the development of reasonable possible solutions, in terms of the social responsibility of vets and the moral challenges that face them.

General Information Satellite Meeting

Registration & Info Desk

The Registration & Info Desk can be found in the entrance hall of building FA (foyer between Lecture Halls A and B).

Opening hours:

7:30–17:00

e-mail: messerli@vetmeduni.ac.at

phone: 0043-1-25077-2681

Location

The Satellite Meeting will take place in Lecture Hall A, building FA.

Internet Access

The University provides wireless network that allows laptop users to access network resources in Lecture Hall A.

Guest account User Name: isaz2014
Guest account Password: ensj0hS4
Profile name: Veranstaltungen

Instructions for the use of WLAN:

1. Activate WLAN/net search.
2. Select SSID “Veranstaltungen”.
3. Wait for “connected”.
4. Open your web browser (IE, Firefox, Safari, Chrome, etc.).
5. Call up any page (z.B.: google.com). Enter the login data once.
6. After the message “Login successful” you have unlimited internet access (e-mail, surfing, Skype, etc.).

Please note:

If you are inactive for a while or if the connection was lost you have to login again.

Coffee Breaks and Lunch

Coffee/tea during the coffee breaks will be served for free for registered participants at the foyer in front of Lecture Hall A. Lunch will be provided in building DA, first floor (Mensa).

Dogs

Generally, you cannot bring your dog to the campus, but you can of course bring service dogs. In this case, a special permit will be issued (messerli@vetmeduni.ac.at).

Smoking

Smoking is not permitted inside the buildings. Smokers are kindly requested to smoke outdoors in the designated areas.

TIME SCHEDULE

Friday, July 18, 2014	**Interdisciplinary PhD/Postdoc Conference (in German)**
Saturday, July 19, 2014	**Interdisciplinary PhD/Postdoc Conference (in German)** **ISAZ opening reception and public talk**
Sunday, July 20, 2014	**ISAZ Conference** **Conference Dinner**
Monday, July 21, 2014	**ISAZ Conference**
Tuesday, July 22, 2014	**Satellite Meeting on ethics and cognition**
Wednesday, July 23, 2014	**Excursions to the Clever Dog Lab and to the Wolf Science Center**

Friday, 18 July 2014: Interdisciplinary PhD/Postdoc Conference

Organized by Stiftung Bündnis Mensch & Tier, Seminar Room 3 (in German)

9:00	**Registration**
9:30	**Begrüßung**
10:00–12:30	**Themenblock I**, Moderation: Herwig Grimm
10:00–10:20	**Silke Förschler**: Insekten, Vögel, Fische. Ästhetische Ordnungen und epistemologische Evidenz in Tierbildern der Frühen Neuzeit
10:30–10:50	**Amir Zelinger**: Tierische Sozialgeschichte. Haustierhaltung im Deutschen Kaiserreich
11:00–11:20	**Kirsten Persson**: Das Spannungsverhältnis zwischen theoretischer Tierethik und alltäglicher Tiermoral
11:30–12:30	**Diskussion Themenblock I**
12:30–13:30	**Mittagspause**
13:30–15:15	**Themenblock II**, Moderation: Claudia Laurien-Kehnen
13:30–13:50	**Stephanie Lürzel**: Der Einfluss der Mensch-Tier-Beziehung auf Wohlergehen und Produktqualität
14:00–14:20	**Charlotte Blattner**: Der extraterritoriale Schutz von Tieren: Zulässigkeit und Möglichkeiten der Anwendung von nationalen Tierschutzstandards auf Tiere im Ausland
14:30–15:15	**Diskussion Themenblock II**
15:15–15:45	**Kaffeepause**
15:45–17:30	**Podiumsgespräch**, Moderation: Carola Otterstedt „Publikation & Pressearbeit“: Herwig Grimm, Jessica Ullrich, Andrea Beetz, Claudia Laurien-Kehnen
ab 19:00	**Austausch beim gemeinsamen Heurigen Schübel-Auer** Straßenbahn D bis Endstation Beethovengang (ca. 30 min. Fahrzeit)

Saturay, 19 July 2014: Interdisciplinary PhD/Postdoc Conference

Organized by Stiftung Bündnis Mensch & Tier, Seminar Room 3 (in German)

9:00–10:30	**Themenblock III, Moderation: Herwig Grimm**
9:00–09:20	**Iris Schöberl:** Die Physiologie der Mensch-Hund-Bindung
9:30–09:50	**Sandra Wesenberg:** Positive Wirkungen eines tiergestützten Interventionsprogrammes auf demenziell erkrankte Pflegeheimbewohner
10:00–10:20	**Lisa Maria Glenk:** Effekte der Tier-Mensch-Interaktion auf physiologische und Verhaltensparameter bei Hunden
10:30–10:50	**Kaffeepause**
10:50–11:10	**Katrin Hofmann:** Reittherapie bei lernschwachen Schüler/Innen – Effekte einer Intervention
11:20–11:40	**Katharina Ameli:** Professionalisierung tiergestützter Tätigkeitsfelder
11:50–12:50	**Diskussion Themenblock III**
12:50–13:00	**Abschluss und Verabschiedung: Carola Otterstedt**

For abstracts, see www.buendnis-mensch-und-tier.de

Saturday, 19 July 2014

Overview

Seminar Room 3	Conference Room	COSB Seminar Room
9:00–13:30	**9:00–16:00:**	**15:30–17:30:**
Interdisciplinary PhD/PostDoc Conference (in German)	ISAZ Board Meeting	NIH/Waltham Consortium

Break 16:00–18:00

Lecture Hall 1

18:00–18:30	**Welcome** **Opening of the Conference by University Representatives and Organizers**
18:30–19:15	**Public lecture/Plenary 1** Chair: Pauleen Bennett **James Serpell**: Companion Animals and Society: Past, Present and Future
19:15–20:00	**Public Lecture/Plenary 2** Chair: Pauleen Bennett **Benjamin Hart, Lynette Hart**: Pets and Our Responsibilities: Perspectives on Neutering and Health Care
20:00–22:00	**Welcome Get-Together and Poster Session** **Wine and Fingerfood, Lobby**

Sunday, 20 July 2014: ISAZ 2014 Vienna – Overview

	Lecture Hall 1	Lecture Hall 2
8:30–8:45	**Conference Opening** **Pauleen Bennett**	
8:45–9:30	**Plenary 3** NIH/Mars Partnership Kerstin Meints	
9:30–9:45	**Break**	
9:45–10:45	NIH/Waltham Symposium 1 Support by Companion Animals	The Role of the Owner in Human-Dog Relationships
10:45–11:15	**Coffee Break, Lobby**	
11:15–12:35	NIH/Waltham Symposium 2 Human-Animal Relationships	Human Interactions with Livestock
12:50–13:30	NIH/WALTHAM Lunchtime Session: Funding HAI Research	Lynette Hart: Discussion/Workshop: Curricula in AAI and Anthrozoology
12:35–13:30	**Lunch Break, Lobby**	
13:30–14:15	**Poster Session, Lobby**	
14:15–15:00	**Plenary 4** Rob Knight	
15:00–15:10	**Break**	
15:10–16:30	Wolves, Dogs, and Humans 1	Effects of Animal-Assisted Interventions on Mental Health
16:30–16:50	**Coffee Break, Lobby**	
16:50–17:30	**ISAZ AGM**	
19:30	**Conference Dinner at the Heurigen Schübl-Auer** tramline D to the final stop Beethovengang in Nußdorf (approx. 30 min. from the venue)	

Monday, 21 July 2014: ISAZ 2014 Vienna – Overview

	Lecture Hall 1	Lecture Hall 2
8:30–8:45	**Announcements/Business/ Info**	
8:45–9:30	**Plenary 5** NIH/Mars Partnership Robin Gabriels	
9:30–9:40	**Break**	
9:40–11:00	Animal-Assisted Interventions	Attitudes towards Animals
11:00–11:30	**Coffee Break, Lobby**	
11:30–12:50	Animal-Assisted Education	Dogs, Wolves, and Humans 2
12:50–13:50	**Lunch Break, Lobby**	
13:50–15:10	B. Jegatheesan, P. Tedeschi, E. Ormerod & A. Beetz: Discussion/Workshop: Ethics in AAI & Anthrozoology, Seminar Room 3	
13:50–15:10	Human-Dog Interactions	Companion Animals and Human Well-being
15:10–15:40	**Coffee Break, Lobby**	
15:40–17:00	Companion Animals in the Family	Dog Behavior in AAI and HAI
17:00–17:10	**Break**	
17:10–17:45	**ISAZ Best Student Oral/ Poster Award, Farewell**	
19:30	**ISAZ Board Dinner** at a Vienna City Restaurant	

Sunday Morning, 20 July 2014: ISAZ 2014 Vienna – Details

Lecture Hall 1

8:30–8:45	**Conference Opening** **Pauleen Bennett**
8:45–9:30	**Plenary 3** Chair: Karyl Hurley **Kerstin Meints**: How children and adults misread dogs – risks and interventions (NIH/Mars Partnership)
9:30–9:45	**Break**
9:45–10:45	**NIH/Waltham Symposium 1** **Support by Companion Animals** Chair: Sandra McCune
9:45–10:05	**Kristen C. Jacobson:** The Effects of HAI on Cortisol Reactivity in Response to Psychosocial Stress
10:05–10:25	**Marguerite O'Haire,** Samantha McKenzie, Virginia Slaughter, Alan Beck: Physiological arousal in children with autism spectrum disorder and their typically-developing peers during human-animal interaction
10:25–10:45	**Erika Friedmann,** Sue Thomas, Heesook Son, Deborah W. Chapa, Sue Hall, Sandra McCune: Do blood pressures change differently in pet owners and pet non-owners during their daily lives?
10:45–11:15	**Coffee Break, Lobby**
11:15–12:35	**NIH/Waltham Symposium 2** **Human-Animal Relationships** Chair: Jim Griffin
11:15–11:35	**Anne Gadomski,** Melissa Scribani, Nicole Krupa, Paul Jenkins, Zsolt Nagykaldi, Ardis L. Olson: Pet Dogs and Child Health Indicators
11:35–11:55	**Armando Hoet,** Tim Landers: Sharing only kisses – Dog ownership and Staphylococcus aureus
11:55–12:15	**Judith Solomon,** Kurt Kotrschal, Iris Schöberl, Andrea Beetz: Attachment Classification in Pet Dogs: Application of Ainsworth's strange situation and classification procedures to dogs and their human caregivers
12:15–12:35	**Lynette Hart,** Benjamin Hart, Irva Hertz-Picciotto, Abigail Thigpen, Leslie Lyons: Cats and Children with Autism: Do Cats Provide Contact Warmth and Affection?
12:35–13:30	**Lunch Break, Lobby**
12:50–13:30	**NIH/WALTHAM Lunchtime Session:** Funding HAI Research – tips on grant applications

Sunday Morning, 20 July 2014: ISAZ 2014 Vienna – Details

Lecture Hall 2

9:30–9:45	**Break**
9:45–10:45	**The Role of the Owner in Human-Dog Relationships** Chair: Elizabeth Ormerod
9:45–10:05	**Rachel O'Connor,** Jason Coe, Niel Lee, Andria Jones-Bitton: The effect of lifestyle and animal-care knowledge on adopters' expectations prior to companion-animal ownership
10:05–10:25	**Jonathan Bowen,** Paula Calvo, Antoni Bulbena, Jaume Fatjo: Patterns of owner-dog relationship: MDORS (Monash Dog Ownership Relationship Scale) survey of 2398 dog owners
10:25–10:45	**Pinar Thorn,** Tiffani Horwell, Cynthia Brown, Pauleen Bennett: The Teddy Bear Effect: owner-perceived cuteness as a predictor of human-dog relationship quality
10:45–11:15	**Coffee Break, Lobby**
11:15–12:35	**Human Interactions with Livestock** Chair: Kate Atema
11:15–11:35	**Samantha Hurn:** Livestock species as companion species: Questioning the place of cows, pigs and sheep in contemporary British society.
11:35–11:55	**Dorit Mersmann,** Claudia Schmied-Wagner, Eva Nordmann, Susanne Waiblinger: Dairy goat farmers' attitudes towards goats and interacting with them
11:55–12:15	**Stephanie Lürzel:** Effect of positive interactions and disbudding on avoidance distance towards humans in dairy calves
12:15–12:35	**Ingela Wikman,** Ann-Helena Hokkanen, Matti Pastell, Tina Kauppinen, Anna Valros, Laura Hänninen: Beef producer attitudes to pain in cattle
12:35–13:30	**Lunch Break, Lobby**
12:50–13:30	**Lynette Hart: Discussion/Workshop:** **Curricula in AAI and Anthrozoology**

Sunday Afternoon, 20 July 2014: ISAZ 2014 Vienna – Details

Lecture Hall 1

14:15–15:00	**Plenary 4** Chair: James Serpell **Rob Knight**: How the microbiome links us and our companion animals
15:00–15:10	**Break**
15:10–16:30	**Wolves, Dogs, and Humans 1** Chair: James Serpell
15:10–15:30	**Marianne Heberlein,** Zsófia Virányi, Friederike Range, Dennis Turner: Showing humans where food is hidden: a form of intentional communication in dogs and wolves?
15:30–15:50	**Lina Oberließen,** Friederike Range, Zsófia Virányi: A wolf-dog difference revisited: When facing an unsolvable problem do they look back at humans after identical raising?
15:50–16:10	**Sarah Marshall,** Zsófia Virányi, Friederike Range: Did domestication affect inhibitory control? A comparison between identically raised wolves and dogs on two inhibitory control tasks
16:10–16:30	Carina Hampl, Margit Auer, Marianne Heberlein, Zsófia Virányi, Friederike Range, **Kurt Kotrschal:** Wolves are at least as cooperative as dogs during leash walking
16:30–16:50	**Coffee Break, Lobby**
16:50–17:30	**ISAZ AGM**
19:30	**Conference Dinner at the Heurigen Schübl-Auer** tramline D to the final stop Beethovengang in Nußdorf (approx. 30 min. from the venue)

Sunday Afternoon, 20 July 2014: ISAZ 2014 Vienna – Details

Lecture Hall 2

15:00–15:10	**Break**
15:10–16:30	**Effects of Animal-Assisted Interventions on Mental Health** Chair: Brinda Jegatheesan
15:10–15:30	**Allison O'Connor,** Chad McDonald, Brad Lundahl: Animal assisted therapy with maltreated youth: A systematic review and meta-analysis
15:30–15:50	**Denise Hebesberger,** Kurt Kotrschal, Andrea Beetz: Behavioral and Physiological Effects of Horse-assisted Therapy for Mother-Child Pairs with Insecure Attachment
15:50–16:10	**Karen Krob:** Examining Animal Assisted Interventions for Anxiety and Depression: A Meta-Analysis
16:10–16:30	**William Pope,** Caralise Hunt, Kathy J. Ellison: Animal Assisted Therapy versus Human Interaction in the Improvement of Social Outcomes in Older Adults with Dementia
16:30–16:50	**Coffee Break, Lobby**
19:30	**Conference Dinner at the Heurigen Schübl-Auer** tramline D to the final stop Beethovengang in Nußdorf (approx. 30 min. from the venue)

Monday Morning, 21 July 2014: ISAZ 2014 Vienna – Details

Lecture Hall 1

8:30–8:45	**Announcements/Business/Info**
8:45–9:30	**Plenary 5** Chair: Sandra McCune **Robin Gabriels**: Expanding rural intervention options for children on the autism spectrum: Results from a four-year randomized control trial of Therapeutic Horseback Riding (NIH/Mars partnership)
9:30–9:40	**Break**
9:40–11:00	**Animal-Assisted Interventions** Chair: Rebecca Johnson
9:40–10:00	**Karin Hediger:** Attitudes towards the implementation of animal-assisted therapy in a Swiss rehabilitation clinic
10:00–10:20	**Jessica Bibbo,** Rebecca Johnson, Steven Osterlind, Nancy Mueller: Participant Characteristics and Outcomes of the Walk a Hound Lose a Pound program over Five Years
10:20–10:40	**Mariko Yamamoto,** Lynette Hart: Data on dogs registered in California for assistance dogs identification tags
10:40–11:00	**Hayley Yaglom,** Rebecca Johnson, George Lombardi, Nicole Haarmann, Christopher Roberts: Offender Outcomes of Training Dogs in Prison: the Puppies for Parole Program
11:00–11:30	**Coffee Break, Lobby**
11:30–12:50	**Animal-Assisted Education** Chair: Andrea Beetz
11:30–11:50	Sandra Barker, Randolph Barker, Christine Schubert: Dogs on campus to reduce student stress during exams: An initial study of student diversity in attendance and perceived benefit
11:50–12:10	**Paula Calvo,** Jonathan Bowen, Antoni Bulbena, Jaume Fatjo: Analysing two instruments to evaluate AAT: CSAWPBS (Center for the Study for Animal Wellness Pet Bonding Scale) and MOPI (Measurement of Pet Intervention) scales
12:10–12:30	**Nancy Gee,** Erika Friedmann, Victoria Cogliatore, Marcus Stendahl, Amy Fisk: Does physical contact or dog breed affect memory performance?
12:30–12:50	**Stephen Albone:** Differential effectiveness of SPANA's education programme in Morocco on attitudes and empathy according to school grade
12:50–13:50	**Lunch Break, Lobby**
13:50–15:10	**B. Jegatheesan, P. Tedeschi, E. Ormerod & A. Beetz:** Discussion/Workshop: Ethics in AAI & Anthrozoology, **Seminar Room 3**

Monday Morning, 21 July 2014: ISAZ 2014 Vienna – Details

Lecture Hall 2

9:30–9:40	**Break**
9:40–11:00	**Attitudes towards Animals** Chair: Kristen Jacobson
9:40–10:00	**Elzemina Bojicic,** Lauren Hanna Lentz, Rebecca Brimley, Cary Williams, Kate Nattrass Atema: Community perceptions of the needs of owned versus roaming dogs in two Bosnian municipalities
10:00–10:20	Teresa Schmidjell, **Veronika Brandl,** Kurt Kortrschal: Attitudes towards wolves and dogs in Austria
10:20–10:40	**Lisa Maria Glenk,** Oswald David Kothgassner, Birgit U. Stetina: Pet attitude, self-esteem and personality in female professionals for animal-assisted interventions
10:40–11:00	Annalisa Pelosi, Emanuela Prato-Previde, **Elisa Silvia Colombo:** Belief in human-animal continuity and animal directed empathy: a study on Italian veterinary students
11:00–11:30	**Coffee Break, Lobby**
11:30–12:50	**Dogs, Wolves, and Humans 2** Chair: Ludwig Huber
11:30–11:50	**Angélica Vasconcellos,** Zsófia Virányi, Friederike Range, César Ades, Kurt Kotrschal: Training sessions and stress in human-raised wolves: implications for cognition studies and animal welfare
11:50–12:10	**Friederike Range,** Zsófia Virányi: Dogs and wolves observing humans and conspecifics: did domestication influence what to pay attention to and what information to extract?
12:10–12:30	**Lisa Wallis,** Friederike Range, Corsin Müller, Samuel Serisier, Ludwig Huber, Zsófia Virányi: Dogs can follow human gaze despite training to maintain eye contact
12:30–12:50	**Charlotte Duranton,** Friederike Range, Zsófia Virányi: Dogs follow non-communicative and communicative human gaze in different contexts
12:50–13:50	**Lunch Break, Lobby**
13:50–15:10	**B. Jegatheesan, P. Tedeschi, E. Ormerod & A. Beetz:** Discussion/Workshop: Ethics in AAI & Anthrozoology, **Seminar Room 3**

Monday Afternoon, 21 July 2014: ISAZ 2014 Vienna – Details

Lecture Hall 1

13:50–15:10	**Human-Dog Interactions** Chair: Lynette Hart
13:50–14:10	**Ludwig Huber,** Anais Racca, Yennifer Yoon, Elisa Pitteri, Zsófia Virányi ,Friederike Range: How dogs see us: the perception of human faces by dogs
14:10–14:30	**Anjuli Barber,** Ester Mueller, Dania Randi, Ludwig Huber: Like me – Behavioural and Physiological Correlates of Empathy and Emotions in Dogs
14:30–14:50	**Iris Schöberl,** Manuela Wedl, Kurt Kotrschal: Factors affecting physiological synchrony in owners and their dogs
14:50–15:10	**Giulia Cimarelli,** Zsófia Virányi: Dogs may understand the social but not the referential intention behind human pointing gesture
15:10–15:40	**Coffee Break, Lobby**
15:40–17:00	**Companion Animals in the Family** Chair: Karyl Hurley
15:40–16:00	**Megan Mueller:** Human-Animal Interaction in Military-Connected Youth
16:00–16:20	**Brinda Jegatheesan:** Learning through Participation in the Care of the Family Pet: Children's Roles and Responsibilities across Cultures
16:20–16:40	**Sigrid Amon,** Iris Schöberl, Manuela Wedl, Kurt Kotrschal: Ideal versus real: Owner Attitudes, Personalities and Relationship with Dogs
16:40–17:00	**Cynthia Brown,** Pinar Thorn, Pauleen Bennett: Human-Companion Dog Relationship Quality: The Impact of Owner Attachment and Personality Styles
17:00–17:10	**Break**
17:10–17:45	**ISAZ Best Student Oral/Poster Award, Farewell**

Monday Afternoon, 21 July 2014: ISAZ 2014 Vienna – Details

Lecture Hall 2

13:50–15:10	**Companion Animals and Human Well-being** Chair: Anne McBride
13:50–14:10	**Pauleen Bennett:** Pets' Effectiveness in Managing Chronic Pain and Improving Well-being in Adult Community Members
14:10–14:30	Caroline Gilbert, Gérard Leboucher, David Reby, **Sarah Jeannin:** The vocal communication between human and domestic dog
14:30–14:50	**John Tylor Binfet:** The Effects of Animal-Assisted Therapy on University Students' Social-Emotional Well-Being: A Feasibility Study
14:50–15:10	**Gretchen Carlisle:** Children with Autism and their Beliefs of Attachment to their Dogs
15:10–15:40	**Coffee Break, Lobby**
15:40–17:00	**Dog Behavior in AAI and HAI** Chair: Beth Daly
15:40–16:00	**Heidi Brisk:** Owner-dog interaction during animal-assisted activities – an impact on dog welfare
16:00–16:20	**Carolina Rocha,** Emma Otta, Marie Chelini: Stress and arousal in dogs during animal assisted interventions in Brazil
16:20–16:40	Jade, Thompson, **Anne McBride:** The role of persuasion in positive punishment training
16:40–17:00	**Stefanie Riemer,** Corsin Müller, Zsófia Virányi, Ludwig Huber, Friederike Range: Behavioural development in companion dogs - assessments at three ages
17:00–17:10	**Break**

Tuesday, July 22, 2014: Satellite Meeting

8:30–16:30 **ISAZ Satellite Meeting**
Brute facts and normative implications. Understanding human-animal interactions
Vetmeduni Vienna, Lecture Hall A

08:30–9:00 **Conference opening**
Ludwig Huber, Herwig Grimm

9:00–10:00 **Plenary 1**
Chair: Ludwig Huber
Donald M. Broom: How concepts of sentience affect concerns about animal welfare

10:00–10:30 **Coffee Break**

10:30–11:00 **John Bradshaw:** Dogs, gods and robots: deconstructing anthropomorphism

11:00–11:30 **Frank Péron:** Cognitive studies and animal welfare: Why, When & What

11.30–12:00 **Leah Burns:** Animals and Tourism: An ethical scrutiny of relationships between tourists and wildlife

12:00–13:00 **Lunch Break**

13:00–14:00 **Plenary 2**
Chair: Herwig Grimm
Mark Rowlands: Can Animals Be Moral? Should We Care?

14:00–14:30 **Judith Benz-Schwarzburg:** Morality in animals? A review of what that might mean from an ethical and ethological perspective

14:30–15:00 **Coffee Break**

15:00–15:30 **Martin Huth:** Brute? facts and the struggle for morality. Gaps and bridges between science and normativity

15:30–16:00 **Samuel Camenzind:** Kant on brutes: facts and an internal critique

16:00–16:30 **Nickie Charles:** Written and spoken words: representations of animals and intimacy

Wednesday, July 23, 2014: Excursions

Clever Dog Lab & Wolf Science Center

Bus 1

8:30	Departure from Biocenter Althanstraße to the Vetmeduni Vienna
9:00–10:30	Guided tour at the Clever Dog Lab
10:30	Departure from the Vetmeduni Vienna to the Wolf Science Center Ernstbrunn
11:30–13:30	Guided tour at the Wolf Science Center, lunch break
13:30	Departure from the Wolf Science Center
14:30	Return to Bicenter Althanstraße

Bus 2

8:30	Departure from Biocenter Althanstraße to the Wolf Science Center Ernstbrunn
9:30–11:30	Guided tour at the Wolf Science Center, lunch break
11:30	Departure from the Wolf Science Center to the Vetmeduni Vienna
12:30–14:00	Guided tour at the Clever Dog Lab
14:00	Departure from the Vetmeduni Vienna
14:30	Return to Bicenter Althanstraße

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Plenaries ISAZ Conference

Companion Animals and Society: Past, Present, and Future

Serpell, James
University of Pennsylvania, Philadelphia, USA

Companion animals or "pets" have a long history that precedes the domestication of animals. The earliest evidence of a probable human-pet relationship dates from the 17,000–14,000 year-old site of Uyun al-Hamman in Jordan. The animal involved was neither a wolf nor a wildcat, but a fox (Vulpes vulpes) whose remains were found in a human grave. Later burial sites (c. 12,000 years BP) in Israel contained the remains of early wolf/dogs, while the earliest human-cat burials, dating from roughly 9,500 BP, have been found on the Mediterranean Island of Cyprus. Since these early beginnings, the practice of keeping animals primarily or exclusively for companionship has waxed a waned throughout human history – popular and widespread in some cultures and periods, and rare or tabooed in others. This paper will explore some of the social, economic and cultural factors that may have contributed to the fluctuating popularity of pets over time, and which continue to regulate the growth of pet populations worldwide. Understanding such processes helps to shed light on the significance of pets in modern societies as well as the forces that may determine their role in the future.

Pets and Our Responsibilities: Perspectives on Neutering and Living Together

Hart, Benjamin; Hart, Lynette
School of Veterinary Medicine, Davis, California, USA

The key theme of our international society – "anthrozoology" – refers to study of the types of interaction between companion animals and their human caregivers. A key element of this interaction is oversight of animal health and wellbeing, but in the area of spaying female dogs and neutering males, there is a major difference between European countries and the United States. In Europe, for the most part, dogs are not spayed or neutered except for medical reasons, while in the U.S. spay-neuter has become almost universal, with 83 % of dogs neutered. Recent research has revealed that neutering dogs may have rather severe consequences in increasing the incidence of joint disorders and cancers, and that there are major breed differences, pointing to the value of offering caregivers breed-specific guidance on when and if to neuter their companion animals.

Much loved and much misunderstood: How children and adults misread dogs – risks and interventions.

Meints, Kerstin
University of Lincoln, Lincoln, UK

This talk focuses on human-animal interactions, specifically child-dog interactions, situation and behaviour misinterpretations and, finally, interventions to reduce risk and create a safer environment for the family and the family pet.
As bites to the head and face region are significantly more frequent in younger children and seem mostly related to children's age and not to their height, we investigated potential reasons for such bites. Young children's behaviour towards a potential pet was investigated and strong facial proximity and intrusive leaning-in and inspection behaviours were observed with novel and moving, animate stimuli, and this effect was shown for the first time with animals, too, thus exposing a risk factor that parents are usually not aware of.
We also noted that children seem to misinterpret dogs' display of teeth as smiling or laughing. We therefore investigated in a set of studies how children and adults interpret dogs' facial expressions. Initially, still images were used to expose interpretation errors and knowledge differences in children and adults. While adults make hardly any mistakes (less than 1 %) in interpreting emotional expressions in still images of dog and human faces, the majority of 4-, 5,- 6- and even 7-year-olds misunderstand dogs' facial expressions. Strikingly, we were able to confirm that children often misinterpret dogs' aggressive expression as "happy" and approachable. Further research employed video clips. Again, we found similar errors, with children misinterpreting dogs with exposed teeth as smiling and "happy".
However, in order to improve understanding and avoid risk in human-dog interactions, it is not enough to focus on children's behaviours and misinterpretations of facial expressions. Instead, we need to make them aware of dogs' whole body language. To investigate how children and adults perceive, categorise and interpret dog behaviour and to study how we can teach children and adults to understand dogs' body language better, we carried out a longitudinal intervention study. Using children's explicit judgements and eye-tracking their looking behaviour, we found that children from 4 years onwards as well as adults profit from the intervention and show significant improvements in knowledge straight after the intervention and also over time.
Next to understanding dogs' body signalling, children and their parents also need to recognise typical risk situations in the household with the family dog. The Blue Dog bite prevention programme helps children and parents to recognise such situations in the household and teaches safer behaviour with the family pet. The programme and its empirical assessment – cross-sectionally and now also longitudinally – will be described and current research developments highlighted.
In sum, this body of research shows how children and adults perceive dogs' facial expressions and body signals, how this differs from perceiving human faces, how children's misinterpretations and behaviour could elicit unsafe situations and how we can teach them to recognise and categorise body signalling and typical, everyday situations correctly and behave more safely. Given the study results we can now advise children and parents and inform dog bite prevention programmes to help prevent future dog bite incidents.

How the microbiome links us and our companion animals

Knight, Rob
HHMI/University of Colorado, Boulder, CO, USA

The human microbiome is a complex ecosystem, consisting of thousands of bacterial species that differ immensely from person to person. The microbiome of our companion animals has been surprisingly under-studied until recently, yet has a surprisingly large effect on our own microbiome and the microbial milieu of spaces we inhabit. Here I provide an overview of the molecular and computational tools we use to find out about our microbiome, compare the microbiomes of humans and dogs using data from the Human Microbiome Project and the American Gut Project, and discuss these findings in the broader context of what we know about the microbiomes of other mammals. Fascinatingly, having a dog, but not having a small child, makes a cohabiting couple's microbiomes more similar to one another, and dogs can be matched up to the families they come from with considerable accuracy based on their shared microbes. Given that more of the cells in and on our bodies are microbial in origin rather than carrying the human genome, it is fascinating to consider whether the domestication of specific companion animals may have altered our own metabolic capabilities.

Expanding rural intervention options for children on the autism spectrum: Results from a four-year randomized control trial of Therapeutic Horseback Riding

Gabriels, Robin
University of Colorado at Denver, Aurora, USA

The unique social-communication learning and aberrant behavior characteristics of children with an Autism Spectrum Disorder (ASD) complicate their behavioral management and often require intensive specialized interventions. Prevalence rates of ASD are climbing and many parents are desperate for potentially promising therapeutic services for their children, particularly if they live in rural areas. Specific aspects of therapeutic horseback riding (THR), such as the human-animal interaction that includes riding the horse, may match the unique learning styles of this population and, therefore, enhance intervention benefits.
Ultimately, a greater understanding of THR will help validate its use in rural settings where THR is frequently available, but where there are few intervention options in general.
This presentation will report study methods and results from a large-scale NIH/NINR-funded randomized control trial involving a 10-week standardized Therapeutic Horseback Riding (THR) intervention (n = 52) compared to a 10-week active control group not exposed to horses (n = 48) with children (ages 6–16 years) diagnosed with an ASD. All subjects received baseline and post-intervention caregiver-report assessments in the areas of self-regulation and social behaviors. In addition, raters blinded to subjects' randomized group assignment evaluated subjects' communication, adaptive, and motor behaviors at baseline and post-intervention.
Caregivers completed the self-regulation measure regarding subjects' behaviors each week of the intervention phase and again six months after the completion of the intervention phase. Compared to the to the active control group, subjects from the THR group demonstrated significant improvements compared to the control group on the Aberrant Behavior Checklist-Community (ABC-C) Irritability ($p = .038$; effect size = .432) and Hyperactivity ($p = .029$; effect size = .455) subscales starting by the fifth week of the intervention. Additionally, the THR group demonstrated significant improvements on the Social Communication subscale ($p = .007$; effect size = .588) of the Social Responsiveness Scale compared to the control group from baseline to week 10 of the THR intervention. The ABC-C gains replicate previous pilot study findings (Gabriels et al., 2012). No other significant improvements were observed on measures of adaptive, communication, or motor behaviors. Data is forthcoming regarding 1) whether there is a specific profile of age and/or IQ that predicts better candidates for the THR intervention, 2) if the ABC-C significant improvements persist in the THR group compared to the control group six months after the conclusion of the intervention study phase, and 3) if preliminary biological sample data (i.e. salivary cortisol) collected from the THR (n = 9) and active control (N = 9) groups reflect the significant changes observed on the ABC-C Irritability and Hyperactivity subscales.
Results of this randomized control trial provides further validation of the self-regulation and social-communication benefits of THR for children with ASD compared to an active control group with no human-equine interaction. Findings suggest that there is a unique aspect of the THR experience that can be a valuable intervention alternative for this population, particularly in community areas where intervention options are scarce.
This study was funded by NINR grant NR012736-01.

ISAZ Workshop

Ethical High Ground. Beyond the Five Freedoms. New opportunities to Honor our Relationship with Animals

Jegatheesan, Brinda[1]; Tedeschi, Philip[2]; Ormerod, Elizabeth[3]; Beetz, Andrea[4]
[1]University of Washington, Seattle, USA; [2]University of Denver, Denver, USA; [3]Society for Companion Animal Studies (SCAS), UK; [4]University of Rostock, GER

This workshop is intended to invite discussion among the broader ISAZ community and field of Human-Animal Interaction as it relates to the importance of ethical approaches to incorporating animals into animal assisted interventions (AAI). This presentation will highlight some of the potential ethical challenges but also some of the potential opportunities. There is a growing recognition of the limited understanding of animal welfare ethics in AAI and hence there is a need to establish guidelines in research and practice. Because of the animals' special vulnerability due to their dependence on us, it is desired that high ethical animal welfare standards that are morally defensible, (in their welfare) be implemented.
Although the session will address a wide variety of topics, there are 12 recurring themes. Taken together, the themes constitute a value perspective on ethics of animal welfare in AAI.

- Understanding animal welfare
- Evolution of animal welfare
- Definitions of animal welfare
- Sentience
- The Five Freedoms
- Why animal welfare matters in AAI
- Universalism in animal welfare ethics
- Types of animals suitable for involvement in AAI and their selection and training
- Animal responses to challenges
- Knowledge and training on animal wellbeing, health and behavior: Informed about the facts
- Knowledge of client needs, behaviors and problems when interacting with participating animals.
- Animal wellbeing in AAI in institutions (schools, rehabs, prison and resident facilities)

In addition this presentation will examine the current limitations of the existing IACUC structures for review of human-animal bond research initiatives and make recommendations about updated methods and models to IACUC standards of practice. Institutional Animal Care and Use Committees (IACUCs) were established to evaluate, approve and supervise animal use in research and to balance the interests of researchers, animals, institutions and the public. In many cases these committees and their membership are completely oriented towards animal research involving personnel with little or no understanding of the Human-Animal Bond. Additionally members who are affiliated with these IACUC are often also affiliated with the member institution. Do these review structures offer the adequate oversight of the emerging Human-Animal Bond Research?
Additionally this presentation will use this discussion as an opportunity to encourage the establishment of an animal welfare ethics agenda that will keep abreast with the emerging roles of animals in AAI. Framed from an ethics and research informed vantage point, this is intended not to be final word but rather to stimulate and encourage broad participation and audience input and discussion.

Contributed Talks

The Effects of HAI on Cortisol Reactivity in Response to Psychosocial Stress

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Introduction. It is commonly thought that pet ownership and interactions with pets and/or therapy animals are associated with reduced stress in humans. However, surprisingly few studies have examined how human-animal interaction (HAI) affects hypothalamic-pituitary-adrenal (HPA) reactivity in response to direct psychosocial stress, and the studies that have been done have generally used small sample sizes and/or not included rigorous control groups.

Methods. We recruited 120 subjects aged 18–25 to participate in a lab-based study of the effects of HAI on cortisol response to the Trier Social Stress Test (TSST). None of the subjects were currently living with pets. The HAI consisted of a 3-minute, unstructured interaction with a certified therapy dog. Subjects were randomly assigned to one of three experimental groups (N = 40 per group): TSST performed immediately after the HAI (Experimental condition), TSST performed immediately prior to HAI (Control condition 1), and TSST performed in the absence of HAI (Control condition 2). Saliva measures were obtained immediately before (pre) and after (post) the TSST, as well as at 10, 20, 35, and 60 minutes after completion of the TSST. The primary analysis was repeated measures ANOVA with Time as the within-subjects factor, Group as the between-subjects factor, and the interaction of Group*Time as the test for whether patterns of cortisol reactivity differed across group.

Results. The present analyses are based on salivary samples from the first 90 subjects (75 % of the sample) that have been processed for cortisol levels. The average age of subjects was 21.8 (sd = 2.0) and 35.5 % were male. Approximately half (55.6 %) of subjects were non-Hispanic Caucasian. There were no demographic differences across the three groups (all $p > .10$). Preliminary analyses indicated that the two Control groups did not differ from one another (Group $F[1,56] = 2.16$, $p=.15$; Group*Time $F[5,56] = 0.74$, $p = .60$), so the main analysis compared the Experimental group (N = 32) with the combined Control groups (N = 58). Results revealed significant effects of Group ($F[1,88] = 4.29$, $p = .04$) and Time ($F[1,88] = 8.23$, $p < .001$) and an effect for the Group*Time interaction ($F[5,88]=2.22$) that was significant at $p = .059$. Follow-up analysis comparing cortisol levels at each individual time point found significant differences between the two groups for cortisol samples obtained immediately after ($F[1,88] = 4.61$, $p = .03$) and at 10 ($F[1,88] = 6.10$, $p = .02$) and 20 ($F[1,88] = 6.02$, $p = .02$) minutes after the end of the TSST. The main effect of Group for cortisol obtained 35 minutes after completion of the TSST ($F[1,88] = 3.28$) was significant at $p = .07$. No group differences were observed for cortisol measured immediately before the TSST ($F[1,88] = 0.52$, $p = .47$) or for cortisol measured 60 minutes after completion of the TSST ($F[1,88] = 0.12$, $p = .73$). For all analyses, the significant group difference indicated that subjects in the Experimental condition had lower levels of cortisol in comparison to Controls. The effect size for the significant group differences ranged from Cohen's d = .40 to .54, consistent with a medium effect of HAI on cortisol reactivity.

Conclusions. The present study adds to a growing body of research suggesting that the benefits of HAI on human well-being may occur partially through lowered stress reactivity. While subjects in the Control groups showed the expected inverted-u-shaped pattern of increased cortisol levels following psychosocial stress that peaked between 10 and 20 minutes after the stress and returned to baseline by 60 minutes post-stress, subjects who experienced HAI immediately prior to the stress task showed a substantially attenuated (i.e., flatter) stress response. Moreover, this effect was observed in a sample of young adults who were not currently pet owners, and further indicate the even brief HAI can reduce short-term physiological indices of stress.

Physiological arousal in children with autism spectrum disorder and their typically-developing peers during human-animal interaction

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Background: Due to impairments in communication and socialization, children with autism spectrum disorder (ASD) may lack appropriate coping mechanisms and be particularly vulnerable to social anxiety. Heightened stress and anxiety may prevent children with ASD from acquiring social skills and benefiting from targeted interventions. One strategy to reduce the stress of peer socialization may be to include a companion animal in social contexts. Signals of the autonomic nervous system such as electrodermal activity (EDA) are recommended as indicators of anxiety in children with ASD. The purpose of the present study was to examine the impact of animal presence on a continuous physiological indicator of stress (EDA) in children with ASD and their typically-developing (TD) peers during social interaction.

Methods: Ninety-nine children aged 5.2 to 12.7 years (M = 9.4; SD = 2.3) participated in groups of three (one child with ASD and two peers). For each child with ASD (24 male; 9 female), two TD peers (28 male; 38 female) were randomly selected from the same classroom (15 classrooms total). Each group of children experienced four conditions: reading silently, reading aloud, free time with toys, and free time with animals (i.e. guinea pigs). Children were asked to report how they felt during each condition on an emotional valence Likert scale of faces. Physiological arousal was assessed via continuous EDA captured through telemetric, wristband monitoring devices. Data were analyzed using hierarchical generalized linear modeling, controlling for participant age, pet ownership, parent- and teacher-reported social anxiety, skin temperature, and accelerometer recorded motion.

Results: Physiological arousal was lowest in the presence of the animals, compared to all other conditions. The number of EDA responses per minute was significantly lower when the animals were present, compared to toys, $\beta = -6.16$, SE = 1.54, $t(2841) = -4.00$, $p < 0.001$, reading aloud, $\beta = -3.01$, SE = 1.45, $t(2841) = -2.07$, $p = 0.038$, and reading silently, $\beta = -5.19$, SE = 0.95, $t(2841) = -5.47$, $p < 0.001$. Post-hoc analyses revealed the same pattern of significant results for children with ASD (all p's < 0.030), but not for TD children (all p's > 0.101). Thus the presence of the animals appeared to reduce anxiety for children with ASD, but not for their TD peers.

When the animal was not present, children with ASD showed a pattern of heightened arousal compared to TD children, including in the presence of toys, $\beta = 1.35$ SE = 0.37, $t(2841) = 3.71$, $p < 0.001$, reading aloud, $\beta = 1.02$, SE = 0.37, $t(2841) = 2.37$, $p = 0.006$, and reading silently, $\beta = 1.39$, SE = 0.38, $t(2841) = 3.70$, $p < 0.001$. However, in the presence of animals, children with ASD showed lower arousal than their TD peers, $\beta = -0.92$, SE = 0.36, $t(2841) = -2.57$, $p = 0.010$. The presence of the animal therefore reduced heightened arousal for children with ASD.

All participants reported feeling most positive when they were with the animals. Emotional valence during animal interaction was significantly more positive than any other activity, including toys, $t(98) = 5.91$, $p < 0.001$, reading aloud, $t(98) = 10.01$, $p < 0.001$, and reading silently, $t(98) = 7.92$, $p < 0.001$. There were no significant differences in reported emotional valence between children with ASD and their TD peers, all t's (97) < 1.54, all p's > 0.127.

Conclusion: The presence of animals is related to a reduced autonomic indicator of anxiety in children with ASD. Although children with ASD demonstrate heightened anxiety in most social situations, the presence of an animal appears to have an anxiolytic effect. Further investigation will be necessary to elucidate the mechanism behind stress reduction and best practices for its implementation through Animal-Assisted Intervention applications.

Do blood pressures change differently in pet owners and pet non-owners during their daily lives?

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As the population ages, the number of older adults living with hypertension (HTN) is rising dramatically. Uncontrolled HTN increases cardiovascular and renal mortality and morbidity. Blood pressure (BP) taken in the medical office is not as good a predictor of HTN-related morbidity and mortality as ambulatory blood pressure (ABP). Lower BP is the most important therapeutic goal in HTN. Any reduction in BP has significant benefits for older adults with higher BP. It is well known that the presence of pets influences their owners' BPs. The current study addresses whether the ABP responses of pet owners and pet non-owners differ when pets are not present. This study evaluates the independent contributions of pet ownership, resting BPs, presence of other people, age, mood (happy, distressed), activity level, and location (work) and the contributions of the interactions of pet ownership with these characteristics to ABP during the daily lives of community living older adults. Pets were present during most home ABP assessments (78 %) of pet owners making it difficult to separate the contributions of pet ownership and pet presence to ABPat home. Thus ABPs while in places other than home and without pets present were examined. In a repeated measures observational study of 28 pet owners (25 women, 19 dog owners, 6 cat owners, 3 both cat and dog owners) aged 50–83 years and 28 pet non-owners (25 women) aged 50–85 years with pre to mild HTN, ABPs were recorded every 20 minutes on 3 days. A total of 606 observations of pet owners and 1422 of pet non-owners occurred outside of the home and without a pet present. Activity monitors provided information about physical activity levels for the 20 minutes preceding ABP assessments and diaries provided information about mood, and presence of other people at the time of each ABP assessment. In linear mixed models with random intercepts, the contributions of activity intensity to diastolic ABP ($p < .005$) and to systolic ABP ($p < .001$) differed by pet ownership status. The slope of the increase in BP in response to increasing activity was lower among pet owners than pet non-owners. The reduced elevations in BP as activity increased among pet owners indicate less stress on the heart compared to the BP elevations with similar increases in activity for pet non-owners. The interactions of pet ownership status and the other predictors did not make significant independent contributions to ABP. These results suggest that the relationships of age, resting BP, mood and the presence of other people to ABP are similar among pet owners and pet non-owners.

The effect of lifestyle and animal-care knowledge on adopters' expectations prior to companion-animal ownership

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Human expectations can greatly affect the human-companion animal bond, sometimes putting companion animals at risk for relinquishment. Understanding potential adopters' expectations will benefit animal sources in developing relevant screening and educational programs that can assist in managing adopter expectations and can inform prior knowledge. The intention of this research was to explore the associations between adopter lifestyle and animal-care knowledge with expectations of companion-animal ownership prior to adoption. Participants for this study were recruited by staff at 20 animal shelters across Ontario, Canada. Consenting participants ($N = 234$; 64 male, 169 female, 1 non-specified) completed a questionnaire regarding their current lifestyle, their knowledge of companion-animal care, and their pre-adoption expectations relating to four areas of companion-animal ownership (i.e., animal behavior, adopter sense of responsibility, the human-companion animal relationship, and the effort required in companion-animal ownership). Controlling for shelter (nested in shelter type) in all models, linear mixed regression identified participants planning on adopting a dog had significantly higher ($p < 0.001$) expectations of their animal's behavior than individuals planning on adopting a cat. When controlling for relationship status, individuals interested in adopting a cat had significantly lower ($p < 0.001$) expectations for the emotional benefits they expected to receive from the animal compared to those interested in adopting a dog. Controlling for type of animal of interest, widowed individuals had significantly higher expectations for the emotional benefits of their animal than those who were living common-law ($p < 0.05$), divorced ($p < 0.01$) or married ($p < 0.01$). Similarly, single individuals had significantly higher expectations for the emotional benefits they would receive from their adopted companion animal than divorced ($p < 0.01$) or married ($p < 0.01$) individuals. Controlling for animal-care knowledge, individuals interested in adopting a dog had significantly higher ($p < 0.001$) expectations for the effort required in companion-animal ownership than those planning on adopting a cat. In addition, when controlling for the type of animal of interest, as an adopter's knowledge of companion-animal care increased, their expectations for the effort required in companion-animal ownership also increased ($p < 0.001$). The type of animal of interest during the adoption process appears to play a significant role in adopters' expectations of their future dog or cat. As a result, shelters should pay particular attention to the expectations of dog owners, ensuring that the individual's expectations are realistic at the time of adoption. In addition, it may be valuable for shelters to focus on raising the expectations of people planning to adopt a cat in terms of the effort required and the emotional benefits that can be gained. It would be beneficial for animal sources to explore potential adopters' individual expectations for an adopted companion animal in order to identify and allocate educational resources that are specific to each adopter's needs. Understanding adopters' expectations will help animal shelters better match, educate, and prepare adopters for their lives with their adopted companion animal.

Patterns of owner-dog relationship: MDORS (Monash Dog Ownership Relationship Scale) survey of 2398 dog owners

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The characteristics of the owner-dog bond are important for dog abandonment and relinquishment, as well as being factors in the owner-perceived success of interventions for behavioural problems. In this study we explore the interaction between features of owners and dogs, and aspects of the owner-dog relationship as measured using the MDORS. Respondents completed an online back-translated Spanish language version of MDORS (Dwyer et al, 2006), a validated question to measure general happiness (Cantril's Self Anchoring Ladder, Spanish validated version; Cantril 1965) and questions on the characteristics of dogs and their owners. Participants were recruited using the client databases of veterinary practices belonging to the Spanish Small Animals Veterinary Association (AVEPA) as well as the social networks (Facebook, Twitter and Linkedin) of the Affinity Foundation (a non-profit entity dedicated to promote human-animal bond in Spain). Statistical methods included PCA-HCA (Principal Component Analysis-Hierarchical Cluster Analysis), PLS-DA (Projection to Latent Structures-Discriminant Analysis) and BLR (Binary Logistic Regression).
The survey was completed by 2398 adult dog owners. PCA-HCA of all MDORS item scores together identified two groups within the population. PLS-DA was then used to explore differences between these two groups. A strong model with a single discriminant component indicated that group 1 (24.6 % of the population) showed characteristics of a lower quality of relationship between owner and dog than group 2 (R2X = 0.313, R2Y = 0.634, Q2 = 0.628). Validity of the model was confirmed using analysis of variance of the cross-validated residuals (CV-ANOVA, $p < 1 \times 10–20$) and randomised permutation of group membership. A binary logistic regression model was created to identify owner and dog characteristics that were associated with membership of the high versus low relationship-quality groups. The model passed validation using omnibus tests of model coefficients and measures of R2 (Cox & Snell and Nagelkerke). Six variables, presented here in descending order of influence, were found to contribute significantly to membership of the high relationship-quality group; university level of maximum educational attainment (OR = 14.73, $p < 0.0001$), male owner sex (OR = 10.85, $p < 0.0001$), basic level of maximum educational attainment (OR = 0.036, $p < 0.0001$), male dog sex (OR = 1.68, $p < 0.0001$), dog size 11–25 kg (OR = 1.31, $p = 0.044$) and owner happiness score (OR = 0.81, $p < 0.0001$).
These results show that analysis of systematic variation in the dog-owner relationship, as measured with MDORS, could identify groups with high and low relationship-quality within the tested Spanish population, and that there is an association between relationship-quality and a number of dog and owner characteristics. Owner characteristics, such as the owner's sex and maximum level of educational attainment appeared to be more important than the dog's characteristics. The results could be of interest in a number of areas, including the evaluation of future dog adoption, assessment of populations at risk of owner-dog bond/relationship problems, and education programs to promote responsible ownership and to prevent abandonment and education. The results also have implications for population selection and demographic profiling in studies that incorporate assessments of the owner-dog bond.

The Teddy Bear Effect: owner-perceived cuteness as a predictor of human-dog relationship quality

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Domestic dogs today function primarily as human companions. A strong relationship benefits both parties; however, not all relationships are successful. There is currently no consensus on why some relationships flourish and others fail. Human factors are clearly important, but relationship quality may also be influenced by a dog's personality and/or by its physical features. The present study, approved by the La Trobe University Faculty Human Ethics Committee, aimed to test whether canine appearance or canine personality was a stronger predictor of the quality of the human-dog relationship. In Study 1, 668 dog owners completed: the Monash Canine Personality Questionnaire – Revised (MCPQ-R) (Ley, Bennett & Coleman, 2009), which measures five dimensions of canine personality – amicability, extraversion, motivation, neuroticism, and training focus; the Teddy Bear Scale (TBS), created by the researchers to assess canine cuteness; the Dog Attachment Questionnaire (Archer & Ireland, 2011), which evaluates owner attachment; and the Monash Dog-Owner Relationship Scale (Dwyer, Bennett & Coleman, 2006), which measures dog-owner interaction, perceived emotional closeness and perceived costs. Participants were also requested to submit a photograph of their dog's head with a neutral facial expression. We selected 42 images for inclusion in a second study to validate the cuteness ratings of the dogs. In an online survey, 873 independent participants were presented with one image and asked to rate the dog's appearance using the TBS. Study 1 revealed that owner-perceived physical cuteness was significantly positively correlated with all measures of relationship quality, as were several canine personality dimensions (for each analysis $n = 668$, $p < 0.01$). Perceived cuteness was the strongest predictor of relationship quality in five out of seven standard multiple regression analyses (all $p < 0.05$). In Study 2, owners ($M = 8.48$, $SD = 1.06$) rated their dog more highly than strangers ($M = 6.12$, $SD = 0.56$) on the TBS ($t (62.2) = –12.78$, $p < 0.001$, two-tailed). Contrary to expectations, the strength of relationship between owner and dog was not associated with the degree of difference between owner and stranger cuteness ratings. This suggests that cuteness did not predict relationship quality in Study 1 simply because owners with strong relationships judged their dogs to be substantially cuter than they really were. Instead, it appears that owners almost universally consider their dog to be cuter than do strangers and that cuteness really does go some way towards redicting relationship quality. These findings have implications for those involved in dog breeding, selection and training, as well as shelter management. While experts typically advise potential owners to make choices based on dog behaviour rather than appearance, it seems that physical appearance, particularly cuteness, is a significant factor in predicting successful human-dog relationships.

Pet Dogs and Child Health Indicators

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The impact of routine pet ownership on the mental and physical health of young children is not known, but may be important. The objective of this study is to determine how pet dogs may affect child mental health (MH) and weight status.
In a cross sectional study design, the parents of children, ages 4 to 10, before a well-child visit, completed the DartScreen, a comprehensive web-based screener. The screener domains include child body mass index (BMI), physical activity, screen time, MH indicators and pet-related questions. For families with dogs, the screener includes time spent with the dog being physically active, duration of dog ownership, a Body Condition Scale (BCS) to estimate the dog's weight and the Companion Animal Bonding Scale (CABS) to measure child attachment to the dog. Screen time (TV, computer,video), time spent being physically active with the dog and BCS were compared to child BMI z-scores. Because the "5 2 1 0" obesity prevention message uses < 2 hrs of screen time, screen time was dichotomized as < 2 vs. 3+ hours per day. Dog ownership, dog BCS and CABS were tested for association with child MH indicators, including SCARED-5, a screen for childhood anxiety disorders in clinical settings, Pediatric Symptom Checklist (PSC-17) a screen for childhood psychosocial problems, and child history of mental disorder. At one pediatric clinic in 18 months, the study enrolled 643 children who were 96 % white, 45 % female, 56 % privately insured and 61 % have pet dogs. Mental health results: Using analysis of covariance to adjust for zip code related poverty level, the mean SCARED score was significantly lower among children with dogs (1.13) compared to children without dogs (1.44, $p = 0.006$). Adjusting for poverty level, the mean PSC-17 score for children with pet dogs,11.6, was not signficantly different than 12.2 for children without pet dogs ($p = 0.56$). CABS was not related to SCARED score ($p = 0.37$) or PSC 17 score ($p = 0.33$). There were 26 children (7.6 %) with history of mental disorder who had pet dogs, and 15 (7.0 %) of children with mental disorder history who did not have pet dogs ($p = 0.80$). Weight-related results: The mean BMI z-score among children with pet dogs was 0.57 compared to 0.53 BMI z-score among children without pet dogs ($p = 0.73$). BMI z-score was not associated with BCS ($p = 0.14$) or time being active with the dog ($p = 0.15$). Using regression analysis, attachment score (CABS) was marginally related to child's BMI z-score (beta coefficient = 0.013; $p = 0.05$). Adjusting for poverty level, CABS was not related to the dog's BCS ($p = 0.07$). Screen time of < 2 hours was not associated with dog ownership ($p = 0.97$) or CABS ($p = 0.93$). More time spent being physically active with the pet dog was associated with higher CABS score ($p < 0.0001$).
We conclude that in this setting 1) pet dog ownership may be associated with less child anxiety, 2) higher levels of child attachment to the dog was associated with more time spent being active with a pet dog. However, the child/pet dog associations in this study do not appear to mitigate child BMI, dog BCS or screen time.
This project was supported by Grant Number 1 RO3 NR013873-01 (PI Gadomski, Anne) from the National Institute of Nursing Research, Eunice Kennedy Shriver National Institute of Child Health & Human Development and Mars-WALTHAM® Centre for Pet Nutrition, a division of Mars, Incorporated.

Sharing only kisses – Dog ownership and Staphylococcus aureus

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Pets play an important role in many families and share intimate emotional, social, and physical bonds with their owners. Increasing evidence suggests that pets improve the health of owners. At the same time, there has been concern that pet dogs may serve as reservoirs for colonization with pathogens including Staphylococcus aureus (SA)and methicillin-resistant SA (MRSA). The overall purpose of this study was to determine the impact of pet ownership on the presence of SA and MRSA in members of community dwelling households and to determine whether certain types of human-animal interactions increased the risk. Our first objective was to determine the rate of SA/MRSA colonization among members of pet-owning households compared to members of non-pet owning households.
Individuals living in households with dogs were compared to households without dogs in a cross-sectional, community-based study with the goal of estimating the role of dogs in of SA and MRSA colonization. Four hundred and eighty nine participants in 136 households with at least one child under the age of 18 participated in the study. Among participants, 280/489 (57.3 %) were dog owners and dog owning households accounted for 78/136 (57.4 %) of households in the study with 115 dogs included for an average of 1.5 dogs/household.
An epidemiologic survey of known risk factors for SA/MRSA colonization among humans, dogs, and environmental factors was administered by members of a trained interdisciplinary team. In addition, human-animal interaction was measured using several standardized instruments. Nasal swabs were obtained from humans and nasal and perianal swabs from dogs. Swabs were cultured using standard methods to determine the presence of SA and resistance to methicillin. All SA and MRSA isolates were further characterized using antimicrobial resistance profiles, SCCmec typing, and PFGE to determine their clonal relationship.
SA and MRSA isolates were detected in both humans and dogs, with 35.7 % (SA) and 3.9 % (MRSA) of the dog owners positive compared to 28.7 % (SA) and 1 % (MRSA) of the non-dog owners being positive. The difference between colonization among dog owners compared to non-dog owners was significant for MRSA ($p = 0.04$), but not for methicllin-susceptible SA ($p = 0.06$). Thus, dog owners were significantly more likely to be positive for MRSA (OR: 4.22, 95 % CI: 0.91–39.6, p-value 0.04). Certain human-animal interactions were found to be associated with an increased risk of SA colonization. For example, the only significant item from the Monash Dog Owner Relationship Scale (MDORS) was taking the dog out in the car ($p = .003$), but the risk was non-linear. Certain types of human-dog interactions with visitors were significantly associated with colonization in owners while the majority of owner-dog interactions were not significant. In particular, specific interactions with visitors such as sniffing, nudging, licking visitor's hands or licking visitor's faces was associated with an increased risk of colonization.
None of the dogs in these households tested positive for MRSA, but the increased rate of SA/MRSA in dog owners implies that there may be some confounding factor that is responsible for the higher rate of SA/MRSA colonization of the dog owners. This data suggests that home visitors may play a role in SA/MRSA colonization, possibly mediated through dogs in the household. This study provides empirical evidence that dog ownership is not associated with SA colonization, but it is associated with an increase in MRSA colonization of the household members. The overall rate of MRSA colonization was low and this risk should be balanced against the positive impact that pets have in our lives.

Attachment Classification in Pet Dogs: Application of Ainsworth‘s strange situation and classification procedures to dogs and their human caregivers

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Are dog-human attachments similar to those between human infants and parents? Previous studies with dogs in Ainsworth's Strange Situation (ASSP), originally designed for human toddlers and parents, demonstrate the dog's preference for its caregiver over an unfamiliar adult, but do not definitively show that these relationships function as a secure base and haven of safety for dogs. Additionally, because investigators have relied on behavior coding rather than Ainsworth's original classification guidelines (which reflect patterns of interaction over the eight episodes of the laboratory assessment) they have not revealed coherent individual differences in dog attachment. The current study is the first to address these limitations by closely following Ainsworth's strange situation and attachment classification procedures in a sample of dog-human dyads.
Fifty-nine dyads were recruited for the study via advertisements. Dogs were adult (18 months to 7 years), intact, and healthy; 31 were females. Human caregivers were adult (18 to 60 years of age); 29 were males. All participated in the Strange Situation Test (ASSP) as the third in a series of three videotaped sessions assessing dog-human interaction. During the first session owner and dog were asked to master a challenge task and in the second session dogs were submitted to a short stressful threat, i.e. the silent entry of a stranger in a black cloak and hat, in the presence and absence of the caregiver, in randomly counterbalanced order.
Dog attachment classifications were based on Ainsworth's (1978) behaviourally anchored criteria for secure and insecure relationships (avoidant or resistant) and Main and Solomon's (1990) procedures for distinguishing disorganized from organized attachments. These criteria were modified only to accommodate the behavioral repertoire of the dog. The dog guidelines were developed by experienced infant classifiers working independently with randomly selected cases, followed by consultation and arrival at a consensus. (Final inter-judge reliability will be based on independent classification of an additional 20 cases.) Interim results are as follows: Twenty-two of 31 cases reviewed to date were judged to be classifiable in the Ainsworth and Main & Solomon systems. Twelve of these were classified secure (55 % of 22 reviewed cases); 10 were classified insecure (45 % of reviewed cases). This ratio of secure to insecure attachments is similar to that reported for human infants and mothers. Seven of the insecure cases were classified as disorganized, (i.e., showing evidence of fear, breakdown in the performance of attachment behavior, or dissociation). Three insecure cases were classified as avoidant, a pattern that is not uncommon in human infants, though apparently non-existent among non-human primate infants. Finally, nine of the 31 reviewed cases (29 %) were difficult to classify. Given the species differences, this finding is hardly surprising. All cases (59) will be reviewed completely by the time of presentation. Further refinement of classification criteria by that time is expected to reduce the number of unclassifiable cases substantially. Attachment classification groups will be validated against ratings of caregiver sensitivity in the threat situation.
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Cats and Children with Autism: Do Cats Provide Contact Warmth and Affection?

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This project was based on the proposition that children with autism could benefit emotionally, and perhaps cognitively, from the warmth and affection that might be supplied by an appropriate pet cat. Even the most caring parents cannot be expected to supply the round-the-clock contact affection that might be expected of some cats. Before considering a project where a kitten would be placed with a family that has an autistic child, for study of the therapeutic effects, it was necessary to determine if cats that already share a home with an autistic child can be affectionate and non-aggressive to the child, and if the autistic child likes to hold the cat. This study explored, by structured interview, the nature of pet cat-child interactions in families with an autistic child and one or more pet cats. The goal was to compare the interactions of cats with typically developing children and autistic children. If autistic children were found to interact with a cat, and not provoke agonistic behavior in the cat, our next step is to explore the effects of placing a cats of a breed known to be non-aggressive and very affectionate (Hart and Hart, 2013), with autistic children in cooperating families.

Drawing from the database of the UC Davis CHARGE program (IRB approved), interviews were conducted with the responsible adult in families with one or more pet cats and a child, with autism, autism spectrum disorder (but not autism; ASD), delayed development, or typical development (category not known to the interviewer). The cat-children interactions were classified according to degree of affectionate and aggressive interactions, playfulness with the children and the extent to which children liked holding the cats. Of over 500 registered potential participants, a total of 50 phone interviews were completed; data were scored and then the diagnoses of children, among the four types, provided. Respondents provided data about 17 children with autism, 7 children with ASD, and 13 children designated as being typical in their development. With regard to aggression, 75 % of respondents for autism, ASD, or typical said the cat was never aggressive with the children. With regard to affection, 92 % of cats were at least moderately affectionate to typical children and 70 % to autistic children. For cats showing more affection, the results were 77 % for typical and 41 % for autistic children. Some cats were even very affectionate to autistic children (18%). Playfulness was explored with 69 % being playful with typical and 32 % playful with autistic children. Autistic children liked to hold the cat in about the same proportion as typical children (71 % and 69 %).

The results reveal that these cats were not aggressive, and were generally affectionate, with the autistic children, albeit noticeably less affectionate than with typical children. Autistic children generally liked holding the family cat (some were even "crazy" about the cat). It now seems feasible to explore the therapeutic benefits of placing a well-selected cat (kitten) with a family with an autistic child in a controlled trial.

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Livestock species as companion species: Questioning the place of cows, pigs and sheep in contemporary British society

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While anthropologists have long been concerned with the use of other animals as metaphors for human action, contemporary discussions have moved beyond Levi-Strauss' maxim that they are "good to think", recognising that other animals involved in social relationships with humans are also active subjects in their own right. Donna Haraway for example has written about human bonds with those she terms "companion species". However, Haraway has been criticised for failing to consider the predicament of other animals with whom humans co-exist, most notably those classed as 'livestock'. The category "livestock" allows humans to distance themselves from other living beings. Such separation enables immoral actions to be overlooked, but also makes it difficult for positive associations to be made. There has been much anthropological interest in livestock as they feature as staples in the diets, religious activities and economies of human societies the world over. Pigs for example appear in the ethnographic record as sacrificial offerings, symbols of disenfranchised labour, classificatory anomalies and units of production. In the UK there is a growing trend for keeping pigs (and other livestock species) as pets. Like dogs, pigs are highly intelligent, social animals with a complex emotional repertoire yet unlike traditional companion animals pigs are subjected to extensive legal restrictions which makes keeping them in a manner commensurate with other companion species very difficult. Drawing on three ethnographic case study examples where humans live companionably with animals classified as livestock, this paper questions the value of "species" and "livestock" as classificatory categories and considers the implications of current legislation for the welfare and inclusion of these animals within an anthropocentric, speciesist society. The paper draws on qualitative data collected over a period of 12 years (2001–2013). The primary means of data collection was ethnographic participant observation within a farming community and at a multi-faith ashram in Wales, UK. Additional qualitative data was obtained through informal, semi-structured interviews and participation in online discussion forums/social media groups. In addition to ethnographic observations the data presented in this paper draws specifically on interviews with 10 farmers, 10 monks, 3 pig breeders, 2 RSPCA inspectors and an unquantified number of participants online. The experiences of nonhuman participants have also been taken into account where possible and appropriate. The research demonstrated that keeping animals classified as "livestock" as pets is a widespread activity in the UK. While legislation is restrictive, humans who share their homes with livestock companions will often bend rules and regulations which they feel do not apply to their particular case. The primary reasons for this behaviour are 1. the fact that their livestock companions are not entering the food chain and 2. a belief that current legislation is not fit for purpose. The treatment of animals classified as livestock in the UK is grounded in speciesist taxonomy. The findings of this research demonstrate a need for the generic categorisation of animals to be questioned in light of the diversity of roles which individual members of the same species play in human social lives. While the importance of recognising individuality is now widely accepted in ethology and other related fields concerned with understanding animal behaviour, this has yet to impact on the legislative process in respect of livestock species such as cows, pigs and sheep. It is hoped that the repositioning of these formerly objectified animals as individuals who matter will help to change wider attitudes towards and treatment of the other members of their species.

Dairy goat farmers' attitudes towards goats and interacting with them

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Farmers' attitude and subsequent behaviour towards animals was shown to strongly affect animal welfare and production. The aim of the current study was to survey dairy goat farmers' attitude towards their goats and interacting with them. Furthermore, relationships of attitudes with farmers' behaviour towards goats and their management decisions were investigated.

45 dairy goat farms (78–518 lactating goats) in Austria and Germany were visited in 2008/2009. Attitude, management and housing, milker behaviour and goat reactions towards an unfamiliar experimenter were recorded via questionnaire, interview or direct observation, respectively. Attitude questionnaires of a total of 119 people engaged in caring for the goats (caretakers: 58 female, 61 male, aged between 17 and 68, mean ± SD = 40 ± 12) were analysed. Farm values were calculated for all caretakers and also for a sub-sample of decision makers (N = 75). The attitude questionnaire consisted of 130 items (mainly 7 point Lickert scale) in 4 sections (i.e., beliefs about goats, behavioural intentions regarding interactions during milking, beliefs about importance of interactions, affective attitudes towards interactions with goats) as well as a section of subjective workload. PCA per section resulted in 14 components. To analyse associations, Spearman correlations and linear regression models with forward stepwise procedure were calculated.

In line with earlier findings in dairy cows, the dairy goat farmers' attitudes were associated with their actual behaviour in milking. For example, the higher the positive attitude towards goats the higher was the percentage of positive interactions by the milker (rs = 0,27, P = 0.027, N = 66). Four attitude components were associated with the overall score "Totalgood" which summarises several parameters concerning the quality of management and housing (model: R2adj = 0.24, P = 0.004, N = 44): On farms where decision makers a) agreed more with the component "goats are challenging" (Echalle: ß: 0,26, P = 0.054), b) had a higher subjective workload (subworkl: ß: 0.39, P = 0.007) and c) scored higher on the importance of observing the animals (Aobserve: ß: 0.19, P = 0.168) a higher overall score (i.e. better housing and management conditions for goats) was found, while decision makers' higher agreement with using negative interactions during milking and moving was related to a lower "Totalgood" score (MMVpunish: ß: –0.37, P = 0.011). Lastly, the farmer's attitude was reflected in the behaviour of goats towards humans: The stronger the caretakers' dislike of negative contact with goats (e.g., shouting at goat if necessary; Knegcont: ß: –0.312, P = 0.022) was and the lower the percentage of negative milker interactions (NEG_P: ß: –0.552, P = 0.000), the more animals could be touched in an avoidance test in the pen (R2adj = 0,42, P = 0.000, N = 36).

To conclude, these results indicate the importance of the farmers' attitude for the quality of dairy goat husbandry and by this might offer an opportunity for improvement.
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Effect of positive interactions and disbudding on avoidance distance towards humans in dairy calves

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The human-animal relationship in cattle is an important topic for research due to its impact on welfare as well as productivity. Routine husbandry procedures such as transport or disbudding may lead to an association of humans with stress and/or pain and thus, a deterioration of the human-animal relationship. One possibility for improvement may be positive interactions (PI), such as hand-feeding, tactile or auditory contact, or a combination thereof. We investigated the effect of PI on group-housed dairy calves. To characterize their human-animal relationship, we measured their avoidance distances (ADs), as this parameter provides a simple and reliable way to measure fear of humans. We hypothesized that calves that had been stroked and talked to in a gentle way have lower ADs than calves that did not experience such interactions. Furthermore, we hypothesized that ADs would be higher after disbudding without anesthesia or analgesia. The experiment was conducted at a commercial dairy farm with a herd of 1200 Holstein-Friesian cows. After being kept singly for the first days of life, calves were housed in groups that were combined until reaching a size of 26 animals. Calves were fed milk via an automatic feeding system. Human contact was allowed for both experimental groups if necessary, according to standard commercial farm conditions. PI calves additionally experienced standardized PI (stroking of ventral neck, gentle talking) for 3 min per day during the first 14 days of life, totaling 42 min. In order to measure the AD, the experimenter (female, 178 cm, light brown hair) walked towards a calf at a speed of one step/s, with one arm held out to the front at a 45° angle. AD was estimated in steps of 10 cm. If a calf let itself be stroked for 3 s, an AD of 0 cm was assigned. If it was possible to touch, but not to stroke the calf, it was recorded as an AD of 1 cm. The first AD test was conducted after the PI treatment period (i. e. at 13–3 days of age, groups of 12–13 animals), the second test after disbudding (at 26–41 days of age, groups of 26 animals). Several calves could not be tested on both testing days, and the final sample size was n = 34 for controls and n = 40 for PI calves. Data were square-root transformed for analysis because they were not normally distributed. After treatment, PI calves had lower ADs than controls (medians: control: 42, PI: 15; repeated measures ANOVA: $F(1, 71) = 5.6$, $p = 0.02$). AD was higher in both groups after disbudding than before, and the difference between the groups had disappeared (medians of both groups: 70; testing day ($F(1, 71) = 98.7$, $p < 0.001$, testing day * treatment ($F(1, 71) = 9.2$, $p = 0.003$). The covariate "number of veterinary treatments" also had a significant effect ($F(1, 71) = 5.1$, $p = 0.03$). We conclude that PI indeed improved the human-animal relationship, indicated by the lower ADs after treatment. However, AD increased in both groups to a similar value after disbudding. This deterioration of the human-animal relationship is most probably due to the association of humans with pain experienced during disbudding. Other explanations that cannot entirely be ruled out are an effect of age and an effect of group size. In a future experiment, it would be appropriate to measure AD directly before disbudding to exclude the aforementioned alternative explanations. Nevertheless, the present experiment provides indications that disbudding without pain relief may deteriorate dairy calves' human-animal relationship, which in addition to the immediate pain may compromise their welfare. Furthermore, it demonstrates that PI are a way to improve the human-animal relationship. Further research should determine how long this effect may last in the absence of aversive experiences and whether additional PI after the occurrence of an aversive event can mitigate the negative consequences on the human-animal relationship. This study was funded by the Postdoc program of the Vetmeduni Vienna.

Beef producer attitudes to pain in cattle

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An indicator of poor welfare in livestock is pain and attitudes play key role in assessment and treatment of pain in animals. Cattle are a prey species and have had an evolutionary advantage to show no clear behavioural signs of pain, sickness and weakness. Veterinarians and dairy producers' perceptions about cattle pain have been found to be affected by gender, age and work experience. The aim was to study beef producers' attitudes and perceptions of the painfulness of different cattle diseases and management practices.

A questionnaire about cattle pain and disbudding (destroying of horn buds in calves at age under four weeks old) practices was sent to 1000 Finnish beef producers (response rate 44 %, n = 439). Participants were asked to grade their attitudes concerning disbudding on a five-point Likert scale and perception about cattle pain on an eleven-point scale. A principal component analysis (PCA) was used to assess the factor loadings on four previously found factors from dairy producers (Wikman et al., 2013). Factor loadings were tested for differences between genders (men, n = 293, women, n = 135) with Mann-Whitney U-tests, and Kruskal-Wallis tests were used to assess differences between the producers' age (≥ 55 years, n = 99, 40–54 years, n = 214 and ≤ 39 years, n = 111)and work experience (maximum of 5 years, n = 152; 6–10 years, n = 108; 11–20 years, n = 88; and > 20 years; n = 77). Significant pairwise comparisons were tested with Mann-Whitney U-tests using Bonferroni corrections.

Beef producers' perceptions loaded to all tested factors: Factor I ("taking disbudding pain seriously"), Factor II ("sensitivity to pain caused by cattle diseases"), Factor III ("ready to medicate calves myself") and Factor IV ("pro horns"). Loadings for factors were differing between gender, the producers' work experience and age ($P < 0.05$ for all): Female beef producers have higher loadings than males for factors I, II and III. Older producers (≥ 55 years) had higher loadings for factors II and IV than younger ones (≤ 39 years). Producers who had been working at least 20 years had higher loadings for factor IV than those who had been working maximum of 5 years or 11–20 years.

We found that older and more experienced beef producers had more positive attitudes towards horned cattle than younger or inexperienced producers. Female beef producers assessed pain in cattle higher and have more positive attitudes towards medicating pain in cattle. Older producers were sensitive to cattle pain probably reflecting their experience of cattle diseases previously found to be connected with a higher empathy. Similar to our previous studies in dairy producers, gender, age and work experience of the beef producer affected their attitudes to cattle pain. However, the cultural effect cannot be ruled out. This study was funded by Ministry of Agriculture and Forestry in Finland.

Showing humans where food is hidden: a form of intentional communication in dogs and wolves?

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Various studies have demonstrated that dogs can indicate to their human partners where an interesting object can be found, that is they show showing behaviour. Gaze alternation, coordinate sequences of object-directed behaviour with sequences of behaviour involving a social partner, is an important part of this showing behaviour in dogs. While in humans and apes gaze alternation between an object and a partner has readily been interpreted as a form of intentional and referential communication, in dogs such interpretation of the same behaviour has been strongly debated. Intentional communication, indeed, implies rather complicated mental processes: the sender is assumed to aim at transferring information and to consider the effects his actions can have on the recipient. Some forms of imperative pointing, when an individual wants another to do something for her/him, for example to give them a desired object, has been questioned to represent intentional communication, other forms of it, however, have been demonstrated to reflect the understanding of others' intentions.

In our study we aimed at investigating the underlying mechanisms of showing behaviour in dogs by examining whether they flexibly adjust their gaze alternation and other showing behaviours, to the differential cooperativeness of two human partners. In Experiment 1, after the dogs (N = 21) observed the hiding procedure of a food item in one of three potential hiding locations, they were confronted either with a Cooperative or a Competitive Partner (both ignorant regarding the location of the food). The Cooperative partner has provided food to the dogs in a training session beforehand; however, the Competitive Partner ate the food while the dogs observed her. In the test we found that the dogs showed more gaze alternation and other food-directed behaviours in presence of the Cooperative Partner compared to the Competitive one (glmm: $F1,140 = 14.900$, $p < 0.001$). Moreover, the dogs also used more confusing signals directed at the two empty hiding places or focused even on one empty location in presence of a Competitive Partner (glmm: $F1,162 = 4.590$, $p = 0.030$). These findings suggest that the dogs take into account the former behaviour of the Competitive partner showed in the training and generalise it to the test situation as well. Our findings indicate that the dogs seem to understand the informative value of their behaviour and take that into account when information is necessary and relevant.

In Experiment 2, in order to investigate the effect of domestication on the flexibility of dog-human communication, we repeated the experiment with wolves and dogs raised and kept under the same conditions at the Wolf Science Center, Austria. We found that wolves and pack-living dogs behaved similarly and they both distinguished between the Cooperative and the Competitive partner in their behaviour and showed the food location more often to the Cooperative partner (glmm: pack dogs: $z = –1.877$, $p = 0.061$; wolves: $F52 = 7.730$, $p = 0.007$). However, none of the two groups increased their misleading behaviour towards the competitive partner (glmm: pack dogs: $F101 = 0.33$, $p = 0.58$; wolves: $F53 = 0.17$, $p = 0.70$). We hypothesise that the lack of this behaviour was due to testing the animals with two familiar persons, which was necessary because the wolves had not been accustomed to interacting with unfamiliar persons in the testing room. In this way, however, the former positive experiences of the animals with their two partners might have overshadowed the negative ones gained during training. Therefore, further studies need to compare the misleading behaviour of dogs and wolves.

A wolf-dog difference revisited: When facing an unsolvable problem do they look back at humans after identical raising?

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Looking at a human partner or showing gaze alternations between an object and a human partner is a characteristic behaviour of pet dogs when facing an unsolvable problem. As in humans, help seeking may be a potential function of this behaviour. Regarding its origin, 1) this behaviour of dogs might have been enhanced by selection for increased attention to or dependency on humans during domestication, 2) dogs, during their individual life, seem to learn to look at humans in various situations, and 3) social attentiveness may be part of the within-species-communication of other canids as well. Supporting the domestication hypothesis, after confronting human-raised dogs and wolves with unsolvable problems, Miklósi et al. (2003) found that more dogs looked back at a human partner than wolves and they did so earlier and for a longer duration. In this study, however, in contrast to the dogs, most of the wolves were moved back into their packs two month prior to testing, reducing their contact with humans. Therefore, we used a similar approach to test the human-directed gazing behaviour of dogs and wolves after completely identical raising and similar exposure to humans.

Dogs and wolves were confronted with an unsolvable problem in two tasks. The string-pulling task was identical to the one used by Miklósi et al. (2003). Ten dogs and 17 wolves, at the age of four to five months had to pull a piece of meat attached to a rope out of a cage over six training trials. In a subsequent unsolvable test trial the rope was fixed. The meat in cage task included no training, the animals were simply exposed to some meat that was inaccessible in a cage. 15 dogs and 18 wolves at the age of six months were tested in this task.

While, similar to Miklósi et al. (2003), dogs looked longer at the humans present compared to wolves in the meat-in-cage task (GLM: $F(1) = 9.8708$, $p < 0.01$), no difference was found in the string-pulling task (GLM: $F(1) = 2.011$, $p = 0.169$). More importantly, in the latter, wolves were as likely as dogs to look back (Fisher's exact test: $p = 1$), which was due to more wolves looking back in our study compared to the former one (Fisher's exact test: $p = 0.02$). Also in contrast with former findings, in neither task did the dogs look back at a human earlier than the wolves did (string-pulling task: GLM: $F(1) = 0.578$, $p = 0.45$, meat in cage task: GLM: $F(1) = 0.355$, $p = 0{,}557$). Regarding gaze alternations, we found interesting and unexpected results in both tasks: a significant interaction between species and sex (string-pulling task: GLM: $z = –3.600$, $p < 0.01$, meat-in-cage task: GLM: $z = –2.393$, $p < 0.05$). Male wolves showed fewer gaze alternations than dogs and female wolves. We found no difference between female wolves and dogs.

This latter finding may indicate sex differences either in the social dependency or in the developmental speed of wolves. Regarding the comparison of dogs and wolves, the difference in results of our two tasks may be 1) due to the training trials in the string-pulling that might have increased the persistence of the animals, masking potential differences between dogs and wolves, or 2) due to their older age, assuming that dogs do have a predisposition to pay increased attention to humans, but this difference needs time to develop and, thus, appears at a later age. Other studies on pet and blind-guiding dogs also indicate that individual experience is a prerequisite of human-directed gazing. Further studies are needed to confirm that domestication has influenced the occurrence of this behaviour when encountering unsolvable problems.

Did domestication affect inhibitory control? A comparison between identically raised wolves and dogs on two inhibitory control tasks

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Inhibitory control defined as blocking an impulsive or prepotent response in favour of a more appropriate alternative is considered an important mechanism allowing animals to regulate their behaviour in both social and foraging contexts. Indeed it is likely crucial for various aspects related to dog-human interactions such as training or following social rules. In the current study we tested identically-raised wolves and dogs on their inhibitory control abilities. A number of authors have suggested that through the process of domestication dogs were selected for a less reactive temperament (Hare et al. 2012) or an inclination to accept humans as social partners and suppress their immediate reactions in favour of delayed rewards (Gácsi et al. 2009). Indeed early studies showed that despite similar raising dogs were more likely to respond promptly and in a consistent manner to formal training (Frank & Frank 1983) than wolves, suggesting better inhibitory control abilities. However, inhibitory control has also been suggested to be crucial for predators, and in particular those species engaged in group hunting of large prey (Bailey et al. 2013). Wolves and dogs crucially differ in this aspect, with wolves relying heavily on group hunting and dogs (in free-ranging conditions) showing only mild reliance on hunting, but a strong reliance on static foraging sites (typically human waste areas). Hence based on the domestication hypotheses we would expect dogs to show a better performance in inhibitory control tasks than wolves, vicersa based on the assumption that a species' inhibitory control is strongly affected by its' foraging strategy (e.g. hunting) we could predict that wolves should outperform dogs in experimental tasks requiring this ability. In the current study we tested 16 wolves and 16 pack-dogs on two tasks requiring inhibitory control i.e. the detour task (Pongrácz, et al. 2001) and the cylinder task (Bray et al. 2013). Results from the cylinder task showed a significantly poorer performance in wolves than dogs (N. of correct responses: mean ± SE: wolves: 7.7 ± 0.2, dogs: 9.5 ± 0.6; $U = 41.5$, $p = 0.01$), however opposite results emerged in the detour task, with wolves showing a shorter latency to success (1st trial data: mean ± SE: wolves: 22.41 ± 4.35, dogs: 34.13 ± 5.7; $U = 51.0$, $p = 0.037$), and less perseverative behaviour at the fence (1st trial data: mean ± SE: wolves: 10.01 ± 2.73, dogs: 19.12 ± 4.3; $U = 44$, $p = 0.016$). No correlation between performance in the two tasks was found in neither wolves nor dogs (dogs: rho = 13, $p = 0.69$; wolves: rho = 0.42, $p = 0.14$). These results are intriguing and hint towards the possibility that the two tasks are influenced by different factors. One crucial difference is the prior training of the animals in the cylinder task, which might have led to dogs being more inflexible and simply following previously learned rules (Kubinyi et al. 2003).

Wolves (Canis lupus occidentalis) are at least as cooperative as dogs (Canis familiaris) during leash walking

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A number of hypotheses imply that by domestication dogs have become intrinsically better than wolves in interacting and cooperating with humans (Frank 1980, Hare and Tomasello 2005, Hare et al. 2012, Gacsi et al. 2009). However, this may not be true as wolves are much more dependent on fine-grained social interactions with pack members than dogs, which may also be expressed in their interactions with humans when properly socialized with them (Range and Virányi 2013). We used leash walking with equally raised and kept dogs and wolves as an experimental paradigm to compare the quality of common action of these dogs and wolves with differently familiar humans.

At 8–14 months of age, wolves and dogs were walked on a 8 m leash by 10 persons involved in their rearing: The animals were walked along three 80 m long standard tracks which had to be passed 4 x back and forth. During this, the walker asked the animals twice to do "sit" or "down". Each walker had three walks with each of the animals. From the video-taped walks 125 behavioral variables were coded, such as being attentive towards each other, strained or relaxed leash, leadership human/animal (start walking after a stop, initiating a change in direction), leadership conflict, give/take treat, call close, dyad distance, treats issued per exercise (sit/down), command execution by animal. Data were analysed with GLMMs and non-parametric tests, as appropriate.

Wolves showed significantly more leadership than dogs ($F362 = 34.400$, $p < 0.001$), but leadership conflict occurred more often with dogs than with wolves ($z = –2.297$, $p = 0.022$). The leash was strained more often with dogs than with wolves ($z = –4.133$, $p < 0.001$), but wolves more commonly than dogs explored at some distance from the walker ($F342 = 50.800$, $p < 0.001$). In general, walkers talked more to the dogs and treated them more than wolves ($F357 = 3.36$, $p = 0.07$). In only 10 % of the cases animals showed an imperfect command execution, dogs more often than wolves. In addition, dogs were slower than wolves in responding to the commands ($F368 = 8.690$, $p = 0.003$). Fastest in correctly executing the commands were female wolves, followed by male wolves and male dogs; by far slowest were female dogs ($F365 = 7.950$, $p = 0.005$).

Leash walking is a profoundly dyadic activity: human and dog/wolf performance is not independent from each other. Hence, our results are only valid for the human-canine team. This is appropriate because, in essence, all hypotheses on wolf domestication are social in nature and should therefore be tested in a social context. Our data indicate that the superior coordination of wolves with humans as compared to dogs may be a result of a subtly different performance of the leash walkers, although they were instructed to treat dogs and wolves completely equally.

Still, our data show that domestication did certainly not simply increase the inherent disposition of dogs to synchronize and coordinate with humans or that dogs would outperform wolves in their more "human-like" cognitive skills or to their better attentiveness towards humans and their action inhibition, as proposed by previous domestication hypotheses (Hare et al. 2012, Gacsi et al. 2009). Rather, the "intraspecific canine cooperation hypothesis" (Range & Virányi 2013) is supported. It indeed seems that the fine-tuned social attention and skills that wolves need in organizing their pack life, but dogs do not, also supports fine-tuned interactions with sensitive human partners.

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Animal assisted therapy with maltreated youth: A systematic review and meta-analysis.

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Annually in the U.S., nearly 700,000 youth under the age of 18 are victims of maltreatment warranting intervention by child protective services. Youth who experience maltreatment commonly present in clinical settings with problematic emotional, behavioral, and social functioning. Animal-Assisted Therapy (AAT) has been shown to produce beneficial outcomes for adults with maltreatment histories, and several primary studies have investigated the use of AAT with maltreated youth. However, no systematic review has examined the overall effect of AAT with maltreated youth. This review seeks to account for existing research on AAT with maltreated youth in order to examine the overall effect and potential moderators of AAT with this population. Systematic review and meta-analysis were utilized to examine research on effects of AAT for youth younger than 18 years with a history of maltreatment. To be included, peer-reviewed articles or dissertations must have reported quantitative data on outcomes of AAT intervention with maltreated youth and been published in English. Fifty-five studies were identified through a systematic keyword search of 18 databases. The abstracts of 19 studies were examined; four studies ultimately met inclusion criteria. The four studies meeting inclusion criteria were submitted to systematic review and meta-analysis. Measured outcomes included anxiety, depression, anger, post-traumatic symptoms, dissociation, sexual concerns, functioning, empathy, well-being, coping, and social role functioning. Overall, AAT produced moderate, meaningful, and statistically significant results, Hedge's $g = 0.57$ (C.I. = 0.42–0.72), $z = 7.42$, $p < .001$. However, the overall effect size was unstable as evidenced by high heterogeneity, $Qw (3) = 82.86$, $p < .001$, $I2 = 68.62$. Some moderators were identified, such as how the clinician integrated the animal into treatment. Notably, one study compared whether simply presenting a dog during therapy was as beneficial as presenting a dog plus delivering a structured story-telling approach to purposefully tie the dog to treatment objectives; the more purposeful approach was significantly more helpful, $g = 0.67$ (C.I. 0.52–0.81), $z = 8.78$, $p < .001$. From the available studies, AAT appears to provide an overall positive contribution to the treatment of abused/neglected youth. While having an animal present during therapy provided some benefit, the advantage of a purposeful approach to integrating the animals into therapeutic discourse was linked to dramatic improvements. This review indicates that the method by which animals are incorporated into clinical services has important implications. Further research might explore the conditions under which introducing an animal can be most helpful to maltreated youth. Some caution is warranted in interpreting the results of this review as few studies met inclusion criteria and the included studies often suffered from low rigor. Ultimately, research examining AAT with maltreated youth is in a developmental stage. Additional empirical knowledge could guide a more nuanced examination of AAT with maltreated youth, and could prove helpful to the many youth facing struggles associated with maltreatment.

Behavioral and Physiological Effects of Horse-assisted Therapy for Mother-Child Pairs with Insecure Attachment

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In this study behavioral and physiological effects of equine-assisted early intervention for mother-child dyads diagnosed with an insecure attachment were assessed. Twenty mother-child dyads (median age 27.5 years & 15.5 months) were randomly assigned to either a horse-assisted intervention or a play-intervention. Effects of eight weekly sessions on the mothers' caregiving behavior, their relation to the therapist (video recording) and mothers' and children's stress response (HPA-axis via salivary cortisol and SAM-axis via heart rate and heart rate variability) were analyzed by SPSS.

In the horse group mother-child dyads showed significantly more body contact (Mann-Whitney U: $n = 20$, $Z = -3.780$, $p \leq 0.001$, $r = -0.85$) and vocal exchange (Mann-Whitney U: $Z = -1.814$, $p = 0.038$, $r = -0.41$) than in dyads with play intervention. Mothers in the horse group showed a higher activation level, indicated by higher heart rates (Mann-Whitney U: $n = 20$, $Z = -2.685$, $p = 0.003$, $r = -0.60$) and lower heart rate variability (Mann-Whitney U: $n = 20$, $Z = -2.797$, $p = 0.002$, $r = -0.63$). However, mothers in the play setting spent more time talking to the therapists than mothers in the horse setting (Mann-Whitney U: $n = 20$, $Z = -2.419$, $p \leq 0.001$, $r = -0.54$).

Compared with the play setting, the horse-assisted intervention evidently caused greater stress resp. sympathetic activation levels than the play setting, but still promoted maternal caregiving. Evidently, relaxation is not always the main topic in animal-assisted therapy. In our case, a certain degree of positive arousal in the horse setting seemed to improve mother-child interactions. We acknowledge funding by Mars Germany.

Examining Animal Assisted Interventions for Anxiety and Depression: A Meta-Analysis

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Animal Assisted Interventions (AAI) are being increasingly utilized to help individuals develop certain skills and improve physical, social, and emotional wellness. This meta-analysis examines the effects of AAI on symptoms of anxiety and symptoms of depression as measured by standardized self-report and observational measures, considering pretest-posttest changes within treatment (AAI) groups, as well as pre-post differences between treatment and control groups.

Potential studies were identified through keyword searches of terms related to the topic of interest within research databases, reference lists within identified studies, conference proceedings, journals and other texts featuring AAI studies. The initial search yielded approximately 120 potential studies relating AAI to anxiety and/or depression outcomes. Ultimately, 22 studies met criteria for inclusion in the pool of AAI and anxiety studies, and 28 met criteria for inclusion in the pool of AAI and depression studies. Hedges's g was calculated for pretest-posttest within-treatment effects, and the unbiased effect size using pooled pretest standard deviation, dppc2, was calculated for pre-post-control effects. Because the goal of the interventions was to reduce symptoms of depression and anxiety, negative effect sizes represent a reduction in symptoms.

Based on a random effects model, AAI significantly ($z = -8.06$, $p < 0.000$) reduced symptoms of anxiety from pre- to posttest within treatment groups with a medium-to-large effect ($k = 22$, $g = -0.85$) Similarly, AAI significantly ($z = -6.18$, $p < 0.000$) reduced symptoms of depression from pre-to posttest for individuals within treatment groups, again with a large effect ($k = 27$, $g = -1.01$). In comparing pre-post change scores between treatment (AAI) and comparison groups (no intervention or alternate intervention), AAI reduced symptoms of anxiety in the treatment groups as compared to control groups. Though the effect was much smaller ($k = 17$, $dppc2 = -0.24$) than when considering the treatment group, alone, it was still significant ($z = -2.44$, $p = 0.007$). Similarly, AAI reduced symptoms of depression in the treatment groups as compared to control groups, again with a much smaller effect ($k = 22$, $dppc2 = -0.30$), but still significant ($z = -3.13$, $p < 0.000$).

Animals' roles in intervention conditions varied among studies. In some, the animal played a tangential role, merely present in the space should participants choose to interact. In others, the intervention was structured around guided interactions with the animals. The centrality of the animal in the intervention may, indeed, influence the intervention outcomes. In looking at pretest-posttest within treatment group comparisons, studies in which animals served a central role yielded a large ($k = 22$, $g = -1.00$), significant ($p < 0.000$) effect, whereas studies in which animals played a more tangential role yielded a smaller ($k = 5$, $g = -0.38$), though still significant ($p < 0.000$) effect according to a fixed effect model. This difference was less noticeable in looking at pretest-posttest control group comparisons, though still present. Similar outcomes were evident in looking at the effects of AAI on depression within treatment groups. The results of the current study suggest that AAI have a large and significant effect on symptoms of anxiety and depression for individuals participating in these treatment models. There was a larger range of effect sizes regarding the effects of AAI on depression compared to the effects of AAI on anxiety, though both yielded medium-to-large significant effects within the AAI treatment groups, and small but significant effects when compared to control groups. AAI should be considered a worthwhile complimentary treatment in reducing anxiety and depression symptoms. Additionally, the centrality of the animal in the intervention may contribute to these outcomes.

Animal Assisted Therapy versus Human Interaction in the Improvement of Social Outcomes in Older Adults with Dementia

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There is a growing population of those with dementia and other cognitive impairments. This is attributed to advances in science, technology, and medicine leading to reductions in maternal mortality, infectious and parasitic diseases, occupational safety measures, and improvements in nutrition and education the global population. According to the U.S. Department of Health and Human Services' Administration on Aging (AoA), in the year 2000, approximately 605 million people were 60 years of age or older. By 2050, that number is expected to be close to 2 billion and the prevalence of dementia is expected to quadruple. Animal assisted therapy (AAT) has been used as a therapeutic activity among the elderly to help improve well-being and quality of life, but there is limited research to demonstrate its effectiveness among those with dementia. The purpose of this study was to compare the effectiveness of AAT versus human interaction only on social behaviors and engagement among elderly patients with dementia in long-term care facility. Forty-nine residents with a diagnosis of dementia who had both personal and guardian consent participated in a crossover design experimental design of the effects of animal assisted therapy versus human interaction on positive and negative social behaviors and social engagement outcomes. Following random assignment to groups, the participants experienced two visits per week over a two-week period of either animal therapy visits or human interaction visits. One week with no activities followed then with alternate animal therapy and human interaction visits. Six dogs, ages 2–4 years, trained in AAT, were used to engage the participants. Both large, 36–70 pounds, and small, 12–35 pounds were used in the study. During animal visits, participants were encouraged to touch, pet, brush, and talk to the dogs. The human interaction visits consisted of conversation based on reading from and looking at pictures in a newspaper. For both animal and human visits, a trained observer used a Social Behaviors checklist to record the positive and negative social behaviors at 1-minute intervals for 10 minutes pre, during and post visits. The Menorah Park Engagement Scale was used to rate the level of engagement for each participant at the end of each visit. Analysis was carried out using SAS 9.3 and Anova conclusions were based on an alpha of .05. ATT produced significantly better (increased positive/decreased negative) social behaviors than human visits ($P < .001$). Although the AAT visits demonstrated slightly higher engagement scores, no statistically significant difference was noted. AAT coincides with current goals in long-term care settings – improving in enhancing socialization behaviors among older adults with dementia. In this study, AAT is an activity that increased positive social behaviors and decreased negative social behaviors and may result in fewer incidents requiring staff intervention. Further research is needed to explore other factors where AAT may provide benefit to older adults with dementia, including improvement in the measurement of engagement depth of AAT.

Attitudes towards the implementation of animal-assisted therapy in a Swiss rehabilitation clinic

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Animal-assisted therapy (AAT) was being implemented in autumn 2013 at REHAB Basel. REHAB Basel is a rehabilitation centre for paraplegia and craniocerebral injury trauma patients that treats about 400 patients per year. To implement AAT, a "Therapie-Tiergarten" (therapy animal garden) was built that is in the meantime home to over 40 animals that are trained for the encounter and use during therapies with patients with paraplegia or brain injuries. Before that, there had been a phase of intensive engagement of a small team at REHAB with the subject of animal-assisted therapy. To implement an animal-assisted therapy program successfully in a clinic, it is essential to involve the whole staff step by step and to carefully analyse the expectations and needs of all involved parties. We therefore carried out an assessment of the attitudes of the staff at REHAB Basel as well as the collection of possible concerns and anticipated problems. To do so, a questionnaire was administered at a very early stage, where there had not been much communication about AAT with the staff at the clinic. The questionnaire consisted of 16 standardised questions (a likert scale with six possible answers from "not at" all to "very much") and 6 open questions to assess the staff's actual knowledge about AAT and their expectations of implementing it at the clinic. The questionnaire was distributed among all employees at REHAB Basel. 103 questionnaires were filled out and analysed using SPSS. Descriptive statistics were used to analyse answers. Most of the employees that filled out the questionnaire were therapists (41 %), followed by nurses (36 %) and doctors (4 %). 30 % of the staff stated that they knew little or nothing about AAT, 70% had already heard about AAT, but only 13 % wrote down concrete examples of what AAT is. A great majority of the staff (76 %) thought it was positive to implement AAT at REHAB Basel and 91 % found it positive to use animals in therapy. Only 8 % of the staff were critical and 1% negative. 86% of the staff stated that it would be a valuable addition to the existing therapeutic concept. 30 % of the staff anticipated problems of hygiene and 38 % feared problems like injuries and bites. The open question on what problems could occur revealed the following statements: none (19 %), organisation and handling (18 %), allergies and injuries (13 %) and problems of hygiene (10 %). But also the potential attraction of other people in front of the building and financial concerns were stated often. 77 % of the employees have themselves a good or a very good relationship to animals. Results show that many of the therapists, doctors and nurses have already heard about AAT before, most often through media or colleagues. Most of them have positive expectations and a lot of goodwill regarding implementation of AAT at their workplace and see a benefit for the whole therapeutic concept at REHAB Basel. But the questionnaire reveals also that a majority of the staff have very little knowledge about what AAT actual is. Although only 9 % of the employees had critical or negative attitudes towards AAT, more than a third of the staff was concerned about hygiene and injuries and bites each. This must be taken into account during implementation. This study shows that it is crucial to analyse the staff's expectations and concerns before implementing AAT in a clinic. Based upon such information, communication and further education of the people involved can be planned and optimised. A follow-up study with the same questionnaire in a year and in three years is planned to assess if the attitudes of directly, but also only indirectly involved staff members change.

Participant Characteristics and Outcomes of the Walk a Hound Lose a Pound program over Five Years

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The Walk a Hound Lose a Pound (WAHLAP) program was a community based intervention developed to encourage physical activity by utilizing the potential social support provided by friendly dogs in need of exercise. Community members walked dogs from the local humane society every Saturday morning from the first weekend of April through the last weekend of October.
This is a study of the data collected from the first five years of the WAHLAP program. The study aim was to gain insight into who was likely to participate in and benefit from the program. The first research question asked whether demographic factors, specifically gender, age, the familial relationships of children and marital status, were associated with participation (as measured in number of weeks an individual participated) in the program. A second research question asked whether participants who were current pet owners were more likely to participate than non-pet owners. We hypothesized that participation in the program would be associated with a decrease in Body Mass Index (BMI), along with an increase in physical activity stage of change (PASOC, a measure of an individual's intention to exercise).
A total of 281 people participated in the study; the majority of participants were women (n = 225; men n = 56). Participation was measured in number of weeks data were collected for each participant. The average number of weeks participated was 3.91 (n = 280, SD = 3.74) and ranged from one to 25 weeks. A multiple regression analysis with the independent variables of age, gender, marital status, and number of children found that greater age in years, $\beta = .081$, $t(275) = 4.61$, $p < .001$, and having fewer children, $\beta = -.639$, $t(275) = -2.81$, $p = .005$ were significant predictors of participation. A factor analysis indicated age accounted for 41.74 % of the variance predicted in the multiple regression, while number of children accounted for 21.4 %. One hundred and eighty-eight participants (66.9 %) were current pet owners. A logistic regression did not find pet ownership to be a significant predictor of participation.
The sample's mean BMI at baseline was 25.89 (n = 247, SD = 5.32, range = 17.19–44.0) and 25.8 (n = 247, SD = 5.38, range = 17.13–42.04) at posttest. The mean change score was –0.09 (n = 244, SD = .76, range = –3.19–2.50). A regression analysis found the independent variable of number of weeks participated accounted for a significant amount of the variance ($\eta 2 = .079$) in BMI change score, $F(1, 242) = 21.9$, $p < .001$. A Pearson correlation indicated participation in the program was associated with changes in PASOC scores, $r(255) = .179$, $p = .004$. A regression analysis found the independent variable of number of weeks participated accounted for a significant amount of the variance ($\eta 2 = .032$) in PASOC change score $F(1, 255) = 8.441$, $p = .004$. A paired samples t-test indicated that PASOC score at posttest (M = 5.08, SD = 1.85) was significantly higher than at baseline (M = 4.67, SD = 2.05), $t(255) = -6.97$, $p < .001$.
WAHLAP was a successful intervention for both people who currently lived with a companion animal and those who did not. Involvement in the program was associated with decreased BMI and an increase in the behavioral intention to exercise. The WAHLAP model has the potential to be implemented and to benefit the well-being of a wide range of communities.

Data on dogs registered in California for assistance dogs identification tags

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Assistance dogs in the United States perform tasks tailored to their handlers' different needs. Despite several terms for describing those dogs, we use "assistance dogs" to include guide dogs, hearing dogs, and service dogs (service here refers to all disabilities except visual or hearing). With no mandatory registration system for assistance dogs in the U.S., this information offers a unique view of the demographics and specific roles of California assistance dogs.
Assistance dog identification tags (ID tags) are issued in California for the handlers or trainers of assistance dogs, e.g., by animal control agencies (Food and Agriculture Code). The applicants provide information regarding their dogs, such as breed, gender, type of assistance, and tasks the dogs perform. We requested and acquired these data to study the trends of assistance dogs over time in California to understand evolving patterns in uses of assistance dogs.
Among 290 animal control agencies listed in the California Animal Control Directors Association, we reached 269 agencies. Of these, only 118 issued ID tags and of these, 62 agencies provided the data concerning 1999 through 2012, pertaining to 7,253 registered dogs. The acquired information somewhat differed among agencies, thus the denominators differ with specific research questions.
Among dogs for which categories of assistance were available (guide, hearing, and service), most were service dogs (87 %; 2,472/2,830). Initially, in 2002, a strong majority of service dogs assisted with mobility (80 %; 19/24), but a decade later, in 2012, only about half of the dogs helped with mobility (51 %; 42/83). Across that decade, the dogs assisting with psychiatric, medical, and emotional needs accounted for a growing proportion of registrations. The numbers of guide dogs and hearing dogs were stable over the years, whereas the numbers of service dogs in various other roles skyrocketed until 2009, and then decreased slightly.
There were 170 different breeds described as the main breed types. Examining the sizes of the dogs based on the breed types (n = 2,656), we found that the use of small dogs (breeds such as Beagle and Shetland sheepdog or smaller breeds: approximate height – 17 inches (43 cm) or less; weight – 35 lb (16 kg) or less, increased dramatically over the years. By 2009–2010, the proportion of small dogs exceeded that of large dogs. Small dogs made up a higher proportion of each of the newer uses of dogs, as in assisting with psychiatric (55 %; 52/94), medical (33 %; 13/40), emotional (61 %; 25/41) and hearing disabilities (52 %; 36/69), compared to dogs assisting with mobility (14 %; 21/153) and visual disabilities (6 %; 9/162). When dogs were registered for the first time, 45 % (2717/6024) were already older than 4 years.
The great diversity of dogs with regard to breeds, sizes, and ages indicates that most of these assistance dogs were trained by the handlers or private dog trainers rather than assistance dog training organizations, which usually breed/train specific breeds, and place the dogs when they are just a few years of age. For the handlers who primarily seek the presence of a dog itself or realize the innate ability of their pet dogs to assist with their disabilities later on, the convenience of taking care of a dog, or even just their preference for a certain breed would have been more important factors in choosing their dogs, rather than the dogs' traits for assisting, such as trainability, temperament, and body size. This could explain the higher proportion of small dogs in the newer roles. Also, the growing transition toward small dogs suggests that what people seek for their current assistance dogs, especially for the newer roles of assistance dogs, is converging with what people seek for their pet dogs.

Offender Outcomes of Training Dogs in Prison: the Puppies for Parole Program

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Introduction: In 2012, over 6.9 million offenders were incarcerated in United States correctional facilities, with high levels of violence internally and a 25 % recidivism rate (U.S. Dept. of Justice, 2012). This demonstrates a need for effective rehabilitation programs. One potential intervention involves human-animal interaction (HAI) programs. HAI programs have been shown to be beneficial to offender participants; however, these reports are largely anecdotal with limited evidence from reliable and systematic measures illustrating the extent of the benefits HAI programs have for offender participants.
Objectives: The goal of this study was to investigate to what extent offender participation in a shelter dog obedience training program was associated with self-esteem, locus of control and person factors (self-perceived health, requests for medical services, conduct violations, and grievances filed). Additionally, we were interested in the offenders' perceptions of their participation in the program. This study involved partnership with the Missouri Department of Corrections "Puppies for Parole" (P4P) program, which aims to provide prison offenders the opportunity to train and interact with dogs from local animal shelters, as well as rescue unwanted/abandoned dogs that may otherwise be euthanized.
Methods: A non-random, two-group, pre/post-test experimental design was used in 4 Midwestern all-male correctional facilities with a treatment group (TG, dog trainers) and control group (CG, offenders receiving usual standard of care). Offender dog trainers were required to apply to be P4P participants and meet specific inclusion criteria. Dogs lived with offender trainers while undergoing basic obedience training weekly for 8 weeks led by a certified dog trainer to the AKC Canine Good Citizens (CGC) level. Data collection occurred at three intervals (baseline, 8 and 16 weeks). Instruments used included a Demographic Questionnaire (DQ), Self-perceived health scale, Coopersmith Self-Esteem Inventory (SEI), Rotter I/E Locus of Control Scale (LOC), and Dog Relationship and Perception scale (only completed by dog trainers). Personal factors, including requests for medical services, conduct violations, and grievances filed were also collected for both groups.
Results: Three-hundred-eleven offenders were enrolled in the study; n = 137 dog trainers (mean age = 34.4 years) and n = 174 control group offenders (mean age = 34.7 years). Most offenders were Caucasian (TG = 70 %, CG = 59 %), never married (TG = 42 %, CG = 44 %), and had completed the equivalent of a high school education or less (TG = 74 %, CG = 80 %). Preliminary findings for the self-esteem and locus of control scales have been evaluated. TG baseline (n = 137): LOC mean = 15.01, range = 7–23; SEI mean = 67.97, range = 24–88. TG 16 week (n = 89): LOC mean = 15.02, range = 7–22; SEI mean = 69.45, range = 16–88. CG baseline (n = 174): LOC mean = 16.03, range = 10–24; SEI mean = 65.67, range = 12–88. CG 16-week (n = 92): LOC mean = 16.23, range = 9–23; SEI mean = 66.91, range = 16–92. Data on self-rated health scale and personal factors are currently being analyzed and will be presented.
Discussion: The P4P program provides a mutual benefit to the offenders, dogs, and community by helping offenders develop skills that support successful rehabilitation and prevent reentry, as well as provide well-trained, loving, and socialized family dogs. The P4P program could potentially set the standard for HAI programs in the prison setting by serving as a model for other U.S. Department of Corrections.

Community perceptions of the needs of owned versus roaming dogs in two Bosnian municipalities

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The United Nations Development Program (UNDP) Security Forums in Sanski Most and Lopare, Bosnia identified roaming dogs as a high-priority human security threat requiring community intervention, although the source of dogs and human attitudes contributing to the problems were unclear. In order to better understand the underlying issues contributing to the perceived community threats, UNDP, in collaboration with the International Fund for Animal Welfare (IFAW), conducted a modified Knowledge, Attitude and Practice (KAP) survey in each community. Focus groups were also conducted to help complete a picture of the relationship of each municipality with its roaming dogs.
In Lopare, a municipality of 15,586 people, made up of 22 rural and 3 urban communities, a total of 267 surveys were conducted. In Sanski Most, a municipality of 47,359 people, a total of 271 surveys were conducted. The surveys were conducted in person, door to door at a random sampling of households over three consecutive days. Focus group exercises were conducted separately over two days in each municipality in the form of participatory community stakeholder workshops designed to gain community input and insight into the nature of each community's concerns.
Survey results in both municipalities demonstrate strong divergence in perception of the importance of basic resources for owned vs. roaming dogs. In Lopare, 94 % of the respondents said that fresh water was essential for owned dogs, while 72 % believed water was essential for roaming dogs; 93 % of the respondents reported that fresh food was essential for owned dogs while 67 % believed that fresh food was essential for roaming dogs.
In Sanski Most, 96 % of the respondents believed fresh water was essential for owned dogs with 80% giving the same score for roaming dogs; 95 % or those surveyed reported that fresh food was essential for owned dogs, while 79 % felt that fresh food was essential for roaming dogs with 8% giving a score of very unimportant.
Interestingly, those surveyed in both communities made almost no distinction between owned and unowned dogs when asked about the importance of vaccination and identification.
Survey responses were inconsistent with regard to how often dogs were allowed to roam outside the home. In Lopare, 34 % of the respondents reported that their dogs ran freely at least some of the time, but 80 % of the respondents also reported that their dogs were always in their own garden. Focus group results in both communities, however, identify owner abandonment and owned-but-roaming dogs as potentially key sources of roaming dogs.
These results indicate that the perception about a dog's needs is based on its physical location, rather than on physiological need. The perception shift that occurs when an animal leaves the home sheds light on the perception of "dogs as problems". Although some portion of those dogs are likely owned or recently owned, they are perceived as less deserving of basic care when not attached to a human. These insights have significant implications with regard to rehoming efforts and other future management options.

Attitudes towards wolves (Canis lupus occidentalis) and dogs (Canis lupus familiaris) in Austria

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While many humans share and enjoy their lives with dogs (in Austria ~700,000 dogs live with 20 % of the human population), the relationship to the ancestor of the dog, the wolf, appears to be ambivalent. Despite of their taxonomic closeness, it seems that people have very different attitudes towards dogs or wolves. This is relevant in line of the various cultural historic shifts in attitudes caused by the socio-economic level of development and ideological and religious factors. In addition, attitudes are also an important background for managing the comeback of wolves and for our living together with dogs. Still, little is known about attitudes towards wolves, particularly also in direct comparison with attitudes towards dogs. For this reason, 2,750 people living in urban and rural Austria completed a questionnaire survey containing 30 questions about wolves and 33 questions about dogs, developed in collaboration with high school students and featuring several attitude dimensions towards wolves and dogs (knowledge, ecological/social roles, empathy, caregiving, spirituality).

Principal Component Analyses (PCA) were carried out separately for dogs and wolves. In dogs, the first five components (explaining ~42 % of variance; KMO = 0.95) were F1: feeling good in active help and caregiving; F2: dogs as helpers; F3: dogs as empathic partners; F4: satisfying the dog´s needs; F5: problems with the dog. In the components F1 and F4, a gender dimorphism was found (Mann-Whitney Test with factor scores at $p < 0.001$): women were more likely than men to state that a dog increases one's own well-being (Mann-Whitney Test: $p < 0.001$; $r = 0.2$) and that dogs needed a regular health check (Mann-Whitney Test: $p < 0.001$; $r = 0.12$). In wolves, the major components (explaining ~50 % of variance; KMO = 0.904) were F1: active care and protection; F2: actively and spiritually relating to wolves; F3: wolves as ecological factors; F4: superior adaptability/sociability of wolves within the pack; F5: comeback of the wolves. For the wolves, all components were significantly different between women and men (Mann-Whitney Test, at $p < 0.01$). For instance, women experience wolves more than men as "magic spirits" (Mann-Whitney Test: $p < 0.001$; $r = 0.09$). Women also stated more than men that they would actively participate in the conservation of wolves through distribution of flyers (Mann-Whitney Test: $p < 0.001$; $r = 0.15$) or as a volunteer at the Wolf Science Center (Mann-Whitney Test: $p < 0.001$; $r = 0.2$).

Our results indicate that attitudes towards dogs were more in the area of relationship, whereas attitudes towards wolves split into the will for active care for wolves, with a strong mystification of the wolf as well as a rational axis, i.e. wolves as an ecologically important factor. Also, our findings suggest for the first time that a gender-specific information process and conflict management might be advisable when informing about dogs or wolves. Funded by the Austrian Science Ministry ("Sparkling Science" SPA/04/2012).

Pet attitude, self-esteem and personality in female professionals for animal-assisted interventions

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A diverse range of people including psychologists, teachers, physicians, psychotherapists, nurses, etc. can apply animal-assisted interventions (AAIs) with dogs to their work. AAI professionals work within their scope of practice and experience with one more therapy animal(s) integrated as an adjunct in a goal-directed intervention. Human-animal interaction research predominantly relies on self-reports of pet owners. The aim of this study was to investigate differences between AAI professionals, dog owners and non-dog owners regarding pet attitude, self-esteem and personality. We gathered demographic data (including age, family status, education, current and previous pet/dog ownership) and employed standardized self-report instruments. Study participants (all female) received the Rosenberg self-esteem scale (Rosenberg, 1989), the "Pet Attitude Scale" (Templer et al., 1981) and the "NEO-FFI" (Costa & McCrae, 1992) to determine the "big five" personality dimensions. The first group consisted of academically trained AAI professionals (N = 30) who regularly participate in AAIs with dogs. Dog owners (N = 30) and non-dog owners (N = 30) without any academic training or working experience in AAIs served as control groups. One-way ANOVA with post hoc comparisons was carried out to detect significant differences between the groups. The groups did not differ in any demographic variables. All three groups differed significantly from each other in their pet attitude ($F(2.89) = 25{,}718$; $p = 0.000$) with the highest scores in AAI professionals and the lowest in non-dog owners. AAI professionals had higher self-esteem scores than non-dog owners ($F(2.88) = 3.248$; $p = 0.044$). In addition, the results indicated significant differences in the dimensions "Openness to experience" ($F(2.89) = 7.004$; $p = 0.002$) and "Agreeableness" ($F(2.89) = 1.805$; $p = 0.004$) where dog owners scored higher than AAI professionals and non-dog owners. In addition, dog owners scored higher on the "Conscientiousness" ($F(2.89) = 3.661$; $p = 0.030$) scale than AAI professionals. Regarding the dimensions "Neuroticism" ($F(2.89) = 0.046$; $p = 0.955$) and "Extraversion" ($F(2.89) = 1.611$; $p = 0.206$), no significant effects were found. The present results and earlier studies indicate that pet attitudes, self-esteem and personality traits may affect and/or be affected by choice of dog ownership and AAI expertise.

Belief in human-animal continuity and animal directed empathy: a study on Italian veterinary students

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In recent years, the interest in human-animal interactions and animal welfare has rapidly grown and a number of studies have investigated how different variables affect human-animal interactions and humans' attitudes towards non-human species.
Beliefs in animal-human mind continuity and empathy towards animals appear to be important in shaping the human-animal relationship and in determining the way animals are treated and cared for.
Veterinary medicine plays a central role in animal welfare and has been recognized as a highly caring profession, especially in companion animal practice: in fact, it requires to care for both the "client" (a human being) and the "patient" (a non-human being) and to be sensitive to the emotional nature of the pet-owner relationship (Paul & Podberscek, 2000; Mitchener & Ogilvie, 2002). However, some studies suggest that veterinarians, but also veterinary students, show a decline in empathy and an increasing tendency to see animals in Cartesian terms as they progress in clinical experiences and medical education (Paul and Podberscek, 2000).
In the current study we used the Human-Animal Continuity Scale (Templer, 2006) and the Animal Empathy Scale (Paul, 2000) to assess beliefs in animal-human continuity and empathy towards animals in a sample of first year (n = 131, 34 males, 97 females) and last year (n = 158, 44 males, 114 females) veterinary students of the University of Milan (Italy). There were significant differences between first and last year veterinary students in their beliefs in animal-human continuity (ANOVA; $F[1,270] = 11.8$, $p < 0.01$, $h\ 2 = .04$): in particular, last year students showed a weaker perception of continuity (mean = 61.9 ± 9.4) than first year students (mean = 64.7 ± 8.2). Moreover, male students' score was lower (mean = 59.9 ± 11.1 versus mean = 64.3 ± 7.9; $F[1,270] = 10.8$, $p < 0.01$, $h\ 2 = .04$) and its drop from first to last year (mean = –6.9 ± 2.2 versus mean = –1.34 ± .1) was significantly more dramatic ($F[1,270] = 5.4$, $p > 0.05$, $h\ 2 = .02$). Furthermore, we found evidence of a clear decline in empathy towards animals ($F[1,283] = 24.2$, $p < 0.01$, $h\ 2 = .08$), with first year students scoring significantly higher (mean = 157.5 ± 18.1) than those at the end of their academic training (mean = 145.2 ± 23.4). Finally, although a decrease in empathy over time was observed in both male (mean = –16.5 ± .1) and female (mean = –10.5 ± .2) students, females always scored higher in empathy (mean = 155.1 ± 19.9 versus mean = 138.9 ± 23.3) than males ($F[1,283] = 32.9$, $p < 0.01$, $h\ 2 = .11$).
Overall, these findings indicate that beliefs in animal-human continuity varied over time and, in line with previous literature, support the evidence of a decline in animal-directed empathy in veterinary students' as they progress in their university education and training. Given the relevance of empathy in determining positive and constructive interactions with animals and in caring for their welfare, the possible reasons underlying this decrease need further investigation.

Dogs on campus to reduce student stress during exams: An initial study of student diversity in attendance and perceived benefit

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Examination-related stress experienced by college students is associated with negative academic performance, increased physiological stress and immune dysregulation (Marshall, 1998; Preub et al. 2010) . Interventions with some reported efficacy addressing exam-related stress include yoga, mindfulness, and self-hypnosis (Gopal et al., 2011; Gruzelier et al.,. 2001; Shapiro et al., 1998). Such approaches require training that can be costly and time consuming for students, resulting in limited participation.

Media reports support the popularity of dog visits on campus during exams; however, no formal studies have been published. Activities with visiting dogs are low in cost, require no student training, and are easily accessible, providing a potentially cost-effective intervention with broad student appeal. But are they attractive to and beneficial for the diverse college student population? The purpose of this study was to investigate student diversity in attendance and response to a university-sponsored campus activity with dogs on its two campuses during final exam week. Primary areas of interest were gender, racial and ethnic differences in college students attending a campus activity with dogs and pre-post changes in perceived stress levels, assessed on a Stress Visual Analog Scale (SVAS). Seven members of the university hospital's therapy dog program provided the activity.

Student attendance exceeded prior events without dogs by over 1300 %. A total of 790 students participated in the study and almost all (95 %) physically interacted with the dogs. Based on comparisons with university diversity data, findings show a racially and ethnically, but not gender, diverse student group attended the activity. Females (74 % of attendees) were overrepresented ($\chi2 = 95.41$, $p < 0.0001$). A significant decline ($t = 35.30$, $df = 693$. $p < 0.0001$) in pre-post SVAS scores and a large effect size ($d = 1.34$) indicate reduced perceived stress for students following the activity. Females ($t = 2.37$, $df = 279.97$, $p = 0.0186$, $d = 0.22$) and pet owners ($t = 2.82$, $df = 692$, $p = 0.0050$, $d = 0.22$) had greater stress reductions; however, no racial or ethnic differences in stress level changes were found. Comments entered on 84 % of post-surveys were content analyzed using NVIVO 10 software and were overwhelmingly positive. Major content themes in comments were endearment related to the dogs and/or activity, appreciation for the activity, and the desire for more such activities.

These results and the large student turnout provide initial support for utilization and further investigation of campus dog visits in reducing exam-related stress for college students with diverse backgrounds.

Analysing two instruments to evaluate AAT: CSAWPBS (Center for the Study for Animal Wellness Pet Bonding Scale) and MOPI (Measurement of Pet Intervention) scales

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One of the main objectives of human-animal interaction research is to demonstrate the benefits of animal assisted therapy (AAT). It is therefore important to find effective and reliable instruments that can be used to assess the effects of AAT. The aim of this study was to check the convergent validity between two commonly used scales in AAT: CSAWPBS (Center for the Study of Animal Wellness Pet Bonding Scale), which measures the intervention from patient's perspective, and MOPI (Measurement of Pet Intervention), which measures the intervention from the therapist's perspective (Anderson 2007). CSAWPBS is designed to evaluate a patient's perception of the AAT programme in terms of unconditional acceptance from the animal, feelings of reciprocity and feelings of attachment to the animal. MOPI rates the effect of AAT on client functioning based on 4 items assessed by a professional observer: attention span, physical movement, communication and compliance.
The population for this study was a group of 14 patients with schizophrenia enrolled in a programme for 40 1-hour AAT sessions. CSAWPBS was completed by patients after the 10^{th}, 20^{th}, 30^{th} and 40^{th} AAT sessions. MOPI was completed by a psychiatry nurse during each of the 40 sessions. CSAWPBS has 5 factors: perceived attitude of the dog to the patient, perceived feelings of the dog for the patient, patient's attitudes towards the dog, positive patient's feelings for the dog, and negative patient's feelings for the dog. The data having been found to be non-parametric (Shapiro-Wilk test for normality), analysis of the change of MOPI scale item and CSAWPBS factor scores during the study period was performed using the Friedman test with Dunn's post-test comparison. CSAWPBS and MOPI data were compared using non-parametric Spearman correlation.
CSAWPBS results showed positive patient perception throughout the programme, with no significant differences between the 4 time points (sessions 10, 20, 30 and 40) (Friedman = 6.633, $p = 0.0846$). MOPI results showed high scores for all 4 items throughout the whole programme, although significant variation was found between time points during the programme ($p < 0.05$). When comparing the results of CSAWPBS and MOPI scale, we found a significant correlation between the 4 items of the MOPI and the final score of CSAWPBS ($p < 0.05$). Correlations were also found between several MOPI items and CSAWPBS factor scores. All MOPI item scores were highly correlated with the perceived attitude of the dog towards the patient ($r = –0.3$, $p < 0.05$) and with the patient attitude towards the dog of CSAWPBS ($r = –0.3$, $p < 0.05$). Patient's positive feelings towards the dog (CSAWPBS factor) were highly correlated with physical movement item of MOPI scale ($r = –0.4$, $p < 0.0001$).
High correlation between MOPI items and CSAWPBS factor scores can be interpreted as an indicator of convergent validity. Since MOPI is a measure of the therapist's observation and CSAWPBS reflects the self-evaluation of patients, a high correlation between these instruments may be interpreted as an indication of agreement between the therapist and patients with respect to their evaluation and perception of the positive outcome of the AAT program.
We may also infer that a patient's feelings for the dog (CSAWPBS) may have a strong relationship with a patient's behaviour during AAT sessions (MOPI). To conclude, these results help to reinforce the applicability of two instruments (CSAWPBS and MOPI) to evaluate AAT for serious mental disorders.

Does physical contact or dog breed affect memory performance?

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Previous research in human-animal interaction (HAI) has revealed a potential mediating influence of companion animals on human physiological responses to stressors and anxiety, as well as improvements in mental, social and physiologic health. Animals are commonly incorporated into classrooms to reduce stress and anxiety and enhance performance. The presence of a dog has been associated with improvements in measures of cognition and other educationally relevant variables in preschool children. Memory is vital to human cognition and considered a traditional indicator of learning. Working memory (WM) is theorized to represent a general resource that plays a critical role in the execution of a wide variety of cognitive tasks. It is well established that performance on measures of WM is predictive of academic success. Studies that investigate the effects of companion animals on health and behavior include a variety of animal-related situations including pet ownership, the presence of companion animals, and touching or interacting with a variety of companion animals. Most experimental HAI research uses dogs, however the characteristics of the dogs vary widely, and little attention has been paid to the potential impact of these differences. The current study was designed to compare the impact of physical contact with and the presence of a dog or a person on the performance of a WM task and to evaluate whether the impact differed for different dogs. College students (N = 31, age 18–23 years, (M = 19.97) performed a WM task in five counterbalanced conditions; dog-touch, dog-no-touch, person-touch, person-no-touch, and none. Participants were randomly assigned to one of two dogs; Miniature Poodle (N = 16) or Border Collie (N = 15). The WM task completed in each condition consisted of replicating increasingly complicated sequences of colored lights by touching the colored lights on an iPad in the same order as they were displayed by the application. The WM score was the number of colored lights in the last sequence replicated correctly. Participants were required to use their dominant hand for the task performance and their non-dominant hand for physical contact with the dog or person.
A linear mixed model analysis with random intercepts indicated that there was a significant interaction between collaborator and touch ($p < 0.05$). The highest WM scores were recorded without touch when either the person or the dog was present. The lowest WM scores were recorded when the participant was touching a dog. A second linear mixed model analysis examining differences in WM scores with the two different dogs revealed no significant interaction between dog breed and touch; the significant contributions of touch ($p = 0.027$) and dog breed ($p = 0.042$) were independent of each other. On average, WM scores were 2.3 sequences lower when the Poodle was present than when the Border Collie was present and 1.8 sequences higher when the dog or person was present but not being touched than when the dog or person was being touched during the WM task.
These results indicate that memory performance is enhanced when either a person or a dog and person are present as observers. This finding is consistent with previous research demonstrating facilitation of performance by the mere presence of an observer. The results also indicate that WM performance is reduced during physical contact with a dog or a person, but this effect was larger for a dog. If there is a beneficial effect on cognition from a dog, it appears that physical contact with the dog is not a desired element of the interaction. The results also indicate that aspects of the dog (e.g., breed) are also likely to be a factor and do impact performance of WM tests. Further research is needed to delineate these effects. This study highlights the importance of situational characteristics in studies evaluating the impact of companion animals on human health and behavior.

Differential effectiveness of SPANA's education programme in Morocco on attitudes and empathy according to school grade

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Established in 1923, SPANA is an international animal welfare organisation providing educational and veterinary services in countries with large populations of working animals. SPANA's education programmes are intended to promote children's caring behaviour by positively changing the way they think and feel about animals. All of the education programmes place a particular emphasis on the affective domains of attitude and empathy. In Morocco this is facilitated through a half day visit by groups of school children to a SPANA Centre. During the visit the children receive lessons in animal welfare from veterinary and technical staff. They also learn something of SPANA's veterinary work and are given the opportunity to interact with socialised animals kept at the centre for that purpose.

In order to evaluate the effectiveness of its education programmes SPANA has developed a Caring for Animals Questionnaire which consists of three components; knowledge, attitudes and empathy. This was used to gather data from 13,050 children between February 2012 and June 2013. Children from every school grade between one and twelve were represented in the study, but were concentrated in the middle of this range with grade's five and six accounting for two-thirds of the sample. The mean age of the children was eleven years with girls making up 52 % of the total. Each child was assessed using only one of the three components of the questionnaire, either pre- or post-intervention, thus giving six possible combinations. A randomisation process was used to determine in advance which of these combinations was to be used for each group of children on a particular day.

Interval level measures were constructed from the questionnaire data using a Rasch modelling approach. Analyses of these data revealed that the educational intervention had a small but significant effect on attitudes ($t(4376) = 4.48$, $p = 0.00$, $d = 0.14$) and empathy ($t(3943) = 3.79$, $p = 0.00$, $d = 0.12$), and no statistically significant effect on knowledge ($t(4725) = 1.91$, $p = 0.06$, $d = 0.06$). Analysis of variance revealed a significant interaction between component assessed, time of assessment with respect to the intervention, and school grade ($F(6,12821) = 2.203$, $p = 0.040$). Further investigation of this interaction revealed the effect of the intervention on attitudes was greatest in the younger cohorts, falling steadily such that there was no observable effect beyond grade six. However with respect to empathy the opposite was found with the greatest effect observed in the older cohorts.

Training sessions and stress in human-raised wolves: implications for cognition studies and animal welfare

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Research in cognition and communication has increasingly relied on comparative studies, using human-socialised wolves and dogs. The socialisation protocol includes training sessions, which may be cognitively demanding and involve intensive interaction with humans. Training sessions may have positive effects on dogs (Haverbeke et al. 2010), including reductions in aggressive and stress-related behaviours. Still, the effects of training on the non-domesticated relatives of dogs, wolves, which may differ from dogs due to the lack of domestication, particularly on stress coping has not yet been assessed. Apart from the welfare concerns, any increase in the stress levels of experimental subjects can potentially bias the outcomes of such studies. Therefore, our aim was to examine stress responses of human-socialised timber wolves to hands-on training.
In 15 five-minute sessions, the wolves (nine 1–2-year-old hand-raised wolves; six males, three females) were asked to attend to commands in connection with positive reinforcement (food) in a training room, with five different trainers (randomly assigned, three sessions per dyad). We evaluated: (a) variations in the wolves' saliva cortisol (as a measure of stress, sampled before and 15 minutes after the sessions); (b) percentage of time the wolf spent oriented to the trainer; (c) percentage of time the wolf spent within one meter of the trainer; (d) mean latency to attend to the commands; (e) percentage of commands correctly attended and (f) frequency of non-training related behaviours (exploring, retreating, jumping, used as indicators of a lack of focus/interest in the session). In a Linear Mixed Model, the covariates age, sex, climate and ranking were considered as fixed effects, and random effects in two levels: effect of animal and trainer within each animal.
Cortisol concentrations were generally reduced after every session ($F = 8.327$, $p = 0.004$). Besides, the greater the cortisol concentration (mean of the session), the less time the animals spent within one metre of the trainer ($F = 3.884$, $p = 0.05$). The age of the animals also played a role on their reactions: the older the animal, the shorter the latency to attend to the commands ($F = 8.657$, $p = 0{,}01$). The percentage of time the animals spent within one meter of the trainers was 90.40 ± 0.88 %, and oriented towards them 85.95 ± 1.01 %. The percentage of correct commands was 65.48 ± 1.19 %, with a mean latency 1.16 ± 0.08 seconds. Non-training-related behaviours were observed, although at low rates (summing < 10 % of the time).
The reduction in the wolves' cortisol concentrations after every session, their performance and the low rates of non-training related behaviours indicate that training is not likely to cause distress in hand-reared timber wolves. Shyne & Block (2010) have found similar results in African wild dogs, possibly due to an effect of environmental predictability (Luescher 2008). The observed age effect corroborates studies which registered an improvement in cooperation with humans as wolves develop (Gácsi et al. 2009). Therefore, our results indicate training-related stress is not likely to bias the results of behavioural studies due to an increase in stress. Furthermore, the short-term reduction in stress levels may support welfare in captive wolves.
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Dogs and wolves observing humans and conspecifics: did domestication influence what to pay attention to and what information to extract?

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Dogs' excellent skills to communicate and interact with humans are usually assumed to have originated partly from their evolutionary adaptation to the human environment (Hare & Tomasello 2005; Miklosi et al. 2003) and partly from their life-long experiences with humans (Udell et al. 2010). These ideas are almost exclusively based on studies investigating canine-human interactions, but – with exception of the emotional reactivity hypothesis (Hare & Tomasello 2005) – it has rarely been discussed to what extent the human-like characteristics of dogs originate from the socio-cognitive skills of wolves, used naturally in within-species contexts. In order to test for the possible origins of dog social cognition, we need to compare the interactions of wolves and dogs with humans and with conspecifics. Here, we present data on the performance of identically raised and kept wolves and dogs in different tasks that required extracting information from human and conspecific demonstrations.

First, we investigated the animals' performance in a two-way object-choice task. We found that 3- to 4-month-old wolves (N = 11) readily choose one of two hiding places based on a social cue, given that instead of a human-specific hand gesture (momentary distal pointing) (one-sample t-test: $t(10) = 2.082$, $p = NS$), a more species-typical gaze cue is used by either a conspecific ($t(10) = 3.610$, corrected $p < 0.05$) or a human experimenter ($t(10) = 3.956$, corrected $p < 0.05$). Dogs, however, at the same age follow pointing, but not the gaze cue. These data nicely corroborate our former results showing that the wolves followed human gaze also into distant space, whereas the dogs did not.

Second, using a local enhancement task, we found that both wolves and dogs benefited from a demonstration independent of the demonstrator species in comparison to a control, no demonstration condition (wolves: nlme: human demonstration: $t57 = 4.084$, $p < 0.001$; dog demonstration $t57 = 2.642$, $p = 0.011$; dogs: nlme: human demonstration: $t82 = 4.410$, $p < 0.001$; dog demonstration: $t82 = 4.151$, $p < 0.001$).

Finally, in a two-action-imitation task, 6-month-old wolves outperformed same aged dogs following a conspecific demonstration. While the wolves proved to be capable of imitation, in this task the dogs failed to solve the problem (Fisher exact test: $p < 0.001$). Control experiments revealed that this difference could not be explained by better physical insight of wolves or differential developmental pathways.

In conclusion, in various paradigms we have demonstrated that wolves have similarly advanced socio-cognitive skills as attributed to dogs based on their interactions with humans. Accordingly, we propose that various capabilities underlying dog-human cooperation likely originated from wolf-wolf cooperation (canine intraspecific cooperation hypothesis), potentially by dogs' becoming able to easily accept humans as social partners and thus, extending their relevant social skills to interactions with them. Further research needs to investigate why in some situations dogs seem not to pay as much attention to some details of some actions of either conspecifics or humans as wolves do. Funded by FWF Grant P21244-B17, ERC Grant 311870 and WWTF grant CS11-026.

Dogs can follow human gaze despite training to maintain eye contact

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Following human gaze in dogs can be considered a socially facilitated orientation response, which in object-choice tasks is modulated by human-given ostensive cues. Despite their similarities to human infants and their extensive skills in reading human cues in foraging contexts, Agnetta and colleagues (2000) found no evidence that dogs follow human gaze into distant space. As gaze following is present in many species, including wolves (Range and Virányi 2011) it has been proposed to be controlled by simple reflexive mechanisms. Through living with humans, dogs may have lost this reflexive response due to habituation and/or training which creates a competing tendency to sustain gaze to the human face.

Here we aimed to re-examine the question whether dogs are capable of following human gaze into distant space and, if so, whether the propensity to follow gaze is affected by life-long habituation and/or training to focus their attention on humans. Accordingly, we tested a cross-sectional sample of 145 Border collies aged from 6 months to 14 years with different amounts of training over their lifespan and compared their gaze following behaviour before and after clicker training for eye contact with the experimenter (E). In an experimental room, we presented two test trials, where E turned her head to gaze at the door, and two control trials, where E looked down to the floor. These trials were repeated immediately after clicker training for eye contact. Our predictions were that 1) if habituation was a key factor, older dogs would follow the gaze of E less, 2) if training was important, highly trained dogs would follow gaze less, and 3) short-term training for eye contact would decrease the propensity of all dogs to follow gaze.

Our results provide the first evidence that domestic dogs are able to follow human gaze into distant space: our subjects were significantly more likely to look at the door (within 2 seconds) in test trials than in control trials ($X2 (1,953) = 74.4$, $p < 0.001$). All age groups were able to follow human gaze and the propensity to follow gaze did not differ between groups. The absolute frequency of looking to the door both in test and control trials was higher in the younger and older age groups. These age groups also spent less time gazing at E's face than middle-aged dogs suggesting they were more distractible. Despite of this latter age effect, across the entire sample, well-trained dogs looked significantly less often to the door irrespective of condition, and in the test trials significantly longer into E's face than dogs with little or no training ($X2 (1,953) = 6.2$, $p = 0.013$ and $F(1,956) = 5.3$, $p = 0.021$ respectively). After just five minutes of clicker training for eye contact, dogs of all ages were less likely to follow gaze and spent more time watching E's face (in test and control trials, $X2 (1,953) = 11.6$, $p < 0.001$ and $F(1,953) = 30.8$, $p < 0.001$).

Although we found no effect of life-long habituation on gaze following in dogs, developmental effects on distractibility influenced the dogs' response. An extensive training history as well as short-term training decreased the dogs' tendency to follow gaze and increased dogs' duration of gaze to the experimenter's face. We conclude that interspecific gaze following in dogs is modulated by training to sustain gaze to humans. We suggest that differences in experimental design, such as the presence of a relevant target and the role of communication, may explain why gaze following was found in the current study but not in the one of Agnetta and colleagues.

Dogs (Canis familiaris) follow non-communicative and communicative human gaze in different contexts

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Following others' gaze is widespread among mammals, and is likely to be adaptive in various foraging and social contexts. Despite of this, dogs, albeit they know when humans look at them, seem not to follow human gaze into distant space. Several studies have suggested, however, that they can find hidden food based on gaze cues in object-choice situations, due to the high cooperativeness of dogs. Currently, however, we cannot exclude that the different success of dogs in the 2 tasks is simply due to their procedural differences (e.g. more training or longer and more gaze cues in object-choice tasks).
In the present study, we observed the spontaneous gaze following response of 65 pet dogs of various breeds (females: 41, males: 24, age average: 5.1 years old) in both tasks (object-choice and distant space), using identical gaze cues, to compare them in a rigorous manner. We found that following human gaze in dogs is indeed influenced by the referential context: they did significantly more first head movements in the gaze cue direction in the object-choice situation (mean frequency = 1.83) compared to the distant space context (mean frequency = 1.04, GLM: $Z = 2.256$, $P = 0.024$), independent of the communicative condition.
Second, we investigated whether in both tasks dogs follow human gaze more in a communicative context than in absence of ostensive cues. In object-choice tasks it has been demonstrated that dogs follow human-given cues better after being addressed by an experimenter. Thus, we wanted to examine both in the object-choice and the distant space task whether dogs follow human gaze more when it is more conspicuous because it is given repeatedly or is accompanied by ostensive communicative cues. Here, we compared the gazing pattern of the same dogs after single non-communicative (SN), single communicative (SC) and repetitive communicative (RC) gaze cues. We found that dogs followed the indicated direction in their very first look above chance level in all conditions in the object-choice situation (X2 tests: SN: 64.8 %, $X2(1) = 4.74$, $P < 0.05$; SC: 73.6 %, $X2(1) = 12.20$, $P < 0.001$; RC: 77.6 %, $X2(1) = 17.66$, $P < 0.001$). They, however, looked significantly more often into the indicated direction in the communicative conditions (mean frequency: SC: 1.32, RC: 1.34) than in the non-communicative condition (SN: 0.85, GLMM: respectively $Z = 2.563$, $P = 0.0104$ and $Z = 2.635$, $P = 0.0084$). Moreover, our study is the first showing that gaze-following into distant space in dogs is also dependent on the gaze cue of the experimenter. In this task, the first look of the dogs was directed into the indicated direction above chance level only in the repetitive communicative condition (mean frequency: 0.45; X2 test: 74 % $X2(1) = 9.26$, $P < 0.001$), and this occurred significantly less often after a non-communicative gaze cue (mean = 0.29 times, GLM: $Z = 2.292$, $P = 0.0219$).
Finally, to ensure that these differences did not result from lower attentiveness of the dogs in the non-communicative context compared to the communicative ones, we conducted another experiment, comparing the ability of dogs to follow human gaze with their gaze and by choosing a

container in two conditions: the cue was preceded either by the experimenter calling the subjects (repetitive communicative (RC)) or by ringing a bell to attract their attention (repetitive non-communicative (RN) condition). We found that dogs made significantly more correct choices in the RC than in the RN condition (mean = 5.41 and 4.30 respectively, permutation test for independent data, $P = 0.035$).

These results confirm that the reaction of dogs to human gaze cues is dependent on the communicative aspect of their interaction. Further on, the present study shows that with their gaze dogs are able to spontaneously follow human gaze also into distant space, but it calls for further research regarding how dogs perceive communicative and non-communicative human gaze cues in different contexts.

How dogs see us: the perception of human faces by dogs

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A multitude of recent studies highlighted dogs' cognitive performance in reading human behaviour. Among those, domestic dogs have been found to attend to and use some human facial/head cues. They can use the head orientation or the visibility of eyes to assess the attentional state of a human person and they can follow human eye/head direction to find hidden food. This talk aims at a critical review of the perceptual-cognitive processes underlying the dog's ability to use the human face as a resource for interacting and communicating with humans, in particular their human partners.
Human faces differ in subtle ways and possess many idiosyncratic features, thus providing a rich source of perceptual cues. The ability of dogs to use these hetero-specific cues may have phylogenetic and ontogenetic influences. As a species they had intensive exposure to humans through the process of domestication and as individuals most of them live close to humans from a very early age on. Such intense exposure to humans may have led dogs to develop some perceptual and cognitive adaptations that can help them to interact with their human partners.
In recent years, several studies – from colleagues as well as from our own lab – have examined how dogs perceive human faces, what guides their attention, what information they extract and which decisions they make on the first encounter. For instance, an application of the preferential looking method revealed that dogs can differentiate between familiar and unknown human faces presented in frontal view (Racca et al. 2010). Moreover, dogs can also differentiate between two familiar faces (the owner and a friend of the owner), which requires attention to more subtle cues. By manipulating the content of the presented faces, we could furthermore show that dogs can do so by using the internal facial features (eyes, nose, mouth and their configuration) only.
We also examined the dog's ability to discriminate faces of two familiar persons by active choice. Although the performance of dogs significantly decreased when they were presented with pictures of human heads after having learned to discriminate the real heads, and when – after relearning – being confronted with the same pictures showing only the inner parts of the heads, two dogs were highly successful across all tasks (Huber et al. 2013). This corroborates the findings of Nagazawa and colleagues (2011), who showed that dogs can differentiate human smiling faces from neutral expressions (familiar or unfamiliar humans), therefore forcing them to use internal facial features to do so. Nevertheless, like humans dogs seem to perform a holistic face processing with configural rather than elemental information. Dogs generalise easily to new versions of the known faces if configural information is present (grayscale, blurred faces), but have problems with inverted and scrambled faces. The similarity to human face processing is even more striking in the case of specific face features. Recent data from our lab suggest that dogs share with human infants a pattern of visual preferences for features consistent with the human eye (local contrast polarity) that may represent a foundational perceptual tool for life in human society.
In conclusion, we will critically evaluate the findings of the various studies and discuss them in the light of a broad comparative framework that is needed to clarify the evolutionary and developmental origins of these skills in dogs.

Like me – Behavioural and Physiological Correlates of Empathy and Emotions in Dogs

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The domestic dog (Canis familiaris) is an interesting species when it comes to the question of empathy in non-human animals. Due to a long domestication process, it seems well tuned to human behaviour and even, perhaps, emotions (Udell et al. 2010b, Custance and Mayer 2012), but at the moment there is still no direct support for the existence of empathy in dogs. Dogs seem to celebrate our joy and commiserate our sorrow but, except for a mixed evidence of contagious yawning (Harr et al., 2009; Joly-Mascheroni et al., 2008), most reports of empathic behaviour remain anecdotal. The recent study has addressed the question if dogs show emotional contagion for joy, pleasure and pain. We have compared pet dogs (various breeds, n = 7) and lab dogs (beagles, n = 9), with restricted access to humans, to determine the influence of the human environment. Part of this study is devoted to the development of methods to measure and validate certain physiological correlates of emotions in dogs. Dogs have been confronted with emotional relevant stimuli, like happy or neutral (positive) or angry and sad human faces (negative stimuli). The use of an eye-tracker allowed us to determine regions of interest and attention patterns while dogs have been watching the stimuli. At the very same time physiological responses like heart rate variability (HRV), tail wagging, pupil size and surface face temperature have been measured.
Behavioural and physiological data provided evidence of dogs reacting to the presented stimuli. Interestingly, the scanning patterns of pet dogs when looking at the human faces were more focused and directed more towards the eye region and forehead (t-Test T = 2.568, df = 6, p = 0.042) than those of lab dogs. Even though there was no difference in the amount of fixations towards the face region (t-Test T = –0,712, df = 81, p = 0.479), pet-dogs fixated significantly longer than lab dogs (t-Test T = –5.414, df = 72, p =< 0.001). There were no differences between positive and negative stimuli between the two groups of dogs concerning the duration of the fixation (ANOVA F3,70 = 0.410, p = 0.746) and amount of fixations (ANOVA F3,70 = 0,795, P = 0,5). There was evidence for lateralisation of the tail to the left if the dog had been confronted with a negative stimulus. Heart rate variability did not show any significant differences between the positive or negative stimuli and the baseline (ANOVA F5,94 = 0.837, p = 0.528), but strong individual differences between sessions and days. Pupil size and surface face temperature increased during excitement.

The results indicate that dogs respond adequately to pictures of human emotional faces, but that there are differences in the processing between pet dogs and lab dogs, i.e. dogs with limited access to humans. These differences suggest that the intensity of human-dog interaction has a major influence on the way how humans are perceived by dogs and even how they are mirrored in their emotional representations.

Factors affecting physiological synchrony in owners and their dogs

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Humans and dogs engage in mutual social relationships, potentially resulting in physiological effects in both partners. For example, the quality of such a partnership may also be manifest in the effects of mutual "social support", i.e. the stress dampening effect due to the presence of the partner during a stressful situation. Physiological parameters reflecting this are heart rate (HR) and heart rate variability (HRV). "Secure attachment" (according to Bowlby) in human partners is related to synchrony and low stress levels. We predict that similar patterns can be found in human-dog dyads, as the psycho-biological principles behind are similar in both species. To test this hypothesis, 120 owners, aged 18 to 60 years, with their intact dogs 1.5 to 8 years of age, were tested during and after a mild, staged threat situation. HR and HRV were measured from owners and dogs by using HR monitoring belts (Polar-RS800CX). To measure owner personality we used the NEO-Five Factor Inventory. For dog personality we used the Monash canine personality questionnaire. Owner-dog relationship was tested with a questionnaire based on the inventory of parent and peer attachment. Behaviour coding and observer rating was done via the Observer XT10. We asked whether there is a synchrony between owner and dog in HR and behaviour, and how owner personality and HRV is related to both. Dogs from owner-dog dyads with high HR synchrony indeed showed higher HRV (higher relaxation) after a threat situation (Mann-Whitney U: $n = 20$, $Z = -1.965$, $p = 0.049$) and behavioural synchrony was related to a lower maximum HR in dogs (Spearmans: $n = 21$, $rs = -0.677$, $p = 0.001$). HR synchrony was influenced by owner and dog personality: Owners in synchronous dyads were lower in neuroticism and extraversion, and dogs were higher on the "active-excitable" dimension than owner-dog dyads with low synchrony (GLM: $n = 20$, $R^2 = 0.862$, $F = 9.681$, $p = 0.014$; $F = 21.711$, $p = 0.002$ and $F = 25.607$, $p = 0.001$). Our results support the idea that owners and dogs can affectively support each other and can be behaviourally and physiologically synchronised in challenging situations and that owner and dog personalities play important roles. My presentation will feature the full analysis of all 120 dyads in this study. The research was funded by the Austrian Science Fund (FWF): P23345 B17 and by the DK in Cognition and Communication of the Department of Cognitive Biology, University of Vienna.

Dogs may understand the social but not the referential intention behind human pointing gesture

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Pointing with an extended arm and finger in order to provide others with information is a uniquely human signal used in various contexts. In humans understanding, this gesture relies on attributing three different intentions to the signaler: communicative, social and referential intention (Tomasello et al. 2007). Various animal species have been tested in two-way object-choice tasks to investigate whether they find food based on this human cue, and among them, at a behavioural level, domestic dogs are exceptionally good. There has been a long-lasting debate, however, regarding the underlying mechanisms of pointing-comprehension in dogs. It has been argued that the success of dogs relies on their life-long learning processes or other low-level mechanisms such as local or stimulus enhancement. Conversely, a growing body of evidence shows that dogs understand the communicative nature of pointing (Kaminski et al. 2012). Even if so, it has also been suggested that dogs interpret pointing as an imperative that sends them to a certain location. In this study, we investigated whether dogs identify the referent of human pointing based on the identity of the pointed object or if they follow the direction of pointing to a certain location. For this aim, in an object-choice task we used several container pairs the members of which dogs could easily discriminate. In half of the pointing trials we exchanged the two different containers after pointing (switching trials) whereas in the other trials the containers remained at the location where the experimenter had pointed at (control trials). Thus, we could test whether the dogs chose the pointed container or the pointed location, and we did so in two different contexts: during a food-searching game ($n = 39$) or a retrieval game ($n = 37$). We found that the performance of the dogs was different in the switching and in the control trials (GLMM: $F(2,1776) = 7.35$ $p < 0.001$). The dogs of the food-searching group chose randomly (Wilcoxon Signed-Rank test: control trials: $p = 0.36$; switching trials: $p = 0.19$) while those of the retrieval group were above chance in the control trials ($p = 0.049$) and below chance in the switching trials ($p = 0.004$). In sum, we found no evidence that dogs would understand the referential intention behind pointing gesture. Further on, we tested 147 dogs in one single trial of an object-choice task in which an unfamiliar experimenter pointed to one of two containers: setting up a context for this signal immediately before the trial ($n = 84$), during previous experiments ($n = 28$) or without establishing it ($n = 35$). In the latest case, the social intention of the signaler was not clear during the test trial. We found that the number of dogs making a choice in the No-Context group was significantly lower from those who experienced a context immediately before our experiment (Fisher exact test: $p = 0.001$) or during previous experiments ($p = 0.003$). This result is consistent with the hypothesis that dogs may take the social intention of a human pointer into account, and make it unlikely that merely hand-food associations or local enhancement explain why dogs follow human pointing. The results of the two experiments together suggest that dogs may use different mechanisms to understand pointing from those hypothesised for humans.

Pets‘ Effectiveness in Managing Chronic Pain and Improving Wellbeing in Adult Community Members

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Past research indicates that therapy animals can alleviate pain in health-care settings, whereas some community-based surveys suggest that pet owners may experience greater discomfort and use more analgesics than non-pet owners. This study used a mixed-methods design to investigate this anomaly, exploring if pet ownership status is related to pain levels and wellbeing, if pet characteristics are influential, if community members experiencing chronic pain consider human-animal interactions helpful and, if so, how pets help participants manage pain.
One-hundred-and-seventy-three adults completed an online survey; 133 female, 27 male, 13 unspecified. There were 132 pet owners, 39 non-pet owners and two participants who did not specify their pet ownership status. The majority of pet owners had dogs (50.3 %) or cats (42.2 %). The survey included a demographic questionnaire, a pet personality scale, the Depression Anxiety and Stress Scales, the Numeric Pain Rating Scale, and a modified version of the Chronic Pain Coping Inventory-42 (CPCI-42). Seven pet owners subsequently participated in a semi-structured interview about relationships between pain management and pets.
There was no significant difference between reported pain levels in pet owners versus non-pet owners. However, pet owners who reported actively using human-animal interactions with their pet to manage their pain rated this as moderately helpful on the CPCI-42 and reported lower pain levels ($M = 5.98$, $SD = 1.66$) than pet owners who did not use ($M = 7.31$, $SD = 1.45$) this strategy, $t(130) = 3.04$, $p = .003$, $h^2 = .04$, 95% CI [.46, 2.19]. There were also no significant differences between pet owners' and non-pet owners' anxiety or stress levels although, perhaps surprisingly, pet owners ($M = 18.10$, $SD = 12.52$) reported more depressive symptoms than non-pet owners ($M = 11.74$, $SD = 9.57$, $F(31, 114) = 6.90$, $p = 0.10$, $h^2 = .05$. Pet characteristics were found to be influential in that dog owners ($M = 18.68$, $SD = 12.47$) reported more depressive symptoms than non-dog owners ($M = 14.43$, $SD = 11.35$, $t(159) = –2.26$, $p = .025$, $h^2 = .03$, 95% CI [–7.97, –.54]. Pet owners with more friendly pets of any species also reported fewer depressive symptoms. There was a negative association between dog friendliness and levels of depression and anxiety and, conversely, those with more disobedient dogs experienced greater stress.
Interviewees reported that their pets help them cope with pain in many ways, including provision of social and emotional support and by providing a sense of purpose in life. Overall, these findings indicate that not all pets are beneficial for participants with chronic pain but, for some participants, human-animal interactions are beneficial. Since the benefits appear to be associated with the species and personality of the pet, and with whether the person actively uses human-animal interactions as a pain-coping mechanism, care should be taken before recommending pet ownership to chronic pain sufferers.

The vocal communication between human and domestic dog

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The Pet-Directed Speech (PDS) is very similar to the Infant-Directed Speech (IDS). They are different from the Adult-Directed Speech (ADS) and can be distinguished by their acoustic factors which include the prosodic quality of speech: high-pitched voice, rising intonation (Burnham et al., 2002; Mitchell, 2001). In addition, the biological underpinnings of the relationship between owner and dog seem similar to those of the parent-baby especially via the secretion of oxytocin "hormone of attachment" in both the owner and his dog during short periods of caresses (Nagasawa et al, 2009; Odendaal & Meintjes, 2003). It seems that our communication systems in the human-dog relationship are based on skills that have not been developed specifically for this purpose but have evolved in the context of the relationship between parents and babies. The objective of our research is to confirm that the PDS differs from the ADS on the prosodic level and presents similar vocal characteristics to those of IDS and to observe whether these vocal characteristics vary according to the type of situation in which the owner and dog find themselves. A Pilot Study was conducted on 36 dyads (owner/dog) recruited at the University Hospital of Veterinary of Alfort. Place of experimentation: ENVA. It was filmed and recorded during five experimental phases of interaction: 1) Questionnaire (10'): oral questions asked by the experimenter, 2) Departure (30"): the owner leaves the room, 3) Reunion (30"), 4) Play (1'), 5) Orders (1'). Acoustic analyses were performed (Praat software) from excerpts of 5 seconds of each participant chosen during the phase of the questionnaire and during his/her interactions with his/her dog. Acoustic measurements are the mean pitch (f0), the standard deviation (SD), the median pitch (quantile), the minimum pitch and the maximum pitch. We have also taken note of any words uttered by the owner during the experiment including nicknames addressed to his dog.
Results: taking as reference the questionnaire situation in which the participant is addressing the experimenter (ADS), we find that the mean pitch is significantly higher in all situations of interaction between the owner and his dog compared to the questionnaire situation. Then considering all situations together, we find that the mean pitch is higher in situations of reunion and playtime with the dog compared to the ADS. If one compares only those situations of the owner and dog interactions and only between them, the mean pitch is higher during the reunion, but only compared to the situation of departure. Similarly, the median pitch and the standard deviation are higher in all interaction situations between owner and dog compared to ADS. Finally, the max. pitch is higher in situations of reunions, of games and of instructions when compared to ADS. On the other hand, among the interaction situations of owner and dog, the number of nicknames is significantly higher in the situation of reunion. From these results, we can say that participants tend to talk more acutely with a higher pitch voice to their dog than to an adult, especially in situations of reunion and games. In these situations, the owner is in a positive interaction with his dog, unlike the situations of departure and when giving instructions. In addition, owners tend to modulate the frequency of their voice much more when communicating with their dog than to an adult. These vocal characteristics (vocal pitch and frequency modulation) are similar to those that we find in communications between parents/baby ("baby talk"). Finally, it is interesting to note that the owner uses nicknames most often when addressing to his dog during the reunion phase, probably because the reunion is a more intimate situation and may be more conducive to the expression of affection and tenderness towards his animal (the dog is also very expressive towards his/her owner in return).

The Effects of Animal-Assisted Therapy on University Students' Social-Emotional Well-Being: A Feasibility Study

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The aim of this study was to examine the feasibility and preliminary outcomes of an animal-assisted therapy (AAT) intervention in promoting university students' social-emotional well-being including countering feelings of homesickness and social isolation.
Participants included 86 university students (mean age = 18.52, SD = .69) attending a large public university in Western Canada. The majority were first year (75.6 %) and female (81 %). In groups of three, students participated in an 8-week intervention (45 minutes per week) in which they were assigned to a therapy dog (n = 14) and volunteer handler (n = 14). All dogs were certified via a local agency specializing in community-based animal therapy.
The following measures were administered at pre- and post-test: 1) Resilience Inventory: Self-Efficacy, Relationship with Peers, and Relationship with Adults subscales (Song, 2003), 2) Self-Description Questionnaire II: General Self-Concept subscale (Marsh, 1990), 3) Satisfaction with Life Scale (Diener et al., 1985), 4) Seattle Personality Questionnaire: Depression, Anxiety, and Somatization subscales (Kusche, Greenberg, & Beilke, 1988), and 5) Supportive Relationships with Nonrelated Adults subscale (WestEd, 2003). Internal consistency, as assessed via Cronbach's alpha, ranged from .68 to .90. Participants' attendance across the intervention was collected. At post-test, participants responded to an open-ended question about their participation.
Analyses were conducted assessing changes from pre- to post-test in students' well-being and social support using Paired-Samples T-Tests. A Bonferroni correction was conducted resulting in a p value of .002.
Well-Being: Changes in well-being from pretest to posttest are presented in Figure 1. As can be seen, significant increases were found for self-efficacy, $t(82) = 4.65$, $p < .001$, general self-concept, $t(82) = 3.98$, $p < .001$, and satisfaction with life, $t(83) = 3.92$, $p < .001$. Additionally, significant decreases were found for anxiety, $t(84) = –4.10$, $p < .001$, depression, $t(81) = –4.42$, $p < .001$, and somatization, $t(83) = —.37$, $p < .001$.
Social Support: Changes in reports of supportive relationships are presented in Figure 2. Analyses indicated significant improvements in positive relationships with peers, $t(83) = 3.46$, $p < .001$, positive relationships with adults, $t(85) = 4.31$, $p < .001$, and support from adults, $t(83) = 5.25$, $p < .001$.
Attendance: Average attendance across the 8 weekly interventions was 91 %.
Although the absence of a control group limits firm conclusions about the utility of an AAT intervention on the social-emotional well-being of university students, the findings nevertheless suggest several positive effects including increases in students' sense of self and perceptions of social support and corresponding decreases in anxiety and depression. In addition to promoting students' well-being, this study also provided support for the administration of AAT within a context that saw multiple dogs, multiple handlers, and multiple student-clients participate in sessions simultaneously.

Children with Autism and their Beliefs of Attachment to their Dogs

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Introduction and Objectives: Pet dogs are common among families of typically developing children in the United States, and this is also true in families of children with autism spectrum disorder (ASD). While a growing number of studies have demonstrated the benefits of Animal Assisted Activities and Animal Assisted Therapy, investigations of the effects of pets in homes have been limited. Typically developing children often identify close attachments to their dogs and describe the role of their dogs as that of a close friend and confidant. In one study, parents of children with ASD reported that their children felt attached to their dogs, yet limited descriptions are available addressing the reliability of self-report by this population of children regarding their relationships with their dogs. This study (N = 47) sought to investigate the reliability of children with ASD in reporting their bonding and attachment to their dogs. Children with Autistic Disorder, Asperger's Disorder, Pervasive Developmental Disorder Not Otherwise Specified and ASD (collectively referred to as ASD) ages 8–18 years with an Intelligence Quotient > 70 and verbal ability to respond to questions using the telephone, were included in the sample, along with the children's' caregivers in households owning at least one dog.
Methods: Potential participants were recruited from the data-base of a Midwest autism treatment center through telephone contact of those meeting the enrollment criteria. Telephone surveys were administered to participants at the beginning and end of a single school year. Caregivers completed a demographic survey. Caregivers and children responded to the 8-item Companion Animal Bonding Scale (CABS), along with one question of attachment, and these were used to compare the bonding self-reports of children with ASD to their dogs over time, and to compare the children's reports with that of their caregivers. Descriptive statistics, along with paired and unpaired t-tests, were used to analyze the data using Statistical Package for the Social Sciences (SPSS).
Results: There was no significant difference in the total CABS score of children with ASD over time; $t(32) = .97$, $p = .340$. There was no significant difference in six of eight items on the CABS in comparing child/caregiver reports of bonding. These items included child being responsible for dog care or cleaning duties, child sleeping near or in the same room with dog, dog being responsive to child and child traveling with their dog. Children reported that they pet their dogs more often [$t(31) = –2.72$, $p = .01$] and had closer relationships with their dogs [$t(31) = –2.35$, $p = .03$] than reported to by their caregivers. There was no significant difference between children and their caregiver's reports, $t(31) = .72$, $p = .48$, when they were asked to rate child-dog attachment. Eighty-eight percent of children and caregivers rated the child-dog relationship as attached or very attached.
Conclusions: These findings open a new area of inquiry into the relationships of children with ASD and their pet dogs by suggesting that some children may be capable of reliably reporting their bonding with their dogs. Future investigations should consider inclusion of self-report from children with ASD when seeking to describe the relationships of children and their pets. Given the high rates of pet ownership in this population, child reporting may also help identify types and characteristics of pets most likely to successfully integrate into this unique population of families.

Human-Animal Interaction in Military-Connected Youth

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There are almost 2 million children who have parents serving in the United States military. These youth experience significant stressors as a result of parental deployment, yet little is known about the factors that promote positive development for military-connected youth (Cozza & Lerner, 2013). Therefore, it is critical to identify useful resources that are available for youth in military-connected families, and how these resources can be optimized to help youth thrive in the context of parental deployment.

There is now compelling evidence that interacting with animals is associated with positive mental and physical health outcomes, including a range of indicators of positive development in childhood and adolescence (Mueller, 2014). The impact that HAI can have on mental health and well-being suggests that pets may be an important family strength that could be a key element in understanding resiliency in military-connected youth. Despite evidence from other populations, there is little research documenting the role of HAI in promoting positive development for military-connected youth. Accordingly, the purpose of this research was to provide initial information about the relationship between animal experiences and positive youth development in military families, as well as in a comparison sample of youth in non-military families.

Using data from 586 youth in grades 6 to 12 (50.6 % military-connected youth, 49.4 % non-military-connected youth), this research assessed patterns of HAI experiences and explored the relations between HAI and thriving. Overall, 74.9 % of the sample reported interacting with an animal in one or more contexts; 70.6 % of the sample reported having an animal in the home, and 28.2 % reported participating in an animal-related activity. Frequency of animal interactions did not vary significantly based on status as a military family. Controlling for military family status, regression model results indicated that for both military- and non-military-connected youth, participants who interacted with animals demonstrated higher levels of positive character attributes ($\beta = .09$, $p = .04$), caring and empathy ($\beta = .15$, $p < .001$), contribution to one's community ($\beta = .19$, $p < .001$), overall positive youth development ($\beta = .10$, $p = .03$), and lower levels of depressive symptomology ($\beta = -.10$, $p = .01$).

These data are a critical first step in creating a foundation of descriptive knowledge about HAI in military families, as well as data exploring the relationship between pet ownership and positive outcomes in this population. This preliminary evidence provides rationale for further investigation of the mechanisms by which pet ownership promotes resilience and decreased risk in the context of parental deployment and in all families. This project was funded by a grant from Zoetis.

Learning through Participation in the Care of the Family Pet: Children's Roles and Responsibilities across Cultures

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Pets are dependent on humans to provide care for their survival and overall wellbeing. Having a pet in the family provides opportunities for children to participate in the care of the companion animal. A few studies (e.g., Melson & Fogel, 1996) have examined children's involvement in the care of their pets and have documented its developmental benefits. Human-animal interactions that occur in families are influenced by socio-cultural values. Domestic responsibilities related to the care of pets may constitute a channel by which children learn to be nurturing and responsive to another's needs. Although nurturance is a basic and universal human need, even in childhood (Weiss, 1974) the kind of responsibilities may differ across cultures. There is limited empirical attention on the role children play in providing care for their pets and how it contributes to their overall development. An important strength in this study is the examination of the developmental benefits for children when they participate in the care of their pets, paying attention to how their roles are socio-culturally configured in their families. Using an innovative methodology, the study examined children's roles and responsibilities in the care of their pets and whether these were in conformity to cultural norms. 90 children, ages 7–11, from 6 cultural groups in the US took part in the study. Criteria for the selection of the families who were self-identified were being of the specific cultural group and having a child who has a pet or had a pet 2 years prior. A Family and Pet Information survey was completed by parents. Children were interviewed using the Draw and Tell method. They were invited to draw and talk about their pets using a booklet with guiding questions. Analysis was done using the constant-comparative method. The transcribed interviews and drawings were coded using the open-coding system. Children played a range of roles such as caregiver, playmate, friend, teacher, protector, and advocate in their companion animals' lives. These roles, that were either voluntarily played by the children or were delegated by their parents, had different responsibilities. The roles and responsibilities of children were found to be potentially important in their pets' physiological, social, emotional and cognitive development and were often influenced by family ideology and circumstances, gender and age. There was a high prevalence of caring responsibilities among Japanese, Latino and Muslim American children. These children were regularly involved in domestic responsibilities which formed a regular part of their lives and relationships with their pets. Furthermore, the role of the caregiver in the above three groups was associated with cultural explanations. For example, the strong emphasis of familia among Latinos, the Islamic concept of amanah (life is a bestowed trust) and, amae (indulgence) and omoiyari (empathic response) among Japanese influenced the strength of the role of the child as a caregiver. The caregiver role supported the importance of children's interactions with their companion animals for their pro-social development. A warm and receptive child-pet relationship and knowledge and skills were associated with type of role (e.g., playmate versus caregiver), frequency and load of responsibilities, and moral values influenced by cultural context and religious orientation. The present study is a first examination of an understanding of children's role and caring responsibilities in their pets' lives across cultures. Children's roles were believed to prepare them in their socio-emotional wellbeing and in their moral responsibility and cultural values.
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Ideal versus real: Owner Attitudes, Personalities and Relationship with Dogs

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The aim of our study was to gain a better understanding of the relation between owner characteristics and the agreement of owner judgement with the dog's behaviour, i.e. how well the owner is able to assess his own dog's temperament. We furthermore asked what the owner would regard as an ideal dog and how this would contrast with the real dog. We video-taped 59 owners (mean age ± SD = 43 ± 15.1 years) with their intact dogs (mean age ± SD = 3.7 ± 1.5 years) during a mild experimental threat situation, another challenging task, as well as during and after being separated from the owner. Then we coded their behaviour and observer-rated dog-owner interactions and dog temperament. Owners completed several questionnaires, among them the NEO-Five Factor Inventory to measure human personality. Saliva samples of the dog were taken for cortisol analysis. A cluster analysis, with items related to interaction and stress coping yielded three groups of dogs: 1. "proximity seeking dogs", 2. "socially dependent dogs" and 3. "social distant dogs". Due to the dog's cluster assignment we found that owners were well able to rate their dog's overall activity levels (Kruskal-Wallis: $n = 49$, $H = 7.7$, $p = 0.02$) or calmness (Kruskal-Wallis: $n = 49$, $H = 9.07$, $p = 0.01$). However, owners did not adequately judge their dogs' sociability, avoidance behaviour towards themselves or their dog's stress coping style. A principal component analysis revealed four axes regard owner-considered importance of dog well-being variables (PCA: 12 items, $n = 59$, KMO = 0.69, explained total variance: 63 %). We found that the more the owners emphasised the ideal of balanced dog stress coping, the less aggressive (Spearman rank correlation: $n = 59$, $rs = –0.28$, $p = 0.03$) it indeed was. The more owners considered friendly interaction style and shared activities with their dog important, the more stressed (Spearman rank correlation: $n = 59$, $rs = 0.27$, $p = 0.04$) and nervous (Spearman rank correlation: $n = 59$, $rs = 0.48$, $p < 0.001$) their dogs were rated by the observers. Owner personality significantly affected what dog well-being aspects were considered important. The higher owners were in neuroticism (Neo-FFI dimension 1), the less they considered stress coping important for their dogs (Pearson correlation: $n = 59$, $r = –0.28$, $p = 0.03$). Owner conscientiousness (NEO-FFI dimension 5) was positively correlated with the owner's emphasis on friendly interaction style and shared activities (Spearman rank correlation: $n = 59$; $rs = 0.27$, $p = 0.04$). Our results indicate that owners may not always be accurate in rating their own dog's temperament and that there may be gaps between what an owner subjectively considers an ideal dog performance and what the dog really does. Finally, owner personality influences the owners' judgement of what matters with regards to a dog's well-being.

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Human-Companion Dog Relationship Quality: The Impact of Owner Attachment and Personality Styles

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Human factors which influence the quality of the relationship between an owner and their companion dog, important in determining the potential health benefits to dog owners, are poorly understood. The present study, approved by the La Trobe University Faculty Human Ethics Committee, investigated the influence of owner personality variables and attachment dimensions, on human-companion dog relationship quality. A sample of 654 female dog owners, aged 18 years and over, completed three scales: the Big Five Inventory (John, Donahue, & Kentle, 1991; John, Naumann, & Soto, 2008) measuring owner personality; the Experiences in Close Relationships – Pets scale (Beck & Madresh, 2008) measuring owner attachment anxiety and avoidance in human-pet relationships; and an author-adapted version of the Perceived Relationship Quality Components scale (Fletcher, Simpson, & Thomas, 2000). Correlational, regressional and mediational data analyses were undertaken. Extraversion, conscientiousness and agreeableness correlated positively with relationship quality revealing small effect sizes of ($r = .12$, $p < .01$), ($r = .15$, $p < .01$) and ($r = –.14$, $p < .01$) respectively, while neuroticism and openness revealed non-significant relationships ($r = –.03$, $p > .01$) and ($r = .08$, $p > .01$) with relationship quality. Attachment anxiety and avoidance both correlated negatively with relationship quality, with larger effect sizes of ($r = –.46$, $p < .01$) and ($r = –.39$, $p < .01$) respectively. Despite personality factors predicting relationship quality when considered in isolation, the attachment dimensions emerged as stronger predictors when considered collectively. Importantly, attachment anxiety fully mediated the relationship between conscientiousness and relationship quality, B = .085, 95 % BCa CI [.052, .120], representing a medium effect size, and neuroticism displayed a significant, negative, indirect effect on relationship quality, via anxiety B = –.014, 95 % BCa CI [–.024, –.005]. These findings expand the theoretical framework regarding inter-relationships between personality, attachment and relationship quality, and advance the literature beyond conventional correlational and predictive approaches. They will also potentially inform clinical practice, demonstrating that attachment theory is applicable cross-contextually to owner-companion dog relationships.

Owner-dog interaction during animal-assisted activities - an impact on dog welfare

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Animal-assisted interventions (AAI) are physiologically arousing for dogs (e.g. Haubenhofer & Kirchengast, 2006). Therefore the welfare of dogs during AAI should be investigated. Behavior has been used to evaluate dog welfare during AAI (e.g. Chereno Hendriksen, 2012) and dogs' emotions during AAI have been evaluated by a questionnaire for the dog-handlers (Haubenhofer & Kirchengast, 2007). However, dog owners' ability to understand dog behavior during AAI has not been studied before. Previous studies indicate that it can be challenging for dog owners to observe and interpret their dogs' behavior (e.g. Kerswell et al., 2009).
This study investigated the dog owners' ability to assess the behavior and emotions of their dogs during animal-assisted activities (AAA).
The investigations were carried out by video-recording the behavior of 11 dogs in the first ten minutes of AAA visits at nursing homes in Finland. During that time the owners themselves also made observations of the behaviors as well as emotions of their dogs, which they documented in the questionnaires immediately after the observation period. A total of 38 video-recordings and questionnaires were included in the study, and the Spearman correlation coefficient was used to measure the strength of the relationships.
Firstly, the relationship between the owners' evaluations of dog behavior and the behavior registered from the video-recordings was measured. We found a significant correlation between the level of yawning, panting, tail wagging, standing, sitting and lying down as assessed by the owner and from the video ($Rs > 0.55$ and $P < 0.001$ for all behaviors). Secondly, the relationship between the dog behavior from the video-recordings and the owners' evaluations of the dogs' emotions during the visit was measured. Standing and activeness were significantly associated with positive emotional state ($Rs > 0.40$, $P < 0.05$), whereas sitting was associated with negative emotions ($Rs > 0.42$, $P < 0.05$). Thirdly, the relationship between the owners' evaluations of dog behavior and the owners' evaluations of the dogs' emotions was measured. Panting, tail wagging, approaching, and bodily contact were significantly associated with positive emotional states ($Rs > 0.41$, $P < 0.05$). Escape, snout licking, body shaking, and looking at the owner were significantly associated with negative emotional states ($Rs > 0.41$, $P < 0.05$).
Overall, the owners were best at observing postures, yawning and tail wagging. They also interpreted dogs' emotions mainly by postures and tail wagging. The owners were aware of the motivations for most displacement and contact seeking behaviors, although those were difficult for them to observe. It is suggested that the organizations involved with AAA should provide guidance and information regarding dog behavior for dog owners. The long-term consequences of this study would be securing dog welfare in AAA through better observational skills and interpretation of dog behavior.

Stress and arousal in dogs during animal assisted interventions in Brazil

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Animal-assisted Interventions (AAIs) consist in the inclusion of animals as therapeutic adjunct for the benefit of human mental and physical health. AAIs are being held in varied settings such as hospitals, mental health facilities, nursing and retirement homes, schools and shelters around the world. Although there has been a recent increase in the number of investigations regarding the benefits for humans, little is known about the benefits and welfare of the animal participants, it is taken as naturally good for them.
The objective of this study was to analyze the physiological effects of AAI on participant dogs ($n = 16$). All animals participants (five males and 11 females) were older than 24 months (average = 71 months), weighted more than 13 lb (average = 57 lb) and were spayed or neutered. Most of them ($n = 13$) had previous training and every one had already been working in the same institution and with the same type of patient for at least three months. The breeds were very heterogeneous (3 Golden Retriever, 3 Bernese Mountain Dog, 3 crossbred, 1 Labrador Retriever, 1 Border Collie, 1 Pug, 1 Boston Terrier, 1 Shih-Tzu and 1 French Bulldog).
Each dog participated in 3 biweekly sessions of AAI, in one of four different groups, with different settings and types of patients: two retirement homes for women with diverse cognitive dysfunctions, one public shelter for children at risk and one special school for severe autistic youngsters. Saliva samples ($n = 6$ for each dog) were collected before and after each session to assess cortisol levels. Two saliva samples were also collected just after the arrival of a stranger at the dog's home and half an hour later after a free interaction between owner and dog. As the presence of a stranger at home is known as a powerful stressor for domestic dogs (McEwen & Wingfield, 2003), it was interesting to compare its effect on dog cortisol with the effect of the participation of the same animal in an AAI. Salivary cortisol was quantified using a commercial enzyme immune assay (Cortisol Salimetrics®) in our Behavioural Endocrinology Laboratory. For each dog we calculated the mean concentrations of the samples collected before and after three AAI.
As expected, the concentration of salivary cortisol altered on the arrival of a stranger (2.12 ± 1.73 nmol/L) decreased after a peaceful interaction with the owner (1.78 ± 1.41 nmol/L), but this difference was not significant. Mean concentration just before AAI (5.75 ± 2.91 nmol/L) were numerically quite higher than home concentrations. However, t-test for paired samples did not confirm this difference probably due to the high inter-individual variance. Cortisol concentration increased during AAI and were significantly higher at the end of the session (4.00 ± 3.15 nmol/L) than at the end of home intervention (t-test for paired samples $t = -3.215$, $p = 0.024$) and so was the mean variation of cortisol concentration during AAI (1.28 ± 3.37 nmol/L) when compared with mean variation at home (-0.36 ± 1.38 nmol/L, t-test for paired samples $t = -2.312$, $p = 0.041$). Final mean concentrations at home and after AAI were also strongly correlated ($r = 0.907$, $p = 0.013$).
Our data show that the preliminary procedures for AAI result in cortisol increase higher than the one caused by the intrusion of a stranger in the dog residence and that AAIs elicit an even higher response. These results suggest that for these 16 dogs, the IAA session was a more potent stressor than the stranger in their house. As expected dogs whose return to baseline was delayed react also more intensively to AAI. Providing insights into the welfare of dogs during AAIs, our results may contribute to increase the standards of practice and quality of life for working dogs.

The role of persuasion in positive punishment training

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Dog aggression towards humans is an issue of societal and legislative concern. Dog-dog aggression is also common and can lead to serious injury and fatalities, especially where dogs are different sizes (Casey et al. 2012). Aggressive behaviour has serious welfare implications for the victim, and the perpetrator who may be abandoned, relinquished to rescue or euthanised. Owners face financial and psychological costs and potential criminal proceedings associated with aggressive behaviour being shown by their much loved pet on whom they have spent time and money often over many years. Canine aggression is not a breed issue, nor confined to unscrupulous and irresponsible owners. Many dogs showing aggression are owned by law-abiding individuals whose dogs are well cared for (Roshier & McBride 2012a). Many will have taken advice on how to train their dog, their family member, to behave appropriately.

Training method is a key factor in aggression. Positive punishment elicits aggressive responses in a range of species as diverse as humans, rats and alligators (Liebermann, 1992). Several studies (e.g. Casey et al. 2012) show that aggression in dogs is more likely if positive punishment is used. This relationship is acknowledged in UK law where physical punishment of children is illegal. Parents understand it inhibits learning, can cause confusion, fear and long term disruption of the child-parent relationship. Yet these same people will use such methods on their beloved pet.

Owners seek training advice from various sources (Roshier & McBride 2012b), many of which promote aversive methods, claiming the need to dominate the dog. One might expect owners to reject such methods being used on a "family member", but many do not. The psychology of behaviour change indicates that how a message is delivered is influential, and can be more influential than the message content.

The current study explores this in the context of aversion based dog training as demonstrated by Cesar Milan in his TV programme "The Dog Whisperer". Conversations between Milan and the dogs' owner(s) in six cases were transcribed. Thematic analysis identified six themes: positive reinforcement, social support, team language, knowledge, force and humour. Milan was found to rely heavily on persuasion techniques to facilitate effective acceptance by the owners. All of the themes interlink in creating a perception of an in-group whose leader is both high in expertise and trustworthiness. Milan excludes the dog, portraying it as a passive, out-group entity.

Suggestions are made on how research in this area should progress. Communication skills should be fostered in the dog training community, alongside knowledge and skill in positive reinforcement training. This will be to the betterment of human and animal welfare. The UK Animal Behaviour and Training Council (ABTC) has established standards for the knowledge and skills required for animal trainers and instructors which include the need for human-human communication skills.

ABTC The Animal Behaviour and Training Council http://www.abtcouncil.org.uk/

Behavioural development in companion dogs – assessments at three ages

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Studies on the behavioural development in domestic dogs are of relevance for matching puppies with the right families, identifying predispositions for behavioural problems at an early stage, and predicting suitability for service dog work, police or military service. The literature is, however, inconsistent regarding the predictive value of early tests for future behavioural tendencies. While some studies report puppies' behaviour at 6–12 weeks to be predictive of suitability as guide or police dogs, others found no correspondence between earlier and later behaviour. Additionally, some practitioners use tests with neonates to complement behavioural assessments during the socialisation period for selecting puppies as working dogs, but these have not been validated. Here we performed behavioural tests in Border collies at three ages in order to assess the predictability of later behaviour, including activity, social behaviour and boldness, by early behavioural tests. We tested 101 puppies in a neonate test (age range: 2–10 days). At the age of 1.5 months (range: 40 to 50 days), these and 33 additional puppies participated in a puppy test. Fifty of these dogs (29 female, 21 male) were also tested as adults (at 1.5–2 years of age). In the neonate test, we determined activity and vocalisations during a brief isolation period. The puppy test and the adult test both included subtests for 1) exploration in a novel environment, 2) interaction with an unfamiliar experimenter, 3) play, 4) a novel object, and 5) a social conflict situation (restraint tests in the puppy test and a threatening approach by the experimenter in the adult test). A positive correlation between activity in the neonate test and exploratory activity and boldness in the later assessments was predicted. Intensity of vocalisations (assumed to be indicative of irritability) was predicted to be positively correlated with duration of vocalisations during restraint tests in the puppy test and with barking or growling during the threatening approach in the adult test; conversely a negative relationship between intensity of neonate vocalisations and latency to react to the threatening approach was predicted. Furthermore, positive correlations between corresponding traits in the puppy test and the adult test were predicted. Following data reduction using categorical principal components analysis (CATPCA), linear mixed models were calculated to assess relationships between behaviours at different ages. No significant associations emerged between behaviour in the neonate test and behaviour in either the puppy or the adult test. There was, however, a significant effect of the puppies' weight on their propensity to vocalise, with heavier puppies vocalising longer and more loudly ($F_{1,78} = 7.63$, $p = 0.007$). Regarding associations between behaviour in the puppy test and the adult test, only one of 10 predicted correlations turned out to be significant: exploratory activity was positively correlated between the puppy and the adult test ($F_{1,43} = 7.79$, $p = 0.008$). We conclude that future behaviour cannot generally be predicted in young dog puppies by the tests used. Furthermore, we suggest that the predictive value of puppy tests may depend on the level at which a prediction is made: those studies that report early tests to be predictive used outcomes (qualification as guide dogs or police dogs) as dependent variables whereas generally low correspondence is found when behaviour traits determined in puppy tests are directly correlated with corresponding traits in the adult dogs, as in our study. Future studies should test dogs repeatedly between the age of six weeks and 1.5 years to assess developmental trajectories and determine from what age meaningful predictions about future behaviour can be made.

Posters

P001 – The Human-Cetacean Conflict: anthropogenic noise disturbance in a social-ecological system

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The concept of the social-ecological system (SES) is relatively new, and as such there is much current debate as to particular frameworks and procedure to be used in practical analyses. SES analysis is used as a tool for assessing the complex interactions between humans and the natural environment in a biogeophysical unit. However, this critical review seeks to explore the potential application of the concept of SES to the study of a particular social-ecological issue, namely anthropogenic noise disturbance of cetaceans, in a defined system such as the Pelagos Marine Sanctuary in the Ligurian Sea.

Research into anthropogenic noise disturbance of cetaceans has become increasingly abundant, with attention focussing primarily on measurable impacts on the animal, such as behavioural, distributional and physiological. Numerous calls have been made in recent scientific literature for a more anthropological approach to research in cetacean conservation and ecology, developed from an increasing awareness of potential socio-economic barriers to marine conservation strategies, and drivers of conflict between human maritime activities and marine mammals.

The concept of a social-ecological system can be applied to anthropogenic noise disturbance of cetaceans. From Binder et al.'s (Binder, C. R.; Hinkel, J.; Bots, P. W. G. & Pahl-Wostl, C. (2013) Comparison of frameworks for analysing social-ecological systems. Ecology and Society 18 (4): 26) classification of SES frameworks, the "Social-Ecological Systems" and "Human-Environment Systems" are particularly applicable, as the issue in question demands a "dynamic perspective on the social as well as on its interaction with the ecological system". Social actors involved in this issue include those at the institutional level – multinational shipping and cargo companies, fishing corporations and naval militaries – and the individual level, such as small family-run ecotourism companies, fishermen and aquaculturists. Ecological actors include cetaceans affected by anthropogenic noise, as well as marine life consequently affected through food webs and environmental damage.

It is of considerable value to study anthropogenic noise disturbance from a social-ecological perspective. Studies exploring socio-economic barriers to marine mammal risk mitigation are scarce, despite a clear and complex interaction between social and ecological factors in a noise-polluted marine system. Including SES analyses in future studies of the human-cetacean conflict could have significant implications in the management strategy of marine protected areas, as well as producing more constructive research in future studies of anthropogenic noise disturbance and cetacean conservation.

P002 – The need for pigeon welfare related research in the UK

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There is likely to be a large population of feral pigeons (Columba livia) within the UK. However, despite this bird being a common sight in the urban space, surprisingly little research has investigated the welfare of these birds, especially within the United Kingdom. Only a small number of studies review the prevention methods which are commonly used and point out the potential problems with various methods. In addition to the commercially available prevention methods, custom-made methods may also be put in place such as iron mesh or sheets. Furthermore, there is some evidence that the current laws are not complied with and culling of birds appears to be commonplace. Therefore, further research needs to be carried out to investigate various topics, some examples are as follows:

- A full review of pigeon deterrents and prevention methods available in the UK and frequency of their use.
- Effectiveness, cost and welfare implications of the most commonly used deterrents and prevention methods in the UK.
- Understanding the process in which local authorities in the UK use pigeon prevention methods and the use of external pest control companies.
- The control methods pest control companies use and frequency of culling and knowledge/compliance with the law.
- Statistics available on reports of feral pigeon complaints and welfare related issues through various organisations and the government.
- Availability of education and enforcement of the laws relating to pigeons.
- Public knowledge and views of pigeons and their views towards culling.
- Understanding and investigating pain in pigeons.
- Behavioural responses of pigeons to deterrents.

P003 – The Other Bycatch: Recreational Fishing Equipment and Non-Target Wildlife

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Widespread attention has been given to the harmful impacts of commercial fishing equipment on marine birds and mammals, but there has been little attention to the impacts of lost and discarded recreational fishing gear, and systematic data are lacking. This study aims to shine light on the potential scope and scale of the problem by using data from wildlife rescue and rehabilitation facilities. Such a study can provide valuable data on the range of species affected, species at high risk, and recovery versus mortality statistics. It can also help inform mitigation efforts.

I designed and distributed a spreadsheet to capture the following data: number of cases by species; the years in which data were compiled; whether the case involved fishing line, hook, both, or other; case duration in days; and final disposition of the animal (released, died, euthanized, or sanctuary). I used professional contacts, networking, and social media to solicit participants in the study.

At the time of writing, 29 American wildlife rehabilitation facilities from 16 states were participating and 2,265 cases from 21 facilities had so far been compiled (some cases still incomplete). The data set comprised 77 bird species (total cases 1,645), 13 reptile species (103 cases), and 1 mammal (a Harbor porpoise). Aquatic birds appear to be the most vulnerable, the six most affected species being Brown Pelican (608 cases, 27 %), Muscovy Duck (144.6 %), Royal Tern (143.6 %), Northern Gannet (100.4 %), Double-crested Cormorant (92.4 %) and Great Blue Heron (92.4 %). All but one of the 103 reptile cases were aquatic species, comprising 97 freshwater turtles of 9 species, 4 marine turtles of two species, one alligator, and a snake.

Fishing line (53 %) was more frequently reported than hooks (22 %), with line + hook cases making up most of the remainder (23 %). Case duration ranged from 0 to over 200 days, with an overall average of 11 days. In most cases (59%), the patient was successfully treated and released. Mortality rate was 38 %, of which 19 % died and 19 % were euthanized. The remaining 3 % were transferred to another facility and/or placed into sanctuary. Data indicate that some facilities had a significantly higher rate of euthanasia, suggesting that treatment thresholds vary among facilities.

These preliminary results indicate that the problem of wildlife entanglement and/or injury from lost or discarded recreational fishing equipment is substantial, at least in the United States, and especially in coastal areas. The cases reported here are probably a small fraction of the actual number of animals affected because most casualties don't end up at rehabilitation facilities. I will discuss mitigation strategies, including angler education, efforts to remove and properly dispose of orphaned hooks and lines, and future policy directions.

P004 – Can Rats Travel Into the Past? Object Discrimination In the Context of What, Where and When

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Episodic-like memory in rats, the integrated knowledge of what, where, and when, was recently interrogated by several studies. Our aim was to validate the preference for the new (what-when) and the dislocated (what-where) objects in an eight-arm radial maze in ten consecutive phases. We find the study relevant to the aims of the International Society for Anthrozoology as it is a part of the ongoing project concerning the animal space and time perception. Although we conduct a series of observations on the problem of episodic-like memory involving rats and cats (in progress), we present the results of the study already conducted.

In this study, a group of ten male Wistar rats was presented with three types of objects. Animals received two training phases and a test phase. In the training phases each individual was presented with two copies of object – object A in phase 1 and object B in phase 2. In the test phase two arms remained empty for each rat, while the other contained two new objects (C), a dislocated and a non-dislocated copy of A and of B alike. Each set was individualised and random.

Data was analyzed using bootstrapped analysis of variance and NIR post-hoc test. Results show that the new objects were more often explored than A objects (BCI: 0.124–0.940) and were explored for a longer time than A and B (BCI: 1.86158–7.25381 and 2.46398–7.49567, correspondingly). Difference between dislocated and non-dislocated objects did not prove significant.

Our results provide strong evidence for the knowledge of what-when and some implications for future research. In general, the better adjustment to the subjects' Umwelt should be introduced which corresponds with the research by Jakob von Uexkull. We are to mention its value in our presentation. Its implications along with the results and our project within the Polish Society for Anthrozoology may provide some solid basis for the research on autobiographical memory in animals.

P005 – Exploring perceptions of rats among two college populations: first-year university students and young children at the university lab school

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Young children, experiencing things for the first time in their lives, learn from social contexts. How people respond to various stimuli will show them the socially correct way to respond. This idea of social learning was presented by Vygotsky and Bandura among many others. Social learning theory is the foundation for the work presented in this poster. The broad research question to be addressed is will exposure influence attitude.

The author has worked to develop programs designed to change human perception of specific animals that have a bad reputation (i.e. skunks, opossums, snakes, cockroaches, and rats). In the past year, college students and young children at a university child care center were systematically exposed to Hooded Rats through two different programs. The university students were 15 first-semester students at a New England comprehensive, regional university. They were enrolled in an Honors level critical thinking course and came from a variety of academic majors. The child care children were enrolled in 4 classrooms and ranged in age from 13 months to 6 years of age. Specific demographic data will be presented in the poster and related handouts for distribution during the session.

The university student program consisted of academic training in an introductory course on human-animal studies and hands-on work with hooded rats on a weekly basis. Students were exposed to research in human-animal studies through readings, guest speakers, and independent reviews of literature in the field. Weekly, student teams of two would spend between 2–3 hours with an assigned rat. Students attempted to train the rats to a variety of stimuli including touch, taste, and auditory commands. The true value of this work was the social relationships that developed between the rats and the students. Initially, several students declared adamantly that they would not touch the rats and two students nearly dropped the course. Their comments were based on hearing negative stories about rats including rat involvement in the Bubonic Plague and in transmitting other diseases. Data on the changes in opinions and attitudes experienced by these students will be presented in the poster session.

The child care center program consists of an initial assessment of the types of animals children would like to play with followed by weekly visits in three of the classrooms by the author of this proposal and at least one rat that the university students worked with during the previous semester. Children were presented with a variety of photos of dogs, cats, birds, and other animals (including rats) and asked to identify the animals they would like to play with the most. Children in the three younger classrooms (Toddlers, Early Preschool, Preschool rooms) are receiving weekly visits of approximately 30–60 minutes with one of the trained rats. These visits consist of educational information on the life of rats (food preferences, social ability, health, etc.), time for petting the rat, and observing the rat engage in bathing, eating, and other natural activities. The older classroom (the kindergarten room) will not receive these visits since they have decided to

adopt one of the rats as a permanent member of the classroom. This classroom will serve as a control group. This research will be concluded in May 2014. At the conclusion of the academic semester, children will once again be asked to rank the animal photos in order of who they would like to play with the most. The expectation is that children will be more likely to choose to play with rats since they have been exposed to this animal in a positive light.

This poster presents details of both programs involving rats at a university. Demographic variables will be provided as well as a discussion of data collections methods (such as examining the exposure to animals outside of the classroom). Discussion will also include the changes in attitudes of the university and child care students.

P006 – Behavioural and heart-rate responses of gun dogs that do right or wrong during a retrieving task

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A combination of field trials with blind-retrieving tasks was designed to characterise behavioural and emotional responses in 32 gun dogs when instructed to retrieve different objects hidden at the top extremities of a T-maze. Are responses during retrieving affected by: a reprimand, the nature of the objects to be retrieved, doing something wrong or when the same dog does what it was supposed to in the absence of a reprimand? The objects were a canvas dummy, a rabbit skin dummy and a dead pigeon. The dogs were in a fenced field with the owner, who could either reprimand the dog or just give directions. Data from video recording and Polar heart-rate monitor recording were analysed. The dogs stopped and looked at the owner more often when there was a reprimand ($p < 0.001$). This behaviour depended on the object to be retrieved, being more frequent for the canvas dummy ($p < 0.001$), the retrieval of which originated more off-track ($p < 0.001$) and off-field ($p < 0.001$) faults. After doing wrong, the dogs' heart-rates tended to be higher ($p = 0.056$) and were higher specifically for the dead pigeon retrieval ($p = 0.016$). In the absence of a reprimand, the dogs stopped and looked at the owner more often when they did something wrong ($p < 0.001$) and their heart-rates were lower after doing right ($p = 0.037$). The behavioural and emotional responses of dogs during retrieving are affected by the object to be retrieved, the dog's own actions and the owner's behaviour.

P007 – Pet dogs acquire cognitive skills by living with human-a comparison of pet dogs and laboratory dogs in gazing task

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Domestic dogs (Canis familiaris) are known for social skills with humans and that this skill is more or less inherited (i.e., Hare & Tomasello 2005). At the same time individual differences are observed between family dogs and shelter dogs (Udell et al 2009), suggesting experiences with human have some influences on their social performances.

In this study, we evaluated the relationship between gazing duration of still photos with the rearing condition of dogs. Thirty-four adult dogs, 23 pet dogs and 11 lab dogs were shown six sets of photos for 3 seconds each. Photos were faces of human males, females, dogs and cats. Average gazing time for pet dogs at these photos were 0.73 seconds and 1.29 for lab dogs ($t(32) = 2.26$, $p < .05$). The average gazing duration for the first photo for the pet dogs was 1.56 seconds and 0.67 seconds for the 6^{th} ($t(22) = 5.57$, $p < .0001$) while for lab dog, it was 1.86 seconds and 0.89 seconds respectively ($t(10) = 1.80$, n.s.).

There were two clear differences between pet dogs and lab dogs in looking at still photos of human faces or dogs or cats that experiences with human do have influences on dogs gazing behavior. Pet dogs spent less time gazing and also learned quickly not to look at them while lab dogs did not only gaze longer, but the average duration time did not change during the session. It is not clear why the still photos were uncomfortable stimuli for pet dogs, but for some reasons, the experiences with human is related to it. Further investigations are needed to understand the mechanism.

The observed differences between pet dogs and lab dogs suggest that dogs are capable of learning social skills to communicate with humans, but with adequate experiences and possibly with some critical period for such learning. The mechanism for such learning resembles that of humans. Children with severe neglected situations are known for the delay in language, social and intellectual development (Nelson et al 2013).

P008 – Telemetry and behavioral data as methods to assess shelter dogs‘ welfare in different housing conditions

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The scenery of Italian dog shelters is very diversified. Because of the law 281/1991, the euthanasia of dogs without owner is allowed only for those incurable or dangerous; free-ranging caught dogs, if not immediately returned to an owner, are hosted into long-term stay kennels. Health management of these structures can be very difficult considering the high rate of entry, slightly balanced by the number of adoptions. There are kennels in which animals are well treated, they can socialize with other animals and with operators, and overcrowded kennels created and managed by people only interested in obtaining public funding for shelters where animals are kept without cure, are often sick and malnourished; in Italy, these latter cases are pursued by competent authorities. Given that the no-kill policy in Italy increases the need to provide dogs housed in a shelter with adequate quality of life, the aim of this study was to assess the level of welfare of shelter dogs in different conditions, yielding information on which is less stressful.
The study was conducted in a dog shelter near Rome on 8 adult male mixed breed dogs (apparent age 2–7 years, singly housed, arrived at the shelter from not less than 3 months to not more than 2 years). These dogs are fed and regularly controlled by a vet, but they are socially deprived by both conspecifics and human beings because they are normally kept isolated and they can get in touch with an operator only when they receive food or when the box is cleaned, as they are not carried out of the box for a daily walk.
Our aim was to investigate the effects of exposure to four different situations on (1) hearth rate, body temperature and physical activity; (2) behavior. A further aim of the study was to assess whether telemetry (i.e. the continuous record of hearth rate, body temperature and physical activity, see below), usually utilized in pharmacological study, could be an appropriate and useful tool to evaluate welfare of sheltered dogs.
The telemetry system consisted of flat transmitters (TA10CTA-D70, Data Sciences Int., St. Paul, MN, USA) and platform receivers. The dogs were implanted with the radio telemeter and the platform receiver was installed inside the box. After implantation, dogs were allowed 2 weeks for recovery, and then were housed in sequence in each of the following situations: (1) alone in the box (baseline, as previously said this is the normal living situation); (2) alone in an box enriched with toys and a stretch cot for sleeping; (3) in a box with an unknown, neutered, female; (4) alone in the box with a daily 2 hours interaction with an experimenter. Each situation lasted one week. Every dog was continuously video-recorded. Since this study required an invasive action on dogs (surgery), proper authorization was asked and obtained by the Italian Ministry of Health.
A specifically designed ethogram was used for coding, performed with Solomon Coder (ELTE TTK, Budapest, H). 48 fragments of 30 minutes were extracted partially randomly every week. Fragments had to be of different hours (so an entire day was covered), equally distributed among the days of the week (7 fragments a day for 6 days and 1 randomly chosen day with only 6 fragments) and fragments from the same day had not to be consecutive.
Currently we are completing the analysis of behavioral and physiological data of 3 animals, which is our intention to present in this poster.

P009 – Overcoming Extreme Fear in Unsocialized Dogs: A Participant-Observation Study of the Impact of Safety and Play in a Home Setting

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The Playful Pooch Program, Boiling Springs PA, USA

Little is written about ways to overcome extreme fear in dogs who reside in shelters, rescues, and human households. The fear manifests as highly avoidant behaviors, such as freezing or escaping, in response to humans, other animals, and/or small changes in the physical environment. This level of fear has been noted in unsocialized dogs, often from puppy mills or other substandard environments, and in dogs with a known history of maltreatment by humans. Such dogs are difficult to place because of extreme fear, refusal to eat, behavior problems, and high risk of escape (McMillan, 2013; McMillan, Duffy, & Serpell, 2011). Play (Burghardt, 2005) has been suggested as a key indicator and mediator of welfare in dogs (Held & Špinka, 2011; VanFleet, 2014).

This participant-observation study took place in the author‘s home with a 1-year-old dog who had escaped from a puppy mill and lived alone in the woods for 2 months as a puppy. The dog was described by two experienced veterinarians and several other canine professionals as “the most fearful, shut-down dog they have ever seen.” The current study (now expanding) aimed to identify the impact of strategies focusing on (a) the creation of a safe environment, and (b) introduction of dog-dog free play followed by human-dog play on the dog‘s social interactions. A qualitative P-O study was deemed appropriate to determine potential impacts of safety and play on the reduction of fear and the development of prosocial behaviors, as well as to generate hypotheses for further study in this unexplored area. The primary aim was to see how far an unsocialized and extremely fearful dog could be rehabilitated to life in a human household using these methods. Daily interactions between the subject dog and other dogs and humans were logged in detail for 18 months, after which weekly logs were kept for 2 more years. Videos of human-dog interactions were made at regular intervals. The subject dog was also placed twice per day for 5 minutes with a stable dog who reliably initiated play bouts. Play invitations and responses were recorded by videotape. Later human-dog play interactions were initiated and monitored.

Data analysis of play and social behaviors show slow steady progress, with the first sign of play behavior in the subject dog occurring during the 18th play session. Dog-initiated human contact began at 4 months and became more interactive throughout the study. Changes in play behaviors occurred over the entire period, with the largest during the first 2 years. Play changes were reliably followed by increasingly complex social interactions with dogs and humans. The subject dog showed positive changes in the following order: with the play-partner dog, three other household dogs, humans in the household, unfamiliar dogs and humans who visited. The subject dog explored the environment with greatly reduced avoidance and escape behaviors, first with the play partner dog and then independently. Details will be in the presentation. Hypotheses for further study are provided, especially the temporal relationship between play changes and changes in social interaction. Implications include the potential value of dog-dog play and human-dog play in the social rehabilitation of unsocialized dogs.

P010 – Does breed and training experience affect problem solving abilities in dogs?

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Dogs have recently become the focus of cognitive studies looking at both their independent and social problem solving abilities. Yet very little is known about the environmental and inherited factors that may affect these abilities. A number of studies have shown that the inclination to communicate with humans, and follow a human's communicative cue, may be affected by breed group although daily experiences such as training, have also been shown to affect such behaviours in problem-solving situations. Little is known however on how breed and training may affect other aspects of problem-solving, such as neophilic inclinations, distractibility and inhibitory control, despite the fact that all these aspects may have important implication both for the establishment of a successful human-dog relationship and training regimes. In the current study we presented a manipulation task (a puzzle box) and a spatial task (the detour) to 128 dogs belonging to 4 different breed groups: Herding, Mastiff-like, Working and Retrievers (von Holdt et al. 2010). Within each group we tested highly trained and non-trained dogs. Highly trained dogs regularly participated in either competitive sports, search & rescues trials or policing whereas untrained dogs had only minimal levels of basic training.
In the detour task, results showed a significant main effect of training group (mean trained = 29.5 vs. untrained = 46; Wald = 27.15, $p < 0.001$), no effect of breed group (Wald = 3.05, $p = 0.38$) and no training*breed group interaction (Wald = 5.55, $p < 0.14$) on the latency to accessing the reward suggesting trained dogs were faster at solving the task. Indeed non-trained dogs were more easily distracted from the task spending more time carrying out behaviour irrelevant to the problem (mean trained = 2.39 vs. untrained = 4.44; Wald = 3.9, $p = 0.048$). However in the same task, the time spent in object-directed action on the wrong side of the fence (a measure of inhibitory control) was affected by breed-group (Wald = 10.6, $p < 0.014$) but not training (Wald = 0.23, $p = 0.63$), nor was there an interaction between these two variables (Wald = 2.36, $p = 0.34$). The post-hoc comparison showed that dogs in the Mastiff-like group spent significantly longer (mean = 7.6 s) at the fence than dogs from the Working breed group (mean = 0.87 s, $p < 0.01$).
In the manipulation task, trained dogs were less neophilic than untrained dogs, approaching the apparatus sooner in the first familiarisation trial (mean trained = 0.88 vs. untrained = 1.57, Wald = 6.9, $p = 0.009$); but no effect of breed (Wald = 4.85, $p = 0.18$) and no interaction between the two variables (Wald = 5.06, $p = 0.16$) emerged. Furthermore, trained dogs in the herding and retriever group were faster to access the reward in the test trial than untrained dogs, but no such training effect emerging in the mastiff-like and working group. Finally, a main effect of training group (mean trained = 23.52 vs. untrained = 40.32; Wald = 14.99, $p < 0.001$) but no main effect of breed group (Wald = 5.67, $p = 0.13$) and no interaction (Wald = 6.46, $p = 0.09$) emerged for the latency to look at the person in the test trial, with trained dogs looking at the person less than untrained dogs during testing. Overall, results reveal different influences of training and breed group on specific components thought to affect problem-solving e.g. neophilia, inhibitory control, distractibility and human contact seeking; suggesting that tasks assessing these different components may be important to allow a characterisation of the cognitive profile of breed groups and the effect of environmental variables such as training.

P011 – Future Directions for Assessment of Aggressive Behaviour in Dogs

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Assessments for aggressive behaviour in dogs are increasingly used in various settings, including breeding programs, academic research, selection of dogs for utility (including service dogs and working dogs), assessment of rescue dogs, to inform legal decisions and for companion animals. Many of the currently available assessments aim to evaluate overall temperament and a few focus specifically on aggressive behaviour. Assessments can also be categorised dependent on form. Questionnaire based assessments, such as the Canine Behavioural Assessment and Research Questionnaire (CBARQ), typically evaluate signalment and history through owner self-report (Hsu & Serpell, 2003). In contrast, the Socially Acceptable Behaviour (SAB) test is an example of a provocation test or test battery, in which a trained assessor scores a dogs behaviour in various situations (Plant & De Meester, 2007).

Many assessments are not developed using evidence-based methods, which perhaps reflects issues in identifying reliable correlates of aggressive behaviour in dogs. Consequently the reliability of such assessments is questionable. Very few aggression specific assessments are investigated in terms of their predictive validity, the notable exception being the SAB test (Plant & De Meester, 2007). Additionally, there is a tendency for existing assessments to disregard owner and situation factors and attempt to assign aggressive and non-aggressive labels to dogs. These labels are decidedly limited in their ability to inform management of risk.

In forensic psychology, there has been a critical shift away from binary classifications of "dangerous" or "safe" when assessing risk of human violence. This has occurred over the last few decades, and there is now an extensive array of risk assessments that predict human violence with high validity. One category of assessments is structured professional judgement (SPJ) assessments. These guide the assessor's clinical judgement using factors that are grouped into scales (for example historical, clinical, environmental and protective scales). This results in a level of risk that is posed by an individual over a given time. SPJ assessments are unique as both the outcome level and contributing factors are used to inform care of the individual and management of the risk they pose to society. The development of similar tools to assess the risk of canine aggressive behaviour could lead to more accurate assessment and appropriate management of dogs.

The development of an SPJ assessment has the potential to excel on grounds of predictive validity and reliability, but also to inform more effective management of aggressive behaviour. This could result in better prognosis for the animal in the long term. As a non-invasive tool, the welfare of the animal and the safety of the assessors and owner are not under threat during assessment. Furthermore, an SPJ assessment could be used to monitor the risk of aggressive behaviour over time, as the tool would include factors that are responsive to change, as well as those that are reflective of current risk.

P012 – A different look at the origins of dog-human cooperation: Intraspecific aggression in dogs and wolves

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Recent theories on the evolutionary origins of dog social behaviour and cognition emphasise the extraordinary cooperativeness of domestic dogs, and propose that their tamer, more tolerant temperament in comparison to wolves allowed for the development of their human-like social skills (Hare & Tomasello 2005, Gácsi et al. 2009). Importantly however, such a dog-wolf difference has been exclusively demonstrated by experiments where the animals were required to interact with humans. Therefore it is unclear whether dogs show increased tolerance and reduced aggression specifically toward humans or also when interacting with conspecifics. Despite of this lack of comprehensive data, dogs are often seen as more docile and affectionate, juvenile versions of wolves (Frank & Frank 1982), which is in line with the general assumption that domestication has reduced aggression in various species. Most recently, Hare and colleagues (2012) explicitly suggested that decreased aggressiveness in dogs is a general characteristic of the species. In order to test this hypothesis, in two studies we directly compared the tolerance and aggressiveness of pack-living dogs and wolves when competing over food during pair-wise tolerance tests and group-feeding. In the tolerance test, dyads from the same pack were tested in a familiar room after offering them raw meat or a big bone. During group feeding, each pack was provided with food in their living enclosure, and the behaviour of the highest ranking and all other animals was compared. During pack feeding, the dominant dogs spent more time eating than the subordinate ones, whereas in wolves no such difference occurred (LME: $t = -5.248$, $p = 0.003$; $t = 0.01$, $p = 0.99$ respectively). Similarly, in the tolerance test, we found that in dogs the dominant members of the pairs monopolised the food more often than the subordinates whereas in wolves rank did not influence their success (GLMM: $z = -5.529$, $p < 0.001$; $z = -0.10$, $p = 0.92$, respectively). Moreover, in this test wolves co-fed with their partner longer than dogs did, albeit this was accompanied with mild aggressive signals (LME: $t = 3.972$, $p = 0.002$). Also independently from feeding, in dogs the dominant animals showed more aggression than the subordinates (GLMM: $z = -5.995$, $p < 0.001$) whereas in wolves the lower ranked animals were as aggressive as the higher ranked ones (GLMM: $z = 1.637$, $p = 0.102$). Similarly, during group feeding, leaders of the dog packs were more aggressive than the highest ranking animals of the wolf packs (GLMM: $z = 4.738$, $p < 0.001$), whereas the other members of the packs rather showed weaker forms of aggression, and this occurred more often in wolves than in dogs (GLMM: $F_{1,12} = 27.70$, $p < 0.001$). Based on these results, instead of higher tolerance, captive dog packs appear to have a steeper dominance hierarchy than wolves. This is enforced by more frequent and stronger aggression on part of the dominant animals and is reflected by higher avoidance and fewer challenges by the subordinate animals in dogs than in wolves. Therefore, we propose that, on the one hand, wolves are characterised by high tolerance and cooperativeness that might have provided a good basis for the evolution of dog-human cooperation, and that, on the other hand, the latter might have been further enhanced by the sensitivity of dogs to social inhibition who, in this way, may accept also their human partners‘ leading role more readily than wolves (canine cooperation hypothesis). Selection for this sensitivity might have happened in parallel with selection for reduced fear of humans suggested by former domestication hypotheses.

P013 – The human animal bond: Perspectives from evolutionary psychology

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On a micro level merely psychological theories have been used to explain the effects of the human-animal bond and interventions with animals (e.g. Collis & McNicholas, 1988; Julius et al, 2013), but on a macro level there seems to be no sound paradigmatic framework. One aim of the anthrozoology program at the Open University of the Netherlands is to explore theories for this purpose. This paper will focus on a particular set from evolutionary psychology and discuss how these can be used as guidance for research in anthrozoology.

When looking at the relation between species from an evolutionary perspective, co-evolutionary theory is probably the most relevant because it forces us to look at two species as part of each other's niche (Franks, 2011; Griffiths, 2001). Authors in the field have looked into this topic and usually limit their scope to the process of co-evolution (Schleidt & Shalter, 2003; Serpell, 1995). We will review this research and subsequently focus on its psychological consequences. The relation between dog and man will be used as an example.

Evolutionary attunement to a niche can be broken down into affordances (Barrett, 2011; Gibson & Pick, 2000), which are fundamental to the interaction between organism and environment. An affordance can best be explained as the functional relation between our bodily structure and the environment. Most affordances depend on the way in which our bodily structures have evolved in relation to reliable elements of our niche (e.g. the dogs we live with). Dogs are sensitive to gestures of our hands, eyes and faces (Hare et al., 2005; Hare & Tomasello, 2005), which are precisely the bodily structures pivotal to the formation of human bonds. Could it be that dogs are, through co-evolution, predisposed to pay attention to signals that enhance bonding with humans?

In conclusion we will deal with the question to what extent this argument can be applied to our bond to other species. This is especially relevant for therapeutic applications because it will help us to categorize what type of interactions are afforded by different animals and, therefore, for which specific therapeutic goals specific animals could be deployed.

P014 – A neurobiological based Model of the Human-Dog-Bonding

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Positive effects of dog-facilitated therapy in medical and pedagogic treatment are well known and examined in many studies up from the 1970s. But there doesn't exist any evidential model. We claim that the decrease of cortisol via inhibition of HPA stress axis and the increase of pro-social neurotransmitters are responsible for these healthy effects caused by epigenetic modulation in the central neural system already started thru interspecific bonding of humans and wolves.
We also claim that the domestication from the wolf to the dog is based on interspecific socialization between humans and wolves. Both are very social mammals living in familiar clans and during the palaeolithic period they were hunting the same big animals in social groups. Due to the evolutionary continuity of the brain (e.g. mirror neurons) humans and wolves evolved very similar refined social communication which permits interspecific cooperation. Neural function systems are determined genetically but modulated epigenetically thru social contacts and nutrition. Increasing social contact between humans and wolves, possibly accelerated by changed nutrition in the human/wolf group (humans began to hunt with ranged weapons) started epigenetic modulation of the HPA-stress axis. Our model of the active social domestication from wolf to dog considers that domestication is essentially an epigenetic based process of changing the interactions of HPA-stress axis and 5-hydroxytryptamine (5-HT) system. Limbic brain regions such as hippocampus, amygdala and septum play a key role in the mood control. They are sensitive to glucocorticoids and innerved by serotonergic projections. The HPA-stress axis and the 5-HT system are closely cross-regulated under physiological conditions. Changes in their interactions are of particular relevance when regarding both, pathological conditions like human depression and even domestication processes of animals. The activity of the HPA-stress axis is influenced by an enhancement of the corpus amygdala and an inhibition by the hippocampus. Glucocorticoid receptor (GCR) density in the hippocampus is likely to affect its inhibitory effect on this system. Epigenetic input is known to impact the regulation of GCR expression. Factors described include down-regulation of GCR expression by enhanced methylation of GRexon1;7promotorbloc as a consequence of increased methionine ingestion. Social factors like licking and grooming enhance GCR expression via increased serotonin and subsequently increased NGF levels binding on GRexon1;7promotorbloc. GCR density and thereby activity of the stress axis with its characteristics of the individual are determined during childhood, but stay variable during adolescence and adulthood.
Thru inhibition of the HPA-stress axis neural structures which are important for learning can increase and the capacity of ToM (Theory of Mind) improves. Thus, the domestic wolf could grow into a social dog being able to work together with humans in an active form of partnership. Today social interaction between humans and dogs still reduces the HPA-stress axis analog to the model of active social domestication. Decreased Cortisol and increased pro-social neurotransmitters as Oxytocin and Serotonine e.g. are responsible for positive effects on stress related intern and psychiatric diseases. Reducing stress and invigorating therefore social and learning ability might be the reason of the benefit of dog-facilitated therapy in medical and social treatment. Furthermore, nutrition changes like methionin decrease and thryptophan may increase inhibition of the stress reaction in dogs.

P015 – The Acceptability of Non-Native Animals in British Society

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When one considers the wide public support for, and involvement in, lethal management of non-native Brushtail Possums (Trichosurus vulpecula) in New Zealand (Potts, 2009) and the "toad-busting" activities of Australian citizens concerned about the impacts of non-native Cane Toads (Bufo marinus) (Somaweera, Somaweera, & Shine, 2010), the British public might appear somewhat less engaged in the face of the unprecedented and increasing numbers of animal translocations around the globe. Indeed, despite the high proportion of non-native species found within state borders (Lotz & Allen, 2013) and the classification of numerous non-native populations as "invasive" (impacting negatively on existing ecosystems or human health, society or economy), few eradication or significant control events have been initiated in Britain (Genovesi, 2005). Indeed, recent attempts to eradicate animal populations, even from uninhabited islands, have been met with varying levels of public opposition (e.g. Meech, 2005; Webb & Raffaelli, 2008; Smout, 2011).

We place the growing global concern about the ecological and societal impacts of invasive species in a British context, considering the state's unique geographical, ecological and socio-political history and how this has affected our relationship with wild and feral animals. This "view from Britain" is analysed and illuminated through comparison with other nations facing the challenge of managing animal invasions and translocations.

We propose that, despite its island geography (an indicator of high susceptibility to ecological invasion), an extensive history of environmental management and change in Britain has created distinctive landscapes and ecologies. These comprise an accumulation of native, long-term resident and newly arrived animals, which many human residents are unable to distinguish between (COI, 2009). In Britain, a population's "invasiveness" is less clearly correlated with its bio-geographical history than elsewhere in the world; animal populations are primarily judged on their observable impacts on valued components of the British lifestyle and landscape, be these gardens, forests or popular native animals. It is therefore seemingly an animal's actions, not its evolutionary origin, that dictate its acceptability British society.

P016 – Human-Coyote Coexistence and Innovative Management Options: A Case Study in the City of Boulder, CO, USA

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Having a coyote (Canis latrans) nipping at one's heels is an experience not easily forgotten. Such interactions highlight the need to critically examine and understand how coyotes behave in areas dominated by human activities. Coyotes are increasingly found in urban settings, compelling government agencies to alleviate the risks associated with human-coyote encounters. Management methods are dependent upon geographic locations, governing bodies, resident voices, and cultural perceptions of the coyotes. The City of Boulder, Colorado, has a diverse landscape including grazing land, wild open spaces, mountain parks, and urban areas. Coyote management is the responsibility of municipalities and they must take into account residents' emotive and polarized views of these wild animals.

As a fresh approach to understanding and mitigating human-coyote interactions, incident reports from the City of Boulder (2000–2013) were examined to discern ways to manage and decrease encounters. Although data were limited (n = 45), the analysis yielded valuable information. All reports contained the date, time and incident location, along with a detailed narrative. Each narrative was coded using a latent content analysis for reoccurring themes and key words to identify the context that precipitated coyote behavior. Qualitative data were used to inform quantitative analysis of incident reports in which tests identified significant differences of occurrence. Binary logistic regressions were also used to identify potentially significant drivers. Any medical attention sought for human-related reports, or veterinary attention sought for dog-related reports were flagged and incorporated into the analysis. Because education has proved to be an effective tool in understanding coyotes, data were assessed to see if education was provided to the reporting party following an incident.

Findings showed that during the research timeframe, 4 people were bitten by a coyote resulting in hospital visitations for rabies vaccinations and minor medical attention, and 8 coyotes were lethally controlled. Of the 45 cases reported, 12 involved dogs, 5 of which were injured and 1 killed, with 10 of the 12 dogs being off-leash. Nine coyotes were documented as sick or injured, 5 of which had mange. Incident reports occurred more frequently during the January to March mating season, suggesting a case for seasonal adjustment of management plans.

Early reports tended to involve coyotes on grazing land preying upon new-born calves, while later ones suggested a transition into direct interactions with people and their pets in urban areas. By 2011–2013, reports of interactions between humans and coyotes were focused almost entirely in urban settings with an abundance of natural prey and paths used for recreation and commuting.

Due to rapid human development of natural landscapes within the City of Boulder, expanding coyote populations, and an increase in human-coyote interactions, it is clear that a comprehensive coyote management plan is necessary. Such plans need to develop innovative strategies for resolving potential conflicts between humans and coyotes, such as adapting to seasonal changes in coyote behavior. Temporary closure of trails and paths where active coyotes are present could be an appropriate method as it would alleviate the necessity for lethal control and increase opportunities for coexistence.

P017 – Effects of ownership styles on epigenetic modifications of OXTR gene in dogs (Canis familiaris)

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The social environment can have long-term consequences on the development of an individual's behaviour. Epigenetics, the environmental modification of gene expression, is an important component of the underlying biological mechanisms of this phenotypic plasticity, and within this, DNA methylation is one of the most studied epigenetic modifications. It has been suggested that the domestic dog can be used as a non-human model of human behavioural genetics because of the genetic diversity of the species and the world-wide variability of its social environment. For instance, recent research has shown that the complex social behaviour of dogs is related to the genotype of their oxytocin receptor (OXTR) gene as also shown in humans (Kis et al. 2014). Even more interestingly, it has been argued that dogs and humans evolved behavioural convergences that might be similarly regulated in their shared social environment. For instance, the dog-owner relationship has been compared to mother-infant attachment in humans, placing the dog in the social position of a child. Moreover, it has been shown that not only human mothers but also dog owners have diverse handling styles. Since, we know from human as well as mice studies that maternal behaviour affects the molecular mechanisms involved in the epigenetic modifications of the offspring's genome (Champagne et al. 2009), an exciting question is whether and how different ownership styles influence the methylation pattern of the OXTR gene in dogs and the dog-owner relationship.

In this study, we tested 200 dogs-owners dyads in 8 standardized test situations to investigate the variability of the owners' interaction styles towards their dogs (how they encourage their dogs, how they play with them, how they give commands etc.). Our intention is to use this data to assess the kind and degree of control the owners have on their dogs and the social support they can provide. In addition, we collected buccal samples from the dogs for epigenetic analyses. In humans it has already been demonstrated that it is possible to detect different methylation patterns associated with specific behavioural traits a lso from peripheral cells (Gregory et al. 2012). Our aim is to compare owner behaviour and the epigenetic data of the dog and we hypothesize that the owners interaction styles toward their dogs influence the epigenetic modifications of the dog OXTR gen e.

P018 – Heart rate and heart rate variability of adult wolves (Canis lupus occidentalis) and their human trainers in different test situations

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Heart rate variability (HRV) is the variation over time of the period between two consecutive heart beats and is thought to reflect the heart's ability to adapt to changing circumstances (Acharya et al., 2006). HRV can be used as a non-invasive method of measuring, for example, chronic or acute stress in a variety of animal species (von Borell et al., 2007). Heart rate (HR) itself, however, is considered to be more dependent on bodily movement or posture (Maros et al., 2008). The goals of this study are to measure HR and HRV of wolves (Canis lupus occidentalis) and their human trainer counterparts in three test situations and to evaluate the effects of (1) the different test situations and (2) the social relationships between trainer and animal on both HR and HRV. Depending on the test situation and amount of physical activity (bodily movement; Maros et al., 2008) during the test, we (1) hypothesise the HR of the wolves to differ between the different test situations. Furthermore, (2) HRV of wolves is expected to differ between the tests, as the three test situations represent varying kinds of challenges. In addition, we (3) hypothesise that the HRV of wolves and trainers will be correlated, depending on the quality of their relationship; a good relationship probably results in less stress for both wolf and trainer (social buffering effect) and, consequently, a higher HRV.

Six wolves (2 females, 4 males; all 2+ years of age) were tested with 5 different trainers (4 females, 1 male). All animals were tested once by each trainer in each of the three test situations: (1) a two-choice task working on a touch screen (limited movement and mentally challenging), (2) a two-choice task in which the animals are either waiting for an object to be put down or are actively stepping towards the object (interaction physical and mental activity), and (3) a leash walk (normal movement and limited mental stimulation). HR and HRV of wolf and trainer were measured using the non-invasive Polar RS800CX system. Additionally, each test was videotaped and the behaviour of the animals was coded using The Observer XT. This is the first study to investigate the influence of relationship quality of human-wolf dyads, as well as the effects of three different test situations on HR and HRV in both wolves and humans.

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P019 – Adult Wolves (Canis lupus occidentalis) and Dogs (Canis familiaris) during Leash Walking

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The domestication of the wolf (Canis lupus) has been intensively investigated, particularly with reference to the interpretation of social cues given by their human counterparts. Seemingly dogs were originally domesticated based on this ability, and therefore would be expected to better understand what their human counterparts expect of them (Hare et al. 2002, Boyko 2011). However, this point can be debated when comparing wolves and dogs that were equally socialized with humans from birth (Range and Virányi 2013). In order to test this comparison from a social standpoint, equally socialized and trained wolves and dogs were tested in their cooperative performance in leash walking with a familiar human.
We presently compare results obtained when the canid participants were between 8–14 months old with dyadic results with mature wolves and dogs, i.e. 3+ years old. This is in regard to the slow development of the mammalian prefrontal cortex, which is responsible for synthesizing information from a wide range of brain functions (Miller et. al. 2002) particularly with regard to impulse control and proper functioning in a social context. The methods of the original leash walking studies will be replicated as closely as possible to ensure an accurate comparison of results (see abstract by Kotrschal et al.); the wolves and dogs will be walked on an 8 m leash along three 80 m long tracks. At marked points, the animals will be requested by the walker to do "sit" or "down". In addition, other behavioral factors will be measured, such as a strained leash, frequency the animal ventured away from the walker, whether human or animal determined leadership in the walk, etc. The data will be collected through video recordings and analyzed with GLMMs and non-parametric tests, as appropriate.
In the original study, wolves on the leash tended to show more leadership than dogs, but less leadership conflict, and wolves were faster at responding to commands. Although the wolves tended to explore at a distance more than dogs, their leash was less often strained than in dogs.
While it is expected that a human-dog dyad would better carry out the requested cooperative tasks, due to domestication, the results of the original study seem to support the "intraspecific canine cooperation hypothesis" (Range & Virányi 2013). Wolves tend to rely more on fine-tuned social cues, which is necessary when interacting and working with a pack lifestyle (2013). Dogs, however, seem to have somewhat lost the need to communicate based on specific social cues (2013). The continuation of this test with older animals is necessary to try and better gauge how the domestication process has affected cooperative abilities in fully adult animals.

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P020 – Physiology and performance of wolves and dogs in three experimental situations with different human partners

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Animals continuously deal with a variety of environmental and social situations composed of various factors that may either induce or ameliorate their stress response. Very few studies, however, have examined the influence of multiple stressors on the physiological stress response of animals (Wascher et al., 2011), and even fewer take into account other (e.g. social, cognitive) processes that may simultaneously modify the same physiological measurements of the subjects. Physiological measurements, such as heart rate (HR) and heart rate variability (HRV), but also behavioural data, can provide insight into how animals respond to complex situations; HR seems to be more affected by physical activity and HRV more by psychological processes (Maros et al., 2008).

So, the major objectives of this study were to examine the influence of (1) different experimental test situations and (2) social relationships between wolf-human and dog-human dyads on HR, HRV, and behaviour of wolves (Canis lupus occidentalis) and dogs (Canis lupus familiaris), and (3) examine the wolf-dog differences during the experiments. By asking exactly the same questions and using exactly the same methods on similarly raised wolves and dogs, we aim to trace back the functional and adaptive changes that occurred in the social life of dogs during domestication. Consequently, we predict (1) a positive correlation between the amount of physical activity and HR and (2) a negative correlation between the degree of mental stimulation and HRV depending on the different test situations. Then, (3) a positive correlation is expected between relationship quality and HRV (social buffering effect) and (4) a negative correlation with stress-related behaviours. Finally, we expect dogs to have lesser HR and a greater HRV modulation in interactions with trainers or devices because dogs should be better adapted to work with people (domestication).

Experiments were carried out with 2 female and 4 male wolves (1.5–5 years old), 6 mixed-breed, male dogs (1.5–3 years old), and 4 female and 1 male human(s) (23–37 years old). All animals were hand-raised and socialised from an age of 10 days at the Wolf Science Center (WSC) in Austria. Experimental situations included: (1) a leash walk (limited mental stimulation and normal physical activity), (2) a two-choice task which involved physically active (stepping towards an object) and passive (looking at two objects being put down) periods and was considered an interaction between physical and mental activity, and (3) a two-choice task working on a touch screen (mentally challenging and limited movement). All animals were tested five times per test situation; but, each test session was carried out with a different human partner. HR and HRV were measured using the non-invasive Polar RS800CX system and behaviour was recorded, too. This study represents one of the first attempts to investigate simultaneously how different factors (e.g. experimental situation, relationship quality) influence the HR, HRV and behaviour of wolves and dogs and tries to explain wolf-dog differences.

We would like to acknowledge the financial support for this study by the PhD programme Cognition and Communication at the University of Vienna. Also, we offer our deep gratitude to Bea Belény, Marleen Hentrup, Rita Takács, Christina Mayer, Marianne Heberlein, Charles Gent, and Alice Charalabidis for their involvement in the data collection. Lastly, we thank all sponsors, supporters, other colleagues of the WSC who helped make this study possible.

P021 – Dogs ability to understand human cues related to owner perceived closeness and owner perceived intelligence of dog

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Recently, the Perceptions of Dog Intelligence and Cognitive Skills (PoDIaCS) survey was developed [1]. Positive correlations were found between scores on all 8 subscales and scores on subscales 1 and 2 of the Monash Dog Owner Relationship Scale (MDORS) [2], which measures "perceived emotional closeness" and "human-dog interactions", respectively, in dog owners. This suggests that owners who report higher levels of closeness to their dog also believe that dogs have higher cognitive abilities. The neuropeptide oxytocin has been associated with both non verbal intelligence and bonding and, therefore, could explain this positive relationship. The aim of this study was to objectively measure social cognitive intelligence in pet dogs using the "object choice task" on two separate testing sessions, once after intranasal oxytocin administration and once after intranasal saline administration, and correlate performance on this task with scores on three different surveys; the MDORS, the Pet Attachment Questionnaire (PAQ), which measures levels of anxious and avoidant attachment styles [3], and a modified version of the PoDIaCS. It was hypothesized that dogs that scored higher on the task would have owners with higher levels of self reported closeness to their dog and perceive their dogs to have greater cognitive abilities. Seventy-five (33 M; 42 F) pet dogs and their owners participated in the study over two different testing sessions, 5–15 days apart. Owners filled in the PoDIaCS before testing session 1 and the MDORS and PAQ before testing session 2. Positive correlations were found between subscale 2 of the MDORS and subscale 8 (general intelligence compared to humans) of the PODIACS and between subscale 1 of the MDORS and subscales 3 (instinctive awareness of human attention), 5 (deception) and 8 of the PODIACS. Negative correlations were found between the avoidant subscale of the PAQ and subscales 1, 2, and 3 of the MDORS and positive associations were found between the anxious subscale of the PAQ and subscale 6 (contagion of human emotion) of the PODIACS and subscale 2 of the MDORS. The predictive power of all the subscales on the outcome variables "scores with the medial distal pointing cue and oxytocin", "scores with the medial distal pointing cue and saline", "scores with gaze cue and oxytocin" and "scores with gaze cue and saline" were then entered into a multiple regression. It was found that subscale 1 of the MDORS and the anxious subscale of the PAQ were significant predictors in 'medial distal pointing with saline' scores, $F(15, 47) = 2.99$, $p < .01$, subscale 4 (learned awareness of human attention) of the PoDIaCS was a significant predictor in "gaze with oxytocin" scores, $F(13, 47) = 2.04$, $p < .01$, and subscales 1 and 6 of the PoDIaCS were significant predictors in "gaze with saline" scores, $F(13, 48) = 2.00$, $p < .05$. Results suggests that a dogs ability to follow pointing cues and owner rated attachment are related, while a dogs ability to follow gazing cues is related to owner-rated intelligence of the dog.

P022 – Gazing towards humans: a comparison between water rescue and pet dogs in the impossible task paradigm

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Specific training can affect dogs' problem solving strategies and behavior towards humans (Bentosela et al. 2008; Marshall-Pescini et al. 2008, 2009). The current study further investigates the effect of training on dogs' behavior and communication with humans comparing dogs trained for water rescue service and untrained pet dogs using a modified version of the impossible task paradigm. Water rescue training implies the formation of a strong, long lasting cooperation and synchronization between dogs and handlers. Moreover, dogs must be very attentive to their owner and ready to get information from him/her and, therefore, they are strongly rewarded for carefully looking at him/her.

Twenty-three certified water rescue dogs (Rescue group: 12 females and 11 males; mean age = 5.2 ± 2.0 years) and 17 pet dogs with no training experience (untrained group: 8 females and 9 males; mean age = 6.0 ± 3.1 years) of the same breeds (Labrador and Golden Retrievers) were tested. The test consisted of three "solvable" trials in which dogs could obtain the food by manipulating a food container, followed by an "unsolvable" trial in which the container was fixed onto a wooden board. In all trials the owner and an unfamiliar researcher were standing at either side and one step back from the wooden board on which the container was placed and did not interact with the dogs. Both independent problem solving behavior and gazing towards people were scored.

GLMM analysis was carried out on duration of gazing toward the owner and experimenter and interaction with the food container with dogs' group and person identity as explanatory variables and subjects as random variable. Results showed that water rescue dogs gazed at their owner significantly longer than untrained pet dogs ($F = 6{,}944$, $p = 0.01$). No group differences emerged in the duration of gazing toward the experimenter nor in the duration of interaction with the food container. These results suggest that the type of training received by the water rescue dogs could have magnified their gazing behavior toward the owner. However, further confirmation is needed, and for this purpose testing of guide dogs for visual impaired people in the same task is in progress.

P023 – Dog-human similarities and differences in face-processing: Eye movements recorded by a high-resolution eye-tracker during free viewing of faces

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Faces carry information on one's identity, gender, age, as well as emotional and attentive status that are crucial for social interaction. In humans, processing such social information from faces seems effortless and immediate, supported by holistic processing using configuration information of facial features (e.g., relative distances among eyes, mouth and nose), rather than their individual characteristics (Tanaka, 1993). Earlier eye tracking studies connected holistic processing to having longer fixations on the eye region during face recognition tasks. Newer studies, however, have revealed that initial two fixations around the middle of the nose suffice in face recognition (Hisao & Cottrell, 2008; Peterson & Eckstein, 2012). Such location is optimal to perceive the configuration information rapidly by compensating for limited foveal vision and, indeed, reflects holistic processing.

Not only humans, but also other primates seem to use a similar face-processing strategy, which has been demonstrated by their similar patterns of eye movements to humans'. It is a question, however, 1) whether such holistic processing occurs only when viewing faces, or also for other objects; 2) whether it is specific for humans and other primates with sophisticated cognitive skills and/or various forms of facial communication. Using an eye tracker, it has been demonstrated that dogs view the eye region of upright human and dog faces longer than that of inverted versions (Somppi, 2013). This study, however, measured total fixation durations, which, as explained above, may still not be indicative of holistic face processing.

To address the above questions, we compared the early fixation patterns of 16 humans (20–40 yrs) and 16 pet dogs (2–9 yrs) in both genders while viewing face pictures of humans, dogs and animal species likely not seen before. Additionally, pictures of objects with face-like configuration and of dog and human bodies without faces were used. All pictures were of 512 x 512 px (visual angle of 16.2º x 16.2º) with viewing distance of 2 m. Each picture had a scrambled counterpart, which makes total 24 images per subject. Recording was done for 5 s with 0.01º spatial and 500 Hz temporal resolution by EyeLink1000 from SR research (www.sr-research.com). The initial fixations were analyzed based on pre-defined 2 areas of interests (AOIs), a triangular nose area between two eyes extending until the lips, and the entire image. The hit ratio of initial fixations in the two AOIs and the distances between the initial fixations and the centers of the two AOIs were analyzed with DataViewer and SPSS. The dogs and the humans have been tested with identical stimuli and experimental procedures, except for the training the dogs receive to guarantee their stable position and attention during calibration and recording. This poster reports our experiences with this first attempt of eye tracking in dogs with such high resolution and hopes to give at least a preliminary answer to the above research question.

P024 – The effect of massage-like stroking on stress responses in dogs

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Introduction and aim: Administration of exogenous oxytocin stimulates social interaction, decreases the level of anxiety, increases pain threshold, and lowers cortisol levels and blood pressure. Previous research suggests that certain types of sensory stimulation, such as stroking, brushing, massage and caressing in rats and dogs, induce endogenous oxytocin release that is associated with patterns of behavior and physiologic responses, particularly "anti-stress" responses (Handlin et al., 2011).
The aim was to investigate whether a 5 minute long period of massage like stroking reduces or buffers stress reactions in dogs. If so, such a practice could be used clinically to reduce stress responses in dogs before examination and various treatments.
Materials and methods: Twenty privately-owned companion dogs and their owners participated in the study in which the dogs were exposed to a mild stressor; once after a 5 minute massage treatment on the ventral side of the chest and once without this pre-treatment (control). The stressor consisted of unfamiliar noises and the sudden appearance of an unknown person. Salivary cortisol levels before (at 0 min), during (at 20 min) and after the experiment (at 60 min) were determined. The dogs were randomized to treatment order and the second experiment was performed after 3 weeks. No food was allowed during the last hour before experiments. Salivary cortisol levels were measured by Enzyme Immuno Assay (EIA) and analyzed using Mixed linear model in SAS. T-tests were used as post hoc tests. Arithmetic means + SE are shown.
Results: Salivary cortisol levels were different for the treatment group with a mean cortisol level of 0.226 (± 0.025) μg/dl compared with the control group with a mean cortisol level of 0.156 (± 0.025) μg/dl. At the start of the study (at 0 min) cortisol levels were significantly higher for the treatment group (0.237 ± 0.030) μg/dl compared with the control group (0.151 ± 0.0178 μg/l, $p = 0.036$). They were also significantly higher in the treatment group at 60 min (0.212 ± 0.034) μg/l compared with the control group (0.129 ± 0.012 μg/dl, $p = 0.037$). However, there was no significant difference at 20 min ($p = 0.402$). In addition, analysis of differences in delta values 20–0 min, 0–60 min and 20–60 min using t-tests were performed. No differences between the treatment and the control group were shown ($p = 0{,}973$, $p = 0{,}961$ and $p = 0{,}635$ respectively).
Discussion: It is not clear why baseline cortisol levels differed between the treatment and control group, which makes it difficult to interpret the results. Changes in blood cortisol levels are reflected in saliva with 10–20 minutes delay, so a possible explanation for the high salivary cortisol levels in the treatment group could be, that the dogs' activities or experiences before the start of the experiment differed. The temporary disappearance of the difference in cortisol levels between treatment and control groups following exposure to the experimental stressor may indicate that the effect of the massage treatment had dampened the cortisol release triggered by the stressor. With our current design we have not been able to conclusively state that massage results in less stress to dogs. Further studies are needed to evaluate the effects of massage on stress reactions in dogs.

P025 – Human-Horse Relationships and Equine Health

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Increasingly, empirical research suggests the importance of human-animal interaction (HAI) in promoting health outcomes for both humans and animals. However, the majority of the existing literature focuses on household pets, such as cats and dogs, and relatively little empirical work addresses human-equine relationships. Much of the research that does explore human-horse relationships is focused on the promotion of human health outcomes in equine-assisted therapeutic settings (e.g., Bachi et al., 2012). However, given the longevity of horses (especially compared to other companion animals) and the often long-term and deep relationships owners have with them (Brackenridge & Shoemaker, 1996), understanding horse-human interaction is a key component to identifying how humans influence equine health and welfare. Therefore, given the important role that owners can play in the health of their horses and the importance of horses to their owners, we need to better understand the specific owner perceptions and attitudes about horses that may be related to equine health outcomes. The purpose of this study was to gather preliminary pilot data on horse owners' attitudes about their animals, and how these attitudes related to willingness to seek out veterinary care.

Participants (N = 93; 89.2 % female, ages 18–72) were recruited through convenience sampling at a regional horse convention in Massachusetts. Owners were asked to participate in a short, anonymous survey about their horse(s). The number of horses owned or leased per participant ranged from 1 to 11, M = 2.61.

A majority (66.7 %) of horse owners reported that their horse was both a pet and had a job to do, while 19.4 % reported that their horse was a pet only, and 6.5 % indicated that their horse was a working animal, not a pet. Participants were asked whether they would invest in expensive colic surgery for their horse and respondents' willingness to do so was positively associated with feelings of companionship toward their horse ($r = .31$, $p < .001$), increased enjoyment of life from relationship with their horse ($r = .41$, $p < .001$), feeling like the horse was a member of the family ($r = .34$, $p = .001$), viewing their horse as a friend ($r = .44$, $p < .001$), and negatively associated with considering horses to be replaceable ($r = –.45$, $p < .001$). Owners' perceived importance of providing their animals with regular veterinary care (vaccinations, deworming, weight monitoring, dental care) was positively associated with increased enjoyment of life from relationship with their horse ($r = .23$, $p < .05$), feeling like the horse was a member of the family ($r = .39$, $p < .001$), viewing their horse as a friend ($r = .26$, $p < .05$), and negatively associated with considering horses to be replaceable ($r = –.23$, $p < .05$).

The results from this preliminary study suggest that understanding human-horse interaction may be an important factor in the veterinary care that horses receive. Future work exploring the role of human-horse relationships and horse owners' attitudes about their animal will be critical in identifying the processes by which HAI can promote human well being and animal health.

P026 – Human-Dog interactions on Public Transport and areas for further research

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Considering 1,107 million people use the London tubes each year, there appears to be minimal research looking into attitudes of the public and dog owners on the transport system (Transport for London, 2013). The attitudes and views may be determined by a variety of factors such as time of day/week, gender, culture, transport type, occupation, previous experience with pets, perceptions of dogs, breed and owner, amongst other factors e.g. weather (a wet dog). However, there appears to be limited research to acknowledge what the public's views and knowledge are regarding dogs and what determines their views. Whether they think improvements could be made to accommodate dogs or educate dog owners and the public on public transport.

Of the research which has been carried out this generally focuses on assistance dog such as Guide Dogs for the Blind and research relating to dog allergies on the transport system. For example, Partti-Pellinen et al. (2000) found that on Helsinki City transport (buses, trams and trains) over 2000 people were interviewed, of which 14 % complained about pets on the transport system which were mainly health related (58 %). However, other reasons did include people being frightened; pets being seen as unpleasant or other reasons. Furthermore, Custovic et al. (1996) found upholstered seats in a public place, including public transport, may be a reservoir for specific dog allergens.

There appears very little research looking at physiological and behavioural factors in dogs during transport and whether these measures are affected. Overall, there appears that more research needs to be carried out investigating dog owners and the publics' perceptions and associated factors. This may contribute new evidence to human-animal interactions and help further understand this relationship.

P027 – To match or not to match? Behavioral traits and performances of working dog-human dyads

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Improving operational performance of working dog-human dyads is more and more questioned. It has been shown that these performances depend on the human-dog relationship (Haverbeke et al., 2008) and on dog behavioral traits (Svartberg, 2002). However, the influence of human and dog behavioral traits and matching or mismatching between them has never been studied. This work hence explores the links between human and dog behavioral traits, their matching or mismatching, the quality of the human-dog relation, and the dyads' performances.
Tests on 14 human-dog dyads from the Paris Fire Brigade have been used for this research. Performances have been characterized during a training search for a hidden "victim" by three parameters: speed (i.e. reduced time to find the victim), precision (i.e. reduced number of errors) and dyad improvement. Handlers filled in a personality (NEO-PI-R) and a relationship questionnaire. Dog behavioral tests revealed five traits: "conscientiousness", "neuroticism", "activity/exploration", "introversion", and "human familiarity/confidence".
Human behavioral traits influenced performances. The trait "human values" tended to be negatively correlated with dyads' speed ($p = 0{,}08$), and the traits "gregariousness" and "deliberation" were positively related with dyads' speed and precision ($p = 0{,}07$; $p = 0{,}03$). Moreover, the dog's trait "human familiarity/confidence" tended to be negatively associated with the dyad speed ($p = 0{,}08$). Associations between behavioral matching/mismatching of human-dog traits and performance have been found. Dyads' precision increased when dyads matched on the traits "dog neuroticism" and "human impulsivity" ($p = 0.03$), "dog human familiarity/confidence" and "human positive emotions" ($p = 0.05$) and when dyads mismatched on the traits "dog conscientiousness" and "human conscientiousness" ($p = 0.05$). Dyads' speed tended to increase when they matched on the traits "dog human familiarity/confidence" and "human activity" ($p = 0.09$). Matching of human-dog traits was also associated with the human-dog relationship quality. Indeed, the relationship quality increased when the dyads matched on the traits "dog conscientiousness" and "human autodiscipline" ($p = 0.02$),"dog conscientiousness" and "human conscientiousness" ($p = 0.004$), "dog conscientiousness" and "human order" ($p = 0.001$), "dog conscientiousness" and "human dutifulness" ($p = 0.05$), "dog introversion" and "human social shyness" ($p = 0.02$). The trait "dog conscientiousness" was also positively associated with the relationship quality ($p = 0.04$). Moreover, "having toys at home for the dog" was positively associated with dyads' improvement ($p = 0{,}04$), while "punishing physically the dog" was negatively associated with dyads' precision ($p = 0{,}01$).
Our results hence show some paths to follow in order to improve performances of working dog-human dyads. We notably provide informations about the importance of matching and mismatching behavioral traits, particularly considering conscientiousness. These results also show the complexity of factors linking human-dog behavioral traits, their relationship and performances.

P028 – Dog Sports: An Exploration of Physical Activity in Agility

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Physical inactivity and obesity is on the rise amongst both humans and dogs in North America (German, 2006). Sport is a form of structured physical activity (PA) that provides participants with an opportunity to accrue PA. Individuals who meet the Canadian PA guidelines of 150 minutes of MVPA each week are more likely to receive health benefits. Dogs that receive regular PA are also at a lower risk of becoming obese (German, 2006). Dog sports are a form of sport that attract large numbers of participants, especially amongst older females (Baldwin & Norris, 1999) and may help improve the health of both humans and dogs. Baldwin and Norris (1999) conducted a study utilizing various dog sport participants which identified that exercise was seen as a benefit of participation. Agility is a team dog sport that requires individuals to run while guiding their dog around a set obstacle course. Despite large numbers of participants and the physical nature of the sport, the amount of PA achieved through this sport is still not understood. The purpose was to explore how much PA is achieved through agility participation amongst competitive agility participants and their dogs.

Agility competitions and training facilities were visited, and agility participants were recruited (n = 233) to complete questionnaire data. The sample contained 208 females and 25 males and together they owned 483 dogs. Participants completed a PA inventory and a demographic questionnaire. The PA inventory was a self-report measure that assessed frequency, duration, and intensity of agility participation that took place in both in-class settings and in out-of-class settings. The demographic questionnaire measured characteristics of both humans and their dogs. Descriptives and frequencies were utilized to explore how much PA was achieved through participation in agility.

Participants reported being involved in agility, on average, for approximately 11 years, attended 21 weekend long agility competitions, and 63 agility classes/year. On average, the sample expended 700 kcal/week through their agility participation. Participants engaged in out-of-class agility training sessions more frequently with their dog(s) (M = 3.1 ± 2.6) compared to in-class training sessions (M = 1.2 ± .9). However, in-class training sessions were longer in duration (M = 63.1 ± 19.7) compared to out-of-class training sessions (M = 24 ± 19.2 minutes). Most owners reported having medium sized dogs (n = 237) that had high energy levels (n = 282), with excellent health (n = 283) and mobility (n = 390).

Findings revealed that agility contributes positively to participants' physical health. Individuals in the sample accrued 70 % of the recommended amounts of PA through agility alone. A further 22 % of the sample met the recommendations, which is higher than the national Canadian average of 15 % of the population (Colley et al., 2011). Demographics indicate that agility is a sport that is attracting primarily female participants, which is contrary to national trends in sport that indicate older females are the least likely population to engage in sport (Canadian Heritage, 2013). Future studies may wish to explore why older females are drawn to the sport and why males are under-represented. The present study also provides preliminary evidence on the physical nature of agility that should be explored further with more objective measures, for both the human and the dog.

P029 – Adopted street dogs: owner and dog personality and relationship

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Human's best friends in their homeless or even feral version may be a "problem" for many cites in the world. Because this is also considered to be a welfare problem, organizations co-ordinate translocation of these dogs, particularly from SE Europe to Austria or Germany and (re)home them to new owners. We presently ask what kind of people decide to adopt former street dogs. Would they differ in personality, empathy or attitude towards animals from a control sample of who got their dogs as puppies, mainly from local breeders? Furthermore, we ask whether there would be differences in behavioral characteristics and "personality" between former street dogs and ordinary pet dogs. Living in a potential dangerous or nutrient-poor environment and being hardly socialized with humans may affect maternal stress, and thereby, increase HPA reactivity of the offspring (Meaney 2001) resulting in cautious and neophobic dogs . As street dogs might have experienced insufficient human socialization or negative encounters with humans, this may also affect their relationship with human adopters. We tested 22 owner-street-dog dyads in three different video- taped test situations; dog behavior was coded and observer-rated via the Observer XT. To participate in our study, dogs had to be adopted with a minimum age of 6 month, been living as single dogs with their owners for at least one year and had to be neutered. The control group were the participating dyads in our human-dog relationship study (n = 60). Given that a previous study has already shown that interaction and relationship patterns depend on the owner's gender (Kotrschal et al. 2009), only female dog holders were tested. Owners were asked to answer the Monash Canine Personality Scale (Ley et al. 2008, 2009) to measure dog personality and the Monash Dog Owner Relationship Scale (Dwyer et al. 2006). For measuring owner personality, we used the NEO-Five Factor Inventory (Costa & McCrae, 1989). Owner empathy was analyzed by a German version of the Interpersonal Reactivity Index. Attitude towards other animals was estimated by a questionnaire from Dennis C. Turner. We expect to find differences between former street dog dyads and conventional pet dog dyads in how dogs and owners relate to each other, in how reactive the dogs would be and in owner empathy with dogs or animals in general. The project was partly funded by the Austrian Science Fund (FWF) project P23345 B17.

P030 – Holistic assessment of therapy dogs: Dog selection for the University of British Columbia's Building Academic Retention Through K9s Programme

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In its second year of operation, the "Building Academic Retention through K9s" (B.A.R.K.) dog therapy programme at the University of British Columbia, Okanagan campus conducts intervention studies aimed at promoting university students' social-emotional well-being through Animal-Assisted Therapy (AAT). In an attempt to reduce stress, B.A.R.K. also offers weekly drop-in sessions for students, staff, and faculty from the larger university community to interact with dogs in a structured environment.

Currently operating with 40 community volunteer handlers and 40 certified therapy dogs, this poster will provide an overview of the holistic assessment practices used by B.A.R.K. to determine the suitability of dogs for acceptance into programming. B.A.R.K. has four volunteer adjudicators with extensive experience working with dogs as dog trainers or within the context of animal therapy. Dogs are brought into a communal space for assessment and the presence of multiple dogs allows for the assessment of inter-dog compatibility. Given the social nature of B.A.R.K. sessions that see multiple dogs, multiple handlers and multiple student-clients brought together in one setting, inter-dog compatibility is critical.

In lieu of using a check-list to score dogs on a variety of personality and behavioural dimensions, adjudicators use a holistic approach in which impressions of each dog's suitability for AAT is determined. This is based on the following: (1) overall pubic behaviour; (2) startle reflex; (3) approachability and interactions with strangers; and (4) interest in interacting with people. Volunteer handlers wishing to be involved in either intervention studies or in drop-in sessions must attend training sessions during which they are instructed on how to facilitate interactions between students and their dog, how to facilitate student-to-student interactions, and how to use open-ended questions to build rapport with students. Once volunteer handlers and their dogs have been assessed, a mock session is held during which university students who had previously participated in B.A.R.K. programming are invited to interact with handlers and dogs. During this mock session, B.A.R.K. adjudicators assess dogs a second time according to criteria 1–4 listed above. A second holistic impression is formed for each dog and adjudicators meet to discuss findings. B.A.R.K.'s director, Dr. Binfet, then provides feedback to each dog/handler team. Outcomes at either Phase 1 or Phase II may include: Acceptance into the Programme; Not Yet Ready for the Programme; and Unsuitable for the Programme.

Dogs and handlers complete 30 probationary hours as part of their commitment to B.A.R.K.

P031 – Attitudes to Dogs in Animal Shelter Staff

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Attitudes to animals have been found to be related to the behaviour of caretakers towards animals. Therefore, a positive attitude to dogs in shelter staff might lead to enhanced welfare as positive interactions with humans can relieve stress in shelter dogs. The aim of our study was to assess attitudes to dogs in members of shelter staff. For this purpose, a questionnaire which consisted of one section about personal characteristics of the respondent, five sections about dogs and one section about work in the shelter was developed. The items were scored on seven-point-scales ranging for example from do not agree at all = 1 to totally agree = 7. In order to group the questionnaire items to subscale scores, principal component analyses were carried out. Subscale scores were obtained by calculating the mean of the items included in the respective subscale. During the visit of 29 shelters housing dogs, questionnaires were distributed to shelter staff. In one shelter not all the distributed copies were returned. The participating members of shelter staff (N = 126) were mainly woman (85.5 %, men: 14.5 %) and their mean age was 33.5 ± 11.3 (Mean ± S.D.) years. The work-related experience with animal care ranged between 0 and 35 years (8.5 ± 7.9). In general, shelter staff had a positive view of dogs as about 75% of the respondents more or less agreed to positive characteristics of dogs such as being playful or cuddly (first quartile (Q1): 5.3, third quartile (Q3): 6.7). Activities such as contact to humans or play (Q1: 5.8, Q3: 6.6), but also providing a calm kennel environment (Q1: 5, Q3: 6), were considered to be important for dogs. Additionally, there was a high agreement to gentle and predictable handling (Q1: 5.7, Q3: 6.7) whereas coercive handling was mostly disagreed (Q1: 2, Q3: 3.3). Also negative characteristics of dogs such as being smelly or potentially dangerous received low scores (Q1: 2, Q3: 3.3). The item in the negative characteristics subscale which received the highest agreement was being noisy (Q1: 3, Q3: 4). Shelter staff felt quite comfortable during interactions such as playing with dogs or walking dogs (Q1: 6.3, Q3: 7), but cleaning the kennels was rated to be less comfortable to staff (Q1: 4, Q3: 6). Time constraints might influence the probability of interactions with dogs. Least probable were to walk dogs (Q1: 2, Q3: 6) and to train dogs or give them brainwork (Q1: 3, Q3: 6). A higher agreement to positive characteristics of dogs was related to the ascription of a higher importance of activities for dog well-being ($r_s = 0.47$, $p < 0.001$), to feeling more comfortable during interactions with dogs ($r_s = 0.33$, $p < 0.001$) and to a higher agreement to gentle and predictable dog handling ($r_s = 0.30$, $p = 0.001$). On the other hand, a higher agreement to negative characteristics of dogs was related to a higher agreement to coercive dog handling techniques ($r_s = 0.34$, $p < 0.001$). Although most respondents admitted to like their work and to have fun during work (Q1: 6.5, Q3: 7), they considered shelter work to be physically and emotionally stressful (Q1: 4.5, Q3: 6). To conclude, most caretakers in shelters have a positive attitude to dogs which is probably reflected in their behaviour towards the dogs. Caretakers with a more negative attitude might more often use coercive handling which leads to additional stress for shelter dogs. To confirm the relationship of the questionnaire scores with caretaker behaviour, validation studies should be carried out. Nevertheless, we consider it important for animal welfare to deploy caretakers in shelters based on having a positive attitude to the species they will work with.

P032 – A systematic review and meta-analysis of the proportion of dogs surrendered for dog-related and owner-related reasons

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Companion-animal relinquishment is a worldwide phenomenon that leaves companion animals homeless. Knowing why humans make the decision to end their relationship with a companion-animal can help in our understanding of this complex societal issue. More importantly, it can help to develop appropriate and effective strategies to prevent companion-animal relinquishment. A systematic review and meta-analysis was conducted to identify studies investigating reasons why dogs are surrendered, summarize results across studies, and determine if certain study characteristics were associated with the reported proportions of reasons for surrender.
Articles investigating one or more reasons for dog surrender were selected from the references of a previous scoping review for systematic review and meta-analysis. Two reviewers assessed the titles and abstracts of these articles, identifying 39 relevant articles. From these, 21 articles were further excluded because of ineligible study design, insufficient data available for calculating a proportion, or no data available for dogs. Data were extracted from 18 articles and meta-analysis was conducted on articles investigating reasons for dog surrender to a shelter (n = 9) or dog surrender for euthanasia (n = 5). Three studies were excluded from meta-analysis because they were duplicate populations (i.e., studies that utilized the same dataset or studies that reported on a subset of the same data as another relevant article). Other reasons for excluding studies from meta-analysis were (1) the study only investigated reasons for dog re-relinquishment (n = 2), and (2) the study sample size was < 10 (n = 1). Two articles investigated reasons for both dog surrender to a shelter and dog surrender for euthanasia. Results of meta-analysis found that owner health/illness as a reason for dog surrender to a shelter had an overall estimate of 4.6 % (95 % CI: 4.1 %, 5.2 %). There was significant variation in methodology among studies for all other identified reasons for surrender preventing further meta-analysis. Univariable meta-regression was conducted to explore sources of variation among these studies. Country was identified as a significant source of variation ($p < 0.01$) among studies reporting behavioral problems as a reason for dog surrender for euthanasia. The overall estimate for studies from Australia was 10 % (95 % CI: 8.0 %, 12.0 %; I2 = 15.5 %), compared to 16 % (95 % CI: 15.0 %, 18.0 %; I2 = 20.2 %) for studies from other countries. This may suggest that euthanasia because of behavioural problems occurs less often in Australia, although the numerical difference was small.
Although interpretation of results must be made with caution due to the small number of relevant studies identified for meta-analysis, the results do highlight a need for further global research into the reasons for dog surrender. Based on the current systematic review and meta-analysis, future research in this area would benefit from the standardization of data collection methods due to considerable variation in the current research on reasons given for dog surrender which may be due to the observed variation in the formats of questionnaires used (e.g., check-list with 5 choices vs. 20 choices vs. open question) to collect surrender information. Understanding the reasons for dog relinquishment will provide society with a basis for informing future interventions and research in this area to address dog surrender for animal-related and owner-related reasons.

P033 – The representation of aggressive behaviour of dogs in the popular media in the UK and Japan

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There has been limited research into the reporting of dog aggression, attacks and bites in the British newspapers (Podberscek, 1994), but nothing comparing reports in different cultures. The aim of this study was to use qualitative bibliographic methods to investigate the representation of aggressive behaviour by dogs in popular media in the UK and Japan, with a view to identifying the key requirements for a more consistent, scientifically based trans-cultural approach to describing dog aggression. Two studies were carried out as follows:

Study 1: The reporting of incidents in UK and Japanese newspapers
To gain an understanding of the focus of reports of significant incidents and how the dogs involved were represented for the period 07/2013–01/2014, the websites of national newspapers in the UK and Japan were searched directly and via search engines (Yahoo and Google) with the key terms "dog aggression" and "dog bite".

The search identified 8 reports relating to 8 incidents plus 2 other articles in the UK and 5 reports relating to 5 incidents plus 3 other articles in Japan. Other articles were not case reports of specific incidents and so were not reviewed. The majority of UK newspaper reports noted the law and in some cases listed the four banned types of dog and showed similar deficits to those reported in previous studies (e.g. Podberscek, 1994). These were associated with labelling the dog as aggressive, rather than actually describing its behaviour; a lack of description of how an incident occurred; no mention was made of behavioural assessment before or after an incident and limited information regarding housing and management of the dog was provided. The Japanese reports described only what happened, without any mention of clear circumstances such as causal factors, behaviour of the dog, or the victim's behaviour before or after the incident. The reports seemed to imply that breed or lack of owner control and management were to blame.
Overall, both the investigative and scientific journalism into these incidents was poor, with inaccurate or inadequate reporting, which is likely to encourage the stereotyping of specific aggressive breeds.

Study 2: The description of human-directed aggressive behaviour (HDAB) in books, magazines & internet in the UK and Japan
This study critically reviewed popular literature relating to dog HDAB using a review of ten popular books; ten articles from three popular magazines from UK and four from Japan; and the first ten sites listed by the search engines Yahoo and Google, when the search terms "dog aggression" and "dog bite" were entered. This review focused on the terms used to label aggressive behaviour, and the motivational and emotional associations made with it.
In Japan, reference to motivational and emotional elements tended to focus on "dominance", "territoriality" and "fear"; whereas, in the UK the main focus was just on "fear". A marked difference between the descriptions was that in the UK, articles tend to be more analytical, offering

reasons for the behaviour and explaining the solutions as a result; whereas in Japan little emphasis was given to cause, with more descriptive information on the behaviour and what to do about it. Overall, in both countries, the articles were inconsistent in their attention to context and its relationship with motivational and emotional factors.

These results highlight the unstructured and subjective public reporting of canine aggressive behaviour. There is clearly a need to develop a rational framework for the description of aggressive incidents and HDAB more generally, in order to build public understanding of this important topic.

P034 – Exploring the anticipated concerns and challenges of adopters prior to acquiring a dog or cat from an animal shelter

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An owner's expectations of companion-animal ownership can affect their attachment to, and satisfaction with, their companion animal. Understanding these expectations and their underlying influences may help animal sources better match adopters and companion animals, increasing the success of adoptions. The objective of this study was to gain a deeper understanding of the prior thoughts and expectations of adopters at the time of acquiring a dog or cat from an animal shelter. In total, 17 one-on-one semi-structured interviews of potential cat or dog adopters (2 males, 9 females, 6 heterosexual couples) were conducted at three animal shelters in Ontario, Canada. Participants were asked questions regarding reasons for adopting, desirable and undesirable animal traits, foreseen challenges or concerns with the adoption or adjustment period, and previous experiences with companion animals. Verbatim transcripts were analysed using thematic analysis until data saturation was achieved. The analysis identified five primary themes: "adopter concerns of, and perceived challenges to, companion-animal ownership", "adopter and animal factors taken into consideration in the decision to adopt", "perceived emotional benefits in the human-companion animal relationship", "advice and sources for acquiring information", and "adopter considerations surrounding the required care of a companion animal".

This presentation will focus on findings that relate to "adopter concerns of, and perceived challenges to, companion-animal ownership" because the theme received notable attention by all participants during the interviews and appeared to pose the greatest threat to the relationship between a human and an adopted companion animal. Animal behaviour was the most common concern held by participants prior to the adoption of a dog or cat. Participant thoughts on managing anticipated problem behaviours appeared to depend on the relationship they expected to have with the adopted animal. Participants who indicated certain animal behaviours were adoption "deal-breakers", tended to express very specific traits they wanted or did not want in an adopted animal. On the other hand, participants who indicated they would seek out training or advice in order to work with the animal on problem behaviours often made statements about accepting the companion animal for its own personality. In comparison to animal-related concerns, owner-related concerns were brought up considerably less frequently by participants prior to adoption. Participants described taking a proactive approach to address owner-related concerns of which they were aware (e.g., researching the breed of the dog of interest to ensure it was hypoallergenic). In contrast, the majority of participants expressed a "hope for the best" attitude toward animal-related concerns and challenges. Only a few participants mentioned attempts they had made prior to adoption to prepare for managing their animal-related concerns. Exploring adopters' animal-related and owner-related concerns prior to acquiring an animal, including adoption "deal breakers", provides animal sources with the information needed to better educate and prepare individuals for companion-animal ownership.

P035 – Romanian students‘ attitudes towards animal welfare: a comparison between veterinary medicine and other majors

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Attitudes towards animals are considered to be exceedingly relevant in all areas of human-animal interaction, since they are relatively stable psychological tendencies (Eagly & Chaiken, 1993) that contribute considerably to the prediction of behavior (Fishbein & Aijzen, 2010). Being one of the most concerned with animals professions, veterinarians' attitudes are thought to greatly impact on the welfare of animals (Serpell, 2005). Still, relatively few studies have yet approached the matter (Herzog et al., 1989). It is commonly expected for veterinary students to have attitudes that promote the highest standards of animal welfare (Levine et al., 2005). Paradoxically, some studies show that veterinary students' beliefs and affect deteriorate over time (Paul & Podberscek, 2000). At the same time, studies have shown that attitudes to animals depend on a series of demographical (gender, place of residence, pet ownership), psychological (belief in animal sentience, empathy) and cultural factors. For example, a recent study found considerable differences between European and Asian student's attitudes towards animal welfare depending on the country of residence (Phillips et al., 2012).

The aim of the current study was to asses and compare the levels of attitudes towards the treatment of animals, animal-directed empathy and anthropomorphic beliefs in two different samples, namely veterinary medicine students (n = 277) and other undergraduate students (n = 296). Both groups completed a web-based survey containing demographical questions and three questionnaires: the Attitudes to Animals Scale (AAS), an adaptation of Davis's Interpersonal Reactivity Index: the Empathy to Animals Scale (ETA) and the Belief in Animal Mind Questionnaire (BAM). Results illustrate that Romanian students generally have high levels of empathy to animals, consider them sentient creatures and report favorable attitudes towards treating them humanely. Independent t-test comparisons between the two groups showed that veterinary students have noticeably less favorable (d = .38) attitudes to the welfare of animals in respect to students from other majors [$t(571) = 4.51$, $p < .001$], but barely higher (d = .17) levels of animal-directed empathy [$t(570) = 2.01$, $p = .044$], while having undifferentiated anthropomorphic beliefs [$t(555) = .03$, n.s.]. Correlational analyses confirmed a positive relation between AAS, ETA and BAM scores for both groups. Further analyses revealed that the previously established gender bias concerning attitudes and empathy seams to be stronger amongst veterinary students, with male veterinarians having the lowest AAS and ETA scores. Results also show that only veterinary students coming from rural areas report fewer empathic feelings towards animals, in respect to the general student sample. We conclude that the differences observed between the two groups, may they seem counterintuitive, point up to the often paradoxical and very complex human-animal relationship. The implications for the veterinary education are discussed.

P036 – Creating a cozy corner for cats and people: a nation-wide sociological survey of cat cafes in Japan

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Background: Recently in Japan, so-called "neko cafés" (a cat-working café where customers can have a cup of tea, while playing with and sometimes fostering the cats that reside there) have gained popularity over the past several years. They even became one of the items on the agenda to be examined for the revised animal law last year in Japan, however, there is still scarcity of academic research data on them (Niijima, 2010). So we focused on them in detail, through a nationwide investigation into their impact on society, people and the cats themselves. Phase I of the study collected and compared data from the websites of neko cafés (cat cafes) listed on two particular sites introducing such cafés in Japan. Phase II of the study conducted a survey by questionnaire of human staff at the cafés.

Methods: Phase I: Various information was gathered and surveyed from each webpage of the 107 neko cafés – including geographical information, operating hours, degree of closeness with cats in cafes, various information on 'cat staff', minimum charges and so on. Phase II: Standardized questionnaires were developed and sent out, containing 34 questions, taking 10–15 minutes to complete on a voluntary, anonymous basis. The questionnaires included historical, operational and economic data on the cafes. These included their roles and goals, the philosophy of their owners and attribute questions of the customers there, using open-response questions, multiple-choice questions, and 5-point Likert scales. Data in both phases were coded and analyzed by SPSS ver. 16 (n = 107).

Results: 100 % offer photo opportunities and 60 % are used for the social rehabilitation of stay-at-home children and adults. 34 % offer a food menu and 31 % offer alcohol drinks as well. 25 % are looking for foster families. 28 % prohibit patrons from holding cats on their laps. 60 % "hire" 10 to 19 cat "staff". 100 % would like their patrons to introduce their cat owner friends, but actually only 25 % put this into practice. 79 % obtain their cats from breeders, 57 % from pet shops, while 29 % "hire" stray cats. The cafes in urban areas are more likely to be on upper floors in story buildings ($p < 0.05$), and closing times on upper floors are more likely to be late ($p < 0.05$). In rural areas, cats are more likely to be taken regularly to veterinary hospitals ($p < 0.05$). Some more curious results will be presented at the presentation.

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P037 – Does belief in animal sentience change during veterinary education?

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The veterinary student population in the U.K. has become predominantly female in recent years, but little is known about the relationship between feminization within the veterinary context and attitudes towards animals, or how such attitudes might evolve during veterinary education. Between 2001 and 2011, two studies were conducted at a British university assessing veterinary students' beliefs about the sentient capacities of non-human animals. In Study 1, a Belief in Animal Sentience (BiAS) questionnaire was used to sample eleven consecutive cohorts (n = 1045, veterinary students that enrolled between 2001 and 2011) of first-year veterinary students' beliefs about the sentience ("capacity for feeling") of ten species: Dogs, rats, bees, sheep, rabbits, lions, chickens, spiders, cats and pigs. In Study 2 the BiAS questionnaire was completed again by a subset of these students in their final years of study (n = 218; veterinary students who first participated in 2004, 2006, 2007). In both Studies 1 and 2, students' beliefs in animal sentience varied according to each species' position on the phylogenetic scale and their morphological similarity to humans. In Study 1, female first-year veterinary students, relative to their male counterparts, had significantly higher sentience beliefs for all animal species, though with small effect sizes. Year of enrolment was also found to have a significant effect on veterinary students' belief in animal sentience, highlighting the need for caution when interpreting the results of cross-sectional studies. In Study 2, longitudinal findings indicated that individual veterinary students' belief in animal sentience did not change significantly with progression through veterinary education for the majority of the species included. Further research assessing veterinary students' belief in animal sentience, and the relationship that this might have with welfare-relevant aspects of veterinary practice, is needed with larger and more representative populations of veterinary students from other universities within the U.K.

P038 – Attribution of mind to non-human animals among Mexican men from different cultural backgrounds

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Attribution of mind to non-human animals tend to show a classic scala naturae effect in which the closer (phylogenetically and morphologically) the species the higher the attribution of cognitive abilities to them (Eddy et al. 1993, Harrison and Hall 2010). Since the attribution of mind and emotions to animals has so many implications for the way we treat them (Knight et al. 2009), we wanted to take a closer look at how certain aspects of the human-animal interaction, perceived similarity and cultural background, influence the attribution of mental states to a set of non-human animals. Thirty-nine men of Mayan and Spanish speaking origins rated a set of pictures of 20 wild and domestic animals from different taxa for their ability to plan, deceive, and feel fear, joy, anger and guilt. We used a generalized estimated equation approach to analyze the data. We found a significant effect of taxa (X2 (7): 250.362, $p < 0.005$), human-animal interaction (X2 (2): 23.480, $p < 0.005$), agreeableness (X2 (3): 19.156, $p < 0.005$) and perceived human-animal similarity (X2 (4): 65.550, $p < 0.005$) on mind attributions, while cultural origin was not related to these. Within the limits imposed by the small sample size we showed that the attribution of mind to a diversity of non-human animals is related to a variety of factors that were previously not accounted for. In sum, our data indicate that experience with particular animals seemed to have a considerable greater effect on the ratings than the cultural background.

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P039 – Descriptive study on the characteristics of feral cat caretakers in Korea and their attitude toward trap-neuter-release (TNR)

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South Korea has numerous highly developed and populations cities, which is commonly accompanied by increased feral cat populations. However, the abundant feral cats raise social and epidemiological concerns and require scientific data to resolve these controversies (Gerhold & Jessup 2012, Loss et al. 2013). For urban-dwelling feral cats, human impact is expected to have the most prominent influence on their ecology (Centonz & Levy 2002, Ferreira et al. 2011). Therefore, we attempt to evaluate the relationship established between the cat caretakers and the feral cats to seek for further cat management strategies.

In this study, we performed a nation-wide survey of cat caretakers in attempt to 1) evaluate the behavior of the cat caretaker, and 2) to understand their attitude and behavior toward the neutering of feral cats. We performed a survey of nation's largest feral cat NGO run by the cat caretakers, the "Korean Organization for the Protection of Cats (KOPC)". The questionnaire was created on an on-line format and distributed by the society through e-mails and personal phone messages to its members. The survey was initiated on the 2nd of January, 2014, and here we report the subset result from 20 days of survey (n = 1,884). We performed a descriptive analysis to explore a general pattern, and ran binary logistic regression and ordinal regression to examine the association between the experiences of neutering with other parameters.

Approximately 90 % of the caretakers were female and 30–39 y was the most active age group. The cat caretakers were evenly distributed on the income scale. Approximately 80 % of caretakers began caring for cats within five years. The majority of the services provided were food/water provisioning followed by shelter and/or antibiotics. Over 70 % of caretakers spent approximately or less than $ 100 per month for taking care of feral cats. Neutering was strongly supported (90 %) by most of the cat caretakers, with around 40 % of caretakers having the experience of neutering. Overall, we observed a positive correlation between the experience of neutering and the number of neutered cats with the income level and length of time being active as a cat caretaker ($p < 0.05$). In addition, women in artistic career or housewives were two groups of caretakers with highest experience of feral cat neutering ($p < 0.05$).

Our study identified that the activity of cat caretakers in Korea is a recent trend that started around five years ago. The potential ecological and social drivers behind increased feral cats and the activity of cat caretakers should be analyzed further. Our data also showed that the majority of cat caretakers have the potential to perform neutering with right assistances. It suggests that with the appropriate support from the government and society, cat caretakers may function as an important component in executing systemic feral cat neutering and population management strategies.

P040 – Above & Beyond the Cute Response: A Critical Review of Recent Psychological Research on Anthropomorphism, and Implications for HAI

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This review looks at recent psychological research in the areas of anthropomorphism of in-animate objects (nature, robots, consumer products, gods), as well as anthropomorphism of animals, and considers the implications this research has for HAI research and applications.

The last decade has seen a major rise of research interest in anthropomorphism processes with non-humans. This has been undertaken largely from a psychological perspective, and has considered both the motivations for the mechanism, as well as the effects of it's application. Research in human-robot interactions (HRI), as well as in consumer behaviour, conservation, and social psychology, has considered the "what's and why's" of anthropomorphism. The resulting findings offer up important considerations for anthropomorphism issues in HAI across a range of contexts, and will be explained and discussed in more detail.

The findings to be discussed include: How individual differences in anthropomorphism can be identified. The three main factors considered to motivate anthropomorphism. The evidence that in-group members are anthropomorphised more readily than out-group members. The wide-ranging, complex and unexpected effects of anthropomorphism, including both positive and negative aspects. Implications of all the above for an HAI context are discussed.

P041 – An experimental test of human-animal similarity and its impact on social identification with animals

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Social psychological principles have rarely been applied in empirical research on human-animal relations (cf. Plous, 2003). The present studies apply principles from social psychology, and more specifically, from theories of intergroup relations (Tajfel & Turner, 1986), by experimentally testing the role of perceived similarities between human and non-human animals (Plous, 1993). Specifically, we investigate if inducing similarities between non-human animals and humans influences the extent to which we identify with all animals (including non-human animals; Amiot et al., 2007). It was expected that making salient the similarities between animals and humans increases this level of social identification compared to when the differences between animals and humans are made salient. Pictures of animals were employed to manipulate perceptions of human-animal similarities. A pilot study conducted online in the USA using Amazon Mechanical Turk (N = 30; aged 21–63) allowed to identify the pictures that induced higher vs. lower levels of human-animal similarity. Pictures that presented animals with typically human emotions (e.g., guilt) and that focused on the animal's face were selected to represent higher human-animal similarity and to compose the similarity condition. Pictures that presented animals in their natural habitats and that presented their entire body were selected to represent lower human-animal similarity and to compose the difference condition. The pictures included animals from a variety of species (i.e., panda, cow, fish, fox, bird, monkey); the animals presented in the similarity and difference conditions were matched in terms of these species. Pictures of urban architecture (e.g., roof, park bench) composed the control condition. Repeated-measures analyses of variance confirmed that the animals presented in the pictures that compose the similarity condition were rated by participants as more similar to humans compared to animals presented in the pictures that compose the difference condition. Employing these pictures, an experimental study was then conducted in Québec among university students (N = 81; aged 19–57). Participants were randomly assigned to the similarity, difference, or control condition. After looking at the animal pictures and answering questions regarding these pictures, participants completed a questionnaire that assessed their level of social identification with animals (adapted from Leach et al., 2008). An example of an item is: "The fact that I am a member of the animal kingdom is an important part of my identity". Analyses of variance confirmed that participants in the similarity condition reported higher identification with animals compared to participants in the difference condition, who did not differ from the control condition. The findings confirm the applicability of social psychological principles to human-animal relations and represent the first experimental attempt to induce changes in a highly inclusive superordinate social identity – social identification with animals.

P042 – Triple Helix of Personal, Ecological and Social Lives of Cat caretakers in Seoul

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The aim of the study is to explore the experience of cat caretakers, "cat mom" in the perspective of the triple helix consisting of personal, ecological and social lives. The triple helix of life of a cat caretaker can grow and be replicated like DNA double helix. Three women who are active members of cat caretaker communities in Seoul were interviewed to study their personal experiences. They are in their fifties, belong to the middle class, had little involvement in social activities before, however fundamentally transformed their life through the cat caretaking. Newspaper articles and the new legislation or policy about feral cats and related subjects were investigated including the events mentioned during the interviews to construct the social and ecological threads. The social and ecological threads were connected and provided the cat caretakers with opportunity of facing feral cats. The early 2000s when they began cat caretaking, public perception of feral cats extremely got worse because they were considered to ruin food waste bags, to kill small wild animals and even to attack people. The articles of five major newspapers in Korea reported on feral cats (so called then "thief cats") increased 700 % in the 2000s comparing to the 70s. There were several feral cat abuse issues in the early 2000s in the apartment complex areas where the two of interviewers live. The urban redevelopment program and the new food waste policy in Seoul in the early 90s could result in change of ecology of feral cats, which let interviewees have more chance to meet the feral cats in daily life. The personal thread of the helix is the crucial part of being a cat mom as a process of re-socialization, intellectual, and ethical growth, which initiates replicating the whole triple helix. Their experiences could be interpreted as responding the ethical command in "face to face relations with the Others[1]" or the feminist animal care [2]. They learned law, legislation and institution solving the conflicts with neighbors about feral cats. They actively organized their communities locally and nationally, such as Korean Organization for the Protection of Cats, and showed solidarity with other animal protection groups. They took on an important role to introduce a TNR program in Korea.

P043 – A qualitative study using the analysis method framework to explore published reviews and commentaries on the issue of companion-animal relinquishment

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Interest in human-animal interactions has focused not only on the value of companion-animal ownership, but also the complex issue of companion-animal relinquishment. Societies around the world are often overwhelmed by the population of unwanted companion animals that result from relinquishment by owners. There is a need to better understand this complex issue in order to develop strategies to prevent relinquishment. To guide future research and develop a comprehensive knowledge base on relinquishment, the objective of the present study was to explore published reviews and commentaries by primary stakeholders to identify common ideas being discussed about causes of and solutions for relinquishment.

Seventy-seven published reviews and commentaries written in English were identified for the present study during a comprehensive search of four online databases (i.e., MEDLINE, Scopus, CAB Direct, and PsychINFO) conducted as part of a previous scoping review of published research on the relinquishment of companion animals. Of these reviews and commentaries, most were from the U.S. (66.2 %). Over half (57.1 %) of the documents used a research-based approach (research cited throughout the document to form the basis of the review or commentary), while the remaining were opinion-based (most or the entire article was written without references to primary research). The majority of the documents discussed both dogs and cats (58.4 %).

Analysis method framework was used to analyze the content of the reviews and commentaries, with 4 themes emerging: reasons given for why owners relinquish companion animals to shelters, solutions to companion-animal relinquishment, the role of euthanasia in companion-animal relinquishment, and contributions of research to companion-animal relinquishment. Research-based views about the reasons for relinquishment were commonly discussed among the reviews and commentaries and focused on behavioral problems and moving. The primary research articles that were cited in these reviews and commentaries on reasons for relinquishment were limited to only a few prominent studies. This finding highlights the impact of these few published primary-research articles on stakeholders thinking in this area. Educating owners was the predominant solution to relinquishment discussed, suggesting that broadening education initiatives is warranted, including adoption counseling, pet selection, and adoption follow-up. Discussion about euthanasia of relinquished pets highlighted the need for greater support of shelter staff and veterinarians, who may be facing ethical dilemmas, in decision-making surrounding euthanasia. Future research discussions focused primarily on investigating interventions and identified the need to improve adoption follow-up and shelter data collection in order to be able to assess the impact of interventions.

The present study contributes a greater understanding of the topics and ideas being expressed by key stakeholders on the topic of companion-animal relinquishment providing a meaningful basis for guiding future research and educational interventions in this area.

P044 – Inhumanity: forgotten animals in London‘s 19th century meat industry and cultural history

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This humanistic study presents British origins of animal concern from the late eighteenth century and original research on cultural attitudes toward meat and “inhuman” bodies in London in this period based upon popular and canonical literatures, parliamentary record, and historical and critical literature review. Nineteenth century British animal rights law and attitudes toward animals are key precursors to contemporary animal concern. Language in the earliest animal rights laws in Great Britain is still employed verbatim in key animal laws in the U.S. The RSPCA was founded in 1824 and has been the model for other institutions around the world. But an often overlooked aspect of British animal concern and human-animal society in the nineteenth century is the Smithfield market in London, including its subsequent removal and the mechanization of livestock management at its less centrally located replacement. Documented by Daniel Defoe, Charles Dickens, and others, the Smithfield problem was a major example of interspecies community that relegated all live bodies in the city to the same “inhuman” fate. Everything was part of one teeming mass. Entire professions such as butchers and drivers were reviled and abused as part of an early Victorian social discipline while animal bodies were routinely abused, the meat spoiled and their labor useless. The market space was at the center of constant civic debate and development because of the picture of British society it constructed – it was not pretty. The solution to the Smithfield problems of uncontrolled noise, smell, disease, and intermingling animal and human bodies at the heart of the world’s first great modern metropolis was a more efficient, invisible form of animal cruelty. Food animals were erased from the cityscape but reintroduced as meat scrubbed of any tangible animal history. The modern meat production and distribution society was born. This quelled general animal concern as attention shifted instead to later century debates such as the anti-vivisection movement and further animal law developments. But this erasure and forgetfulness of the fate of meat animals also facilitated even more meat production and consumption than the prior exponential increases of the first half of the century. The Smithfield problem was also a relentless provocation of urban denizens’ discomfort with each other and with criminal elements that had once been threats outside the city on highways and dark woods but that now were in dark alleys, sinister pricing practices at the market, basement abattoirs fueling creative horror stories such as Sweeney Todd, and hiding somewhere amongst a teeming, indistinguishable public mass. Smithfield was a microcosm of London‘s general inhumanity in the nineteenth century.

P045 – Motivations and thoughts toward rabbit ownership prior to acquiring a pet rabbit

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Companion rabbits have increased in popularity as house pets (Crowell-Davis, 2007; Cook & McCobb, 2012); however, rabbit relinquishment to shelters has also become an increasingly prominent issue. Rabbits have been suggested to be the third most surrendered pet to animal shelters (Cook & McCobb, 2012). While very little research has examined companion-rabbit relinquishment, reasons identified include an inability or lack of interest in caring for the rabbit, or rabbit behavior problems (Ledger, 2010; Cook & McCobb, 2012). Based on research relating to the relinquishment of dogs and cats (Scarlett et al., 1999), owners' prior knowledge and expectations of rabbit ownership are also likely to be contributors to companion-rabbit relinquishment. The objective of the present research was to explore people's motivations and thoughts toward rabbit ownership prior to acquiring a companion rabbit.

Eighteen individuals in the process of acquiring a rabbit from a pet store, a breeder, a shelter or a rabbit rescue in Ontario, Canada, were recruited to participate in a one-on-one semi-structured telephone interview. The interviews included a series of open-ended questions and follow-up probes exploring participants' previous experience with rabbit ownership, motivation for purchasing or adopting a rabbit, ideal attributes of a pet rabbit and expected challenges of rabbit ownership. Recruitment proceeded until data saturation was identified. Eighty-nine percent of participants were female, 50 % of which identified them self to be in the 18 to 25 years of age category. Fifty-six percent of participants were in the process of acquiring a companion for an existing pet rabbit. Eleven percent of participants had never owned a rabbit before. Of the previous rabbit owners, 13 % identified having acquired their first rabbit from a shelter; 75 % indicated that they planned to acquire their next rabbit from a shelter. Verbatim transcripts of the one-on-one interviews will be using inductive thematic analysis.

Understanding the thought processes and motivations of prospective rabbit owners at the time of acquiring a new companion rabbit is important to better understand the process of companion-rabbit acquisition, to inform future research and to develop educational interventions to address and reduce companion-rabbit relinquishment. Final results will be presented.

P046 – Living together man-bear in the Pyrenees (France): An Illustration of social thought

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In 2012, twenty-two bears (Ursus arctos) were living in the French Pyrenees, in a space of 1,700 km^2 (ONCF, 2013). In the same year, 272 domestic animals were killed or injured in 135 attacks (ONCF, 2013). During summer pastures, farmers had a mortality rate of between 3 and 5 % (18,000 to 30,000) due to disease, parasites, accidents, lightning, predation... (Non-profit organization Pays de l'Ours-Adet, 2012). These figures shed light on the low involvement of bears, yet when associations have plans to reintroduce bears to maintain a viable population, tensions arise. Our study aims to clarify the interests of the population and their resistance to bears.

This study was conducted with tourists and inhabitants of the Pyrenees (n = 1131). The questionnaire was collecting demographic information and a question was asked: "Do you think the bear has a place in the Pyrenees? Why?" The results indicate that 80.9 % of participants responded positively, 14.68 % responded negatively and 4.42 % had a mixed opinion. The main themes of positive responses are: Pyrenean identity (the bear and the Pyrenees are inextricably linked), belonging to nature, the necessary coexistence between the farmers and bear control (enclosures, limit of movement). Negative and mixed responses highlight themes: predation, prejudice to farmers, fear and attacks on men. The results indicate that bears are associated with the Pyrenean identity and nature. However, even amongst those who consider that the bears have a place in the Pyrenees, the issues related to cohabitation between men and livestock remain. This is expressed through the need to control the bears. The mixed and negative responses focus on the status of predator against animals and men. The results of this study considered in light of the low impact on livestock and lack of attack on humans make us see an important difference between biological studies and the social perception of bears.

In France, the status of the bear has been shaped according to the times and context. It was the object of pagan cults and regarded as the lord of animals. Then it was demonized by the Catholic Church which encouraged its mass killing (Pastoureau, 2007). Bear stories circulated during the Middle Ages and today, we find that traces of these stories remain.They represent bears as those that attack humans and slaughter sheep. Our results offer a vision of common sense knowledge about the behavior of bears in regards to men and livestock. Knowledge of daily contribute to the development of social representations (Jodelet, 1989). The former are established in an "already there", cultural and historical context. In the case of Pyrenean bears, context remains characterized by the socio-historical heritage. Interest in the human-bear coexistence from social psychology, including social representations, provides a perspective to understand the reluctance of the population in the development of protective action of the animal population, registering the impact of social thought in relations between men and animals.

P047 – Like owner, like dog: how the dog‘s attachment profile correspond to the one of its owner

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The present research aimed at studying the human-pet relationship through the attachment theory proposed by Bowlby (1969). Defining attachment as an affective relationship based on dependency between two individuals, the human-pet relationship is frequently considered as comparable to the one between the mother and her child.

Given that the human literature suggests that there is a relationship between the child‘s pattern of attachment as assessed by the Ainsworth‘ Strange Situation and the mother‘s pattern of attachment as assessed through questionnaires, and considering that the domestic dog can demonstrate attachment behavior similar to those observed in the young child (Topàl et al.1998), a similar relationship was hypothesized between the dog‘s attachment behavior and its owner’s attachment profile.

Fifty-three dogs were observed in the Strange Situation as adapted by Topàl et al. (1998), and the results of a cluster analysis performed on the dogs‘ behavior were analyzed in function of the owners‘ attachment profile, provided by the Bartholomew and Horowitz‘s (1991) self-evaluative questionnaire.

The data confirmed our hypothesis, since the dogs seem to react differently in the Strange Situation depending of the owners‘ attachment profile.

P048 – Personality Ratings and Cortisol Responses in Experimenters of (Laboratory) Animal Studies: Planning of a pilot study

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Measuring stress levels in experimenters of (laboratory) animal studies is a novel topic in the field of human-animal interactions. Animal experimenters are faced with the public opinion on animal experiments (Ehinger, 1986), have to morally justify (Perry, 2007) their work, deal with related experimental procedures and finally decide about an animal’s death (Ehinger, 1986). These events may be inherently stressful for animal experimenters. Thus, the aim of this interdisciplinary thesis is to measure work-related salivary cortisol levels in animal experimenters (N = 40), apply personality rating questionnaires and investigate individual coping strategies. To determine work-related and baseline cortisol levels, saliva samples will be collected from the study participants (trained academic staff in biomedical research institutes) on days without animal experiments and before and after an animal experiment. Cortisol levels will be measured using an enzyme immunoassay (EIA). Moreover, participants will be asked to complete self-report questionnaires on their personality (NEO-FFI, Borkenau & Ostendorf, 2008), self-esteem (SES, Rosenberg, 1989), pet attitude (PAS, Templer & Arikawa, 2011) and mood/mental state (Befindlichkeits-Skala, von Zerssen & Petermann, 2011). In addition, a short qualitative interview will be carried out on whether and how experimenters develop their own (psychological) strategies to handle arising working stress. We hypothesise that experimenters have higher cortisol levels on days when animal experiments are performed and that experimenters develop individual coping strategies to deal with this special kind of working stress. As “stress” is a rather ambiguous term (Goodnite, 2014), we also aim to conceptualise stress in animal experimenters. The concept and preliminary results of the study will be presented.

P049 – The Westernisation of attitudes towards dogs in Japan

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In the Japanese Buddhist-Shintoist tradition, humans are conceived as a part of nature, whereas Christianity encourages dominion over animals. This difference may explain differences in attitudes towards euthanasia of dogs that are suffering, a practice which we have recorded to be far less acceptable among Japanese students than among their English equivalents (Miura et al., Anthrozoös 13:80–88, 2002). However, these Japanese students were generally in favour of obedience training, which might be regarded as infringing the dog's "rights". To investigate a possible progressive influence of Western values on attitudes to training and euthanasia, in 1999 we conducted a cross-sectional study of Japanese adults (101 male, 60 female) aged between 23 and 85 years (median, 54 years), administering the same Dog Attitude questionnaire as in our previous study. Attitudes towards training of dogs (Spearman rho = –0.20, $P < 0.05$), and stray dogs in general (rho=-0.23, $P<0.01$) were more positive in younger respondents, whereas older respondents tended to prefer dogs in utilitarian rather than companionship roles (rho = 0.28, $P < 0.01$), especially as guards for the house (rho = 0.34, $P < 0.01$). As in the survey of students, attitudes towards euthanasia were generally negative, especially among those respondents who currently owned dogs, but were slightly less negative among older respondents (rho = 0.27, $P < 0.01$), especially in relation to stray dogs (rho = 0.36, $P < 0.01$). The relationship between age and attitudes differed between high (> 7 million yen, N = 123) and low income (N = 27) respondents. Older people on lower incomes were more inclined to regard dogs as useful (rho = 0.61, $P < 0.01$), especially the idea of dogs as guards, and also showed more concern over hygiene issues (rho = –0.63, $P < 0,01$), as compared to younger people, which is consistent with a decline in the traditional role of dogs in Japan. Only in the higher income group were younger people more positive about training dogs (high income, rho = –0.25, $P < 0.05$; low income, rho = 0.03). Thus obedience training of pet dogs appears to have become more acceptable in Japan during the second half of the twentieth century, as the role of dogs changed from that of house-guard to companion. Over the same period, the perception of dogs as unhygienic appears to have diminished, although still more apparent among Japanese adults than in England (Miura et al., 2002). Thus the adoption of the Western concept of dogs as companions has been accompanied by a change in attitudes towards training and towards hygiene, but negative attitudes towards the euthanasia of owned dogs to prevent them from suffering appear to have changed little. This may be because the latter is derived from an entrenched belief in the right of all animals to life, whereas the former are largely specific to dogs and therefore more malleable.

P050 – Surviving with Companion Animal on the Great East Japan Earthquake: Owner's Strategy to Reconstruct Pet Community

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On March 11, 2011, the Tohoku district in Japan was struck by the Great East Japan Earthquake. It measured 9.0 on the Richter scale. Then, a Tsunami and the Fukushima No.1 nuclear power plant disaster followed. A great deal of people and animals suffered serious damage from this disaster. As many as 15,883 human lives were lost and 2,643 persons are still missing. The number of the dead is 10 times as many as Hurricane Katrina. Although the number of the disaster victim animals is not known correctly, it is estimated at least tens of thousands. Still now Japan is struggling with aftereffects of the disaster, 274,000 people evacuating at temporary residence across the nation.

At ordinary times pets (or companion animals) are considered family members in Japanese society. However, it was very difficult to evacuate with pets at the time of the disaster because of poor planning or lack of regulation for evacuation. In addition, the dominant sense of values was "human life priority" in the crisis. Pets were refused in many communal shelters. The administration started to provide emergency temporary housing two months after the earthquake. Some temporary housings accept pets, but some of them have a "no pets" rule.

I define the sense of values of the owners who give priority to a companion animal even at crisis as "companion animal first" (CAF). And I investigate the experience in the disaster of owners with the sense of values of CAF because they are people who are excluded and face many difficulties in the survivors. In other words, owners of CAF are socially vulnerable because of pets in the crisis.

This is a qualitative research of lived experience in disaster, using the method of ethnography. I aim to describe 1) the owners' response to exclusion from rescue or support during the disaster and 2) the process of community reconstruction by owners living with their pet in the emergency temporary housing. I focus on their effort and strategy that are required in harsh environment. Consequently, I explore human-animal interaction in the crisis of life. This is a first sociological study about CAF community in temporary housing in Japan.

In August and September, 2013, I did fieldwork in A (233 houses) and B (194 houses), two emergency temporary housing in Sendai-City, Miyagi prefecture in Japan. The research method was semi-structured interview and observation. The interviewees were 11 owners (age 36–85, 8 females, 3 males) who were living with dogs or cats. The interviews were recorded with their consent. Recorded data were transcribed literally. By analyzing contents of interview and field notes, I have shown four aspect of the response to exclusion of owners. Such as "resist", "hide", "evade", "shut". These findings suggest that some owners give priority to companion animals over their lives and safety during disasters.

Furthermore, in two emergency temporary housing, they work out the different strategies according to their cultural backgrounds. In A temporary housing, the interviewees unite to resolve the conflict with people who don't have pets, since the place is urbanizing quickly. In B temporary housing, the interviewees neglect the rule such as "keep pets inside" to some extent in order to maintain the culture of the place where they lived before the Earthquake. These results provide new insight that the companion animal can play a large role in community in post-disaster reconstruction period.

I investigated only in Sendai-City at this time. In Fukushima, where I also conduct research, the situation is completely different under the radiation effects. This study may contribute to share the owners' experiences with the world in major disaster.

P051 – Pet Matters: responsible pet ownership in Thailand

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The concept of "responsible pet ownership" has developed in a number of communities as pet ownership has increased and there has been a need to manage cats and dogs in urban environments. In many developed countries, responsible ownership practices have been defined as including confinement, registration, microchipping, desexing, participation in formal obedience training, and regular socialisation and exercise practices (Rohlf, et al, 2010; Toukhsati et al, 2007). In Thailand, however, there is limited regulation and education regarding cat and dog ownership. Where regulation exists it is irregularly enforced by authorities and knowledge amongst community members about the availability and benefits of responsible pet ownership practices is generally poor.

This paper examines evidence gathered during eight months ethnographic fieldwork in Thailand. In-depth interviews were conducted with Thai veterinarians and animal advocacy workers (both Thai and expatriate) exploring their perceptions and experiences of what "responsible pet ownership" might mean in this context. In Thailand, with low rates of sterilisation, many free-roaming animals and high rates of disease, responsible pet ownership tends to focus on practical ways of improving both cat and dog welfare and lowering their numbers. Throughout the country, many groups work to improve the lives of cats and dogs offering shelter, adoption services and promoting behaviours associated with responsible pet ownership. These organisations often work closely with veterinarians to provide care for animals, but also to restrict the number of cats and dogs living on the street. This is usually done through community education programmes and, capture, neuter, vaccinate and return (CNVR) activities. It is important that management programmes, and the sort of behaviours promoted, correspond to cultural views and values surrounding freedom, existence and notions of suffering. For example, as a predominantly Buddhist nation, euthanasia of animals is generally unacceptable in the management of populations in Thailand.

Participants believe that, by keeping a dog or a cat, the owner is responsible for the animal for life. Veterinarians use consultations as an opportunity to discuss such things as disease transmission, vaccinations, sterilisation and confinement. Similarly, animal advocacy workers promote these practices and behaviours to community members through education programs, fundraising and CNVR activities. Although they believe that these practices would result in fewer strays and better animal and human health, there is still a significant gap between this advice and its uptake.

P052 – Development of a semi-projective measure of human-to-dog attachment

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Attachment between owner and dog is discussed in relation to positive effects of human-animal interactions and problems in the dog-owner relationship. According to previous research, owners and their dogs seem to be mutually attached in the sense of the classical attachment concept (J. Bowlby). Questionnaires can only capture the conscious elements of attachment, which however, are only a fraction of the entire attachment mental representation. Therefore, we aimed to develop a semi-projective attachment test (PAHDA) to capture mental representations along the principles of the "Adult Attachment Projective" (AAP, George & West 2011), in particular the aspect of attachment disorganization. In phase 1, twelve silhouette drawings of attachment-relevant situations (e.g. separation, loss, threats) were presented to 36 dog owners with the instruction to tell a short story about the picture. These narratives were coded for indicators of secure, avoidant, and preoccupied attachment and unresolved attachment trauma/disorganization, including defensive mechanisms such as deactivation and security indicators such as synchrony and agency. Based on these codings, seven pictures were selected and different answer options along several themes were produced. In phase 2, this semi-projective test was presented to 59 adult dog-owners (50 % male/50 % female), who also underwent a series of test situations with their dogs and answered questionnaires. Each option was answered on a 5-point-Likert scale and by multiple choice responses to the answer options tapping the classification indicators above. Scales calculated over all pictures from the Likert-scale-answers showed medium to high internal reliability (synchrony: $\alpha = .707$; agency: $\alpha = .717$) over different pictures. Fourteen per cent of multiple choice items were chosen by none or only 1 or 2 participants and thus were taken out for further analysis. Preliminary analysis revealed signs of attachment disorganization in 32 % of the sample, (with one picture omitted for disorganization assessment, since the standard behavior in the depicted situation seemed culturally dominated). According to the scale-scores calculated from forced choices and cut-offs, 5 % were classified as preoccupied, 15 % as avoidant and 42 % as secure. Disregarding disorganization, basic representations were secure for 52 %, avoidant for 29 % and preoccupied for 10 %. These preliminary classifications will be validated against physiological data and behavior observations: salivary cortisol and behavior of dog and owner during the Ainsworth Strange Situation Test (ASST) and a threat situation. The predictive value of traditional questionnaires of owner-to-dog attachment will be compared with the PAHDA, which did not correlate with other questionnaire data such as the MDORS (Monash Dog Owner Relationship Scale). Acknowledgements: For financial support of the project we thank WALTHAM® (FA 566001) and the Austrian Science Fund (FWF: P 23345-B17) and Sarah Prettner for producing the line drawings.

P053 – A Confirmatory Factor Analysis of the Center for the Study of Animal Wellness Pet Bonding Scale

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The Center for the Study of Animal Wellness Pet Bonding Scale (CSAWPBS) was designed to measure how recipients of animal-assisted activities (AAA) and animal-assisted therapies (AAT) bond with the visiting dog. The instrument was comprised of three subscales to measure the latent factor of bonding with the dog: unconditional acceptance (the perception that the dog was non-judgmental; four items), reciprocity (degree of perceived bidirectional relationship between the dog and the individual receiving the visit; 10 items), and attachment (the degree the individual felt emotionally connected to the visiting dog; 14 items) with a total of 28 items. The CSAWPBS had a coefficient alpha of 0.892 with a sample of 15 adults (Fulton, 2002); but further psychometrics are needed on the instrument. The human-animal interaction field includes of a multitude of researcher designed instruments lacking in evidence supporting their reliability and validity (Wilson & Netting, 2012). The purpose of the confirmatory factor analysis (CFA) was to provide a measure of construct validity for the CSAWPBS. The data came from a subsample (n = 97) of participants in a volunteer dog-walking program who had completed the CSAWPBS and had no missing values for the scale. This is the largest sample size of any study using the instrument. All models were run using the maximum likelihood method of analysis. An exploratory factor analysis (EFA) was conducted which indicated there were two latent factors in the data. Latent factor 1 accounted for 35.48 % of the total variance and latent factor 2 accounted for 8.58 % of the total variance. A CFA was then conducted using the EFA implied model, df = 323, χ^2 = 688.80, p < .001, CFI = .721, SRMR = .1071, RMSEA = .109 (90 % CI = .097–.120). A CFA was also conducted using the original conceptual model of the CSAWPBS. The model would not run until the covariance between unconditional acceptance and attachment was removed, df = 348, χ^2 = 882.399, p < .001, CFI = .596, SRMR = .1696, RMSEA = .126 (90 % CI = .116–.137). The CFA based on the EFA results had significantly better fit than the original conceptual model's CFA. The model was modified based on modification indices and estimates for each item on the latent variable and reanalyzed after each modification. Modification was conducted until the model fit no longer improved due to the change or the change was not conceptually appropriate. Labels were given to the latent variables based on the items which loaded on each latent variable. Thus, the final model included 23 observed items, 13 loaded onto the latent variable of support (the perception of being cared for and accepted by the visiting dog) and 10 loaded onto attachment (the degree the individual felt emotionally connected to the visiting dog), df = 215, χ^2 = 280.34, p = .002, CFI = .934, SRMR = .0694, RMSEA = .056 (90 % CI = .036–.074).
The indicator variables for each factor changed from the original conceptual model; however, the final data-based model is remains conceptually sound. The results provide empirical evidence for the construct validity of the CSAWBPS. The psychometric data is particularly valuable for the field of human-animal interaction and will hopefully lead to further validity and reliability testing of this and other instruments.

P054 – Do animal perceive disabilities? A comparative study of guinea pig behaviours interacting with children with autism spectrum disorders and children with typical development

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This study aimed to determine whether a companion animal behaved differently according to the behavioral particularities of its partners. To test this hypothesis, we studied guinea pig behaviours when they encounter either children with typical development or children with ASD. Indeed, ASD are characterized by behavioral characteristics depending of their difficulties in sensory processing, social interactions and communication. We used a standardized situation called the Strange Animal Situation test. We focused on three moments – before the beginning of the guinea pig-child interaction, the beginning and the end of the interaction – to record guinea pig and child behaviors. We also recorded the initiator of the beginning and the end of the interaction, the guinea pig gazed direction and the presence of guinea pig vocalizations. Our results showed that guinea pigs behave differently with children with ASD or with children with typical development at beginning and at the end of an interaction and conversely, children with ASD did not behave in the same way as children with typical development. Even if the children remained the principal initiators of these both moments, guinea pigs ended more often interactions with children with ASD than with children with typical development, displaying specific behaviors. These results support our hypothesis that animal may perceive human disabilities and adapt their behaviors accordingly. Altogether, our results suggest that behaviors displayed by children with ASD may be more difficult for the animals to decode than those displayed by children with typical development – an alternative view of interactions between animals and children with ASD, adapted from Redefer & Goodman (1989).

P055 – Together in Grief, Easing Recovery (TIGER): a grief support program at the MU Veterinary Medical Teaching Hospital

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Death of pets is inevitable given their shortened lifespan relative to those of their human counterparts. The grief response to companion animal loss is often similar to bereavement for a human family member and can present with a variety of emotional and intellectual concerns. The way a veterinary medical team addresses the illness, euthanasia, or death of a beloved pet has been known to greatly influence how that family reacts to the situation. Given the strong likelihood that veterinarians and veterinary medical residents, interns, and students will encounter these situations with pet owners, a unique grief support program was designed at the University of Missouri's Veterinary Medical Teaching Hospital (VMTH). The "Together in Grief, Easing Recovery" (TIGER) program is led by a Masters level clinical social worker and strives to provide assistance and support to clients/owners who bring their animals to the MU VMTH. The TIGER program has become a vital resource for VMTH clients by assisting with end of life concerns, anticipatory grief, and ways to discuss pet death with children. It offers educational opportunities for veterinary medical students, interns, and residents at the VMTH to strengthen their ability to help grieving owners.

The program development began with an in-depth literature review to identify best practices in grief support of bereaved animal owners. Interviews were conducted with VMTH veterinarians, staff, residents, and veterinary medical students to ascertain their interest in and wishes for content and process of the Grief Support Program at MU. Interview data were compiled and presented to the MU College of Veterinary Medicine leadership and a plan for the TIGER program was prepared and presented to the Hospital Advisory Board.

Since its creation in 2012, the TIGER program has included several seminars and lectures focusing on the grieving process of pet owners and communication strategies for veterinary medical students, interns, and residents. An inaugural Memorial Event for hospital clientele was held in 2013 with a second event planned for the spring of 2014. This event honors the bond owners and families had with their deceased pets.

A grief support tool kit is being prepared which will include a list of online, hardcopy, and community resources for grief support and information about commonly asked questions, e.g. "What do I tell my children?" and "How do I know it is time for euthanasia?" This tool kit will be provided to staff at the VMTH to distribute to clients/owners. We hope that the program will be provided needed support to bereaved pet owners and be an educational and positive opportunity for students.

P056 – Qualitative Analysis of Pet Preferences in Children with ADHD

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In recent years, there has been growing interest in therapeutic applications of the human-animal bond in clinical populations. Prior research supports the effectiveness of human-animal interventions (HAI), particularly canine-assisted interventions, for child psychiatric disorders, including Attention-Deficit/Hyperactivity Disorder (ADHD) (Schuck, Emmerson, Fine, & Lakes, 2013). Additionally, there is evidence to suggest that some animals may be more likely to promote prosocial behaviors than others. For example, children who preferred cats appeared less empathetic than children who liked both cats and dogs (Daly & Morton, 2006). There is a lack of research, however, examining pet preferences in clinical populations or addressing children's reasoning behind their pet preferences. The current study will aim to bridge this gap by investigating pet preferences in children with ADHD, as well as the pet characteristics they like and activities they would enjoy doing with preferred pets.

Participants included 46 children (66 % male) ages 7–9 years (M = 7.48, SD = .71) diagnosed with ADHD, Combined Type enrolled in a randomized clinical trial that incorporates canine-assisted therapy with a cognitive-behavioral social skills intervention. At pre- and post-treatment, children identified the top two domestic pets they would "want (love) to have the very most," from 14 presented animals, and then described what they like the most about each selected pet and how they would spend their time with the pet (i.e., favorite activities). A subset of 34 participants' responses were transcribed and analyzed using qualitative thematic methods (Crabtree et al., 1999; King, 1998). Investigators first met to read transcripts and develop an initial coding scheme. They then independently coded the transcripts, and met again to review and discuss their codes. Agreement on codes was noted for each transcript.

Quantitative analyses of participants' (N = 46) responses at pre-treatment revealed that dogs were the first or second most preferred pet (39.1 %) that children identified they would want (love) to have the very most, regardless of current dog ownership (p = .12) or child gender (p = .53, Fisher's exact test). Snakes were the next most preferred pet (28.3 %), followed by horses (21.7 %). Qualitative analysis of children's (n = 34) preferred characteristics across all selected pets revealed the following common themes: affection (e.g. "They snuggle with you"), nonspecific physical appearance (e.g. "Cute"), specific physical traits (e.g. "Soft, cuddly fur," "color"), and physical abilities (e.g. "They spin webs"). In responses describing how they would spend their time with their preferred pet, the most commonly endorsed favorite activities were play (e.g. "We play tag") and caretaking (e.g. "Giving them food"). These findings offer insight into the types of pets a sample of children with ADHD find most appealing, as well as descriptive information indicating what they find most attractive about the pet and how they would spend their time with the pet. These preferences may provide useful information for the development of future therapeutic HAI programs for childhood ADHD or other psychiatric disorders. Profiles of pet preferences and child-pet activities in relation to child factors such as comorbid Oppositional Defiant Disorder and attitudes toward animals will be discussed.

P057 – Positive sniffing: How human-canine collaboration in olfaction boosts social integration for the chronically ill

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Research into human-animal interactions is escalating and animal personhood is no longer a tentative suggestion. It has significance when trained canine olfactory diagnosticians are viewed as medical assistants independently working in the homes of chronically ill humans. The working dog's societal role is enhanced by "trainability" and olfactory sensibility. Humans prioritise visual or auditory senses rather than a sense of smell, but dogs utilise a complex olfactory system to detect survival strategies. It is this perceptual ability that has brought about inter-species cooperation to benefit detection in seismology, exhumation or drug smuggling, and now in medical diagnostics.
This review essay adopts a symbolic interactionist approach to multi-species research, highlighting meanings emerging from human-canine cooperation in the socio-medical arena. The results of this collaboration, based in anthrozoology and the sociology of health and illness, can augment human quality of life by aiding the integration of individuals with chronic conditions into a wider social context.

When canine olfactory perception merges with animal-assisted activity, the results have extensive social meaning for chronically ill humans. The inter-species partnership allows humans to leave home and integrate in society, secure in the knowledge that their canine companions will alert them to prevent risk situations in the public domain that may cause embarrassment, anxiety, collapse or necessitate emergency medical assistance.

Main findings
That animal-assisted activities (AAA) facilitate human wellbeing is widely accepted. Arluke (2010) takes an ethnographic approach to study animal-assisted activity as a social experience, gaining cultural insight through sensitive interview and observation methods, while Kirksey and Helmreich view multispecies ethnography from an anthropological standpoint, examining how the lives of organisms shape and are shaped by politics, economics and cultural forces. A review of sociological literature suggests that, until the late 1900s, anthropocentrism concealed awareness of animal models that might influence human social behaviour. However, human-nonhuman involvement in contemporary health issues – specifically canine olfactory detection of human illness – is creating new ways to manage chronic conditions.

Conclusions
Existence in a multispecies "Western" society is generally admissible; the non-human can assist the human from an authoritative position and in the process, the socio-cultural "value" ascribed to non-human others increases. Humans formerly self-barred from social integration because of ill health and anticipated public discrimination can join society assisted by sensitive animal companions.

P058 – Premature retirement of guide dogs – a qualitative study exploring 13 unsuccessful guide dog partnerships

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Visual impairment affects almost two million people in the UK (RNIB, 2013). Guide Dogs currently form over 800 guide dog partnerships per year. However, a number of these partnerships end prematurely due to health or behavioural problems in the dog or client related issues. The end of a guide dog partnership is often a distressing time for the owner (Nicholson et al., 1995) and it has been suggested that owners of dogs that are retired prematurely are more at risk of experiencing distress during this time. This research explores the experiences of premature retirement of a guide dog from the owner's perspective, with an aim to gain insights into the possible causes of premature retirement and the effect this has on guide dog owners.
Semi-structured interviews were conducted with thirteen visually impaired people that had experienced premature retirement of a guide dog during the previous year. Participants lived in various locations throughout the UK and ranged from 27–80 years of age. The dogs owned by these participants included German Shepherds, Labradors, Golden Retrievers and crosses of these breeds. During the interview participants were asked about various aspects of their relationship with their dog and how the retirement affected their lives.
An Interpretative Phenomenological Analysis (IPA) approach was adopted. The interviews were recorded, transcribed and analysed to identify the main themes. There were three common themes across participants, with two pertaining to the experiences of premature retirement and one giving an insight into some of the causes of this. The first theme was "feelings of loss", whereby participants described grieving the loss of the dog from their lives, with words such as "down", "depressed" and "sad" frequently being cited. This theme was referenced ten times by five sources. The second theme was "reduced sense of general well-being" focusing on how the retirement affected their emotional and physical health. Almost all participants reported a limitation in their mobility due to the retirement. Uncertainty and regret over the decision to have the dog retire was also felt by owners, impacting further on their well-being. All participants made reference to this theme, with a total of 141 references. The final theme "bond between the owner and dog" describes the relationship the owners had with their dog, with a clear distinction between the working relationship and the dog as a pet. As well as highlighting the nature of the relationship between a guide dog and its owner, this theme also demonstrates some of the problems that led to retirement in these partnerships. For many, although they enjoyed the relationship they had with their dog when not working together, difficulties arose when using the dog as a guide. Again, this theme was cited by all participants, with a total of 452 references.
The importance of both the working relationship as well as the personal bond with the dog in the success of a guide dog partnership is illustrated by the findings from this study. These findings may help with future matching of guide dog partnerships and could also be applied to other assistance dogs and matching dogs from animal shelters to new homes. Through the use of words such as "traumatic" and "devastated" when describing the loss of their dog, the research also highlights the degree to which premature retirement can affect guide dog owners. This emphasises the importance of providing appropriate emotional support to help ease the negative impact premature retirement can have on a guide dog owner's quality of life.

P059 – Living with a severe visual impairment and compensate for the disability with a guide dog

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Studies (Sanders, 1999, 2000, 2005; Wiggett-Barnard, Steel 2007; Gaunet and Milliet, 2010) have previously been conducted on the effects of the presence of a guide dog for visually impaired people by focusing on the dyad: the person with the disability and the guide dog. By anchoring the psychosocial study within social psychology of health, our aim is to look at people regarding their experience of severe visual impairment and the compensation gained by using animal aid. Our first question concerns the link between disability and the changes that occur when the loss occurs in adulthood. Looking at disability compensation by the guide dog, we focus on daily life and on moving outside and the social perception of the guide dog.

Semi-structured interviews were conducted with 24 people (14 with and 10 without a guide dog) the corpus was treated from a thematic content analysis. Seven themes were identified, four of which relate to life with a guide dog: 1) The medical accompaniment and the diagnosis of disability, 2) The period between the stages of being able to see well and being blind: Self and the Others, 3) the evolution of the relation with life, 4) Going out with a guide dog: to offset and expose the disability, 5) relationships within the dyad and each individual canine, 6) mutual care between the person and the dog, 7) service animal: social agent and social catalyst.

This study provides evidence to the influence of individual, social and psychosocial factors on the experience of visual impairment and its compensation by a guide dog. It can be documented on the basis of people's stories of the transformation of oneself identifiable in relation to Self, but also to Others and the individual dog. This exploratory study is a forerunner of research on the impact of visual disability compensation by the guide dog on people's quality of life and the perception of the well-being of the dogs.

P060 – Dog Presence and Children's Stress during Forensic interviews for Child Abuse

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Background: The U.S. Department of Health & Human Services reported that more than 3.3 million children underwent Child Protective Service investigations for abuse in 2010 (DHHS, 2012). Considering the large numbers of children experiencing potential psychological distress and the legal prosecution processes involved, it is necessary to identify interventions to alleviate children's stress.

Method: A two-group, randomized, repeated measures design was used in children ages 3–18 undergoing forensic interviews for child abuse to identify to what extent children who have a trained service dog present with them during the interview have less fear and physiological reactivity. Children in the treatment group (TG) undergo forensic interviews with a specially trained service dog. Children in the control group (CG) undergo the usual standard of practice. All participants completed a demographic questionnaire and the FACES Fear Scale. Peripheral skin temperature was measured using a mini infrared thermometer and heart rate variability was monitored in both groups at one minute intervals during the forensic interview using the POLAR RS800CX heart rate monitor. The FACES Scale was completed and peripheral skin temperature was measured at baseline, immediately before the interview, and post interview.

Results: The study is on-going; preliminary findings will be presented. To date 114 children have participated (TG n = 58, CG n = 56). 24.5 % (28/114) were males and 75.5 % (86/114) were females, ages ranged from 3–18 years (mean 10.17 years). TG mean FACES score pre = 1.61, post = 0.56; skin temperature pre = 84.1° F, post = 82.8° F; Heart Rate pre = 108, post = 99. CG mean FACES score pre = 1.8, post = 0.8; skin temperature pre = 82.5° F, post = 82.9° F; Heart Rate pre = 111, post = 100. Heart rate variability data are currently being analyzed and will be presented.

Discussion: The presence of a service dog to provide unconditional love and distraction may provide a safeguard for the children during the disquieting forensic interview.

P061 – The physiologic effect of a canine intervention during forensic interviews in child sexual abuse cases

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Reported cases of child sexual abuse are increasing and represent alarming acts against children. In 2009, the American Humane Association launched a national initiative entitled Therapy Animals Supporting Kids (TASK) Program. The TASK Program was developed to promote the use of therapy animals to improve child welfare. Animal-assisted invention (AAI) in gaining attention as a therapeutic modality; however, the effects of AAI have not been well studied in the child welfare system. The purpose of this study was to examine the effects of AAI on stress indicators (as measured by alpha-amylase (sAA) and pulse) in children undergoing forensic interviews for alleged sexual abuse. A repeated measures design was used in this study. Upon receiving signed informed consents and assents, children were enrolled in the study. Children (N = 42) whose age ranged from 5–14 years (M = 8.91, SD = 2.33) were randomly assigned to the intervention (n = 19; AAI during forensic interview) or control (n = 23; standard forensic interview practice) condition. The children's parent/guardian completed a demographic form and saliva samples and pulse measures were obtained from each child before and after the forensic interview. Mixed linear models were tested with a level of significance set at $p < .05$. There was an interactive effect of the duration of the interview and the presence of the dog on sAA after the forensic interview ($p = .047$). There also was a significant interaction between age and length of interview ($p = .01$). Results further indicated that drop in pulse was greater in longer interviews and with older children ($p = .02$) when the canine was present. Individuals working in child welfare systems can use the results of this study to advocate for the use of therapy canines as a therapeutic intervention. Future research is needed to further examine the relationships among AAI, salivary biomarkers, and stress responses in children to improve child welfare.

P062 – Therapy Dog at Nursing Homes for the elderly – effects on the residents – blood pressure and heart rate

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Introduction and aim: Pet animals have previously been shown to have beneficial cardiovascular effects for dog owners (Allen, 2002). In this study we wanted to investigate how regular visits by a therapy dog influence blood pressure and heart rate in residents at nursing homes for the elderly.
Materials and methods: The study consisted of two groups; i) residents receiving regular visits by a therapy dog and its handler and the researchers (n = 15; 13 women (mean age: 89 years) and 2 men (mean age: 89 years)) and ii) residents receiving regular visits by the researchers only (n = 15, 11 women (mean age: 83 years) and 4 men (mean age: 84 years)). The study was performed in Sweden during 2011–2012. None of the nursing homes had any previous experience with therapy dogs.
The participants were all Swedish speaking residents living at the nursing homes and were able to take part in a conversation, make his/her own decisions, had the ability to understand information and instructions and they were not diagnosed with dementia. Both groups received two visits each week. For the dog group the study lasted 8 weeks with the therapy dog team being present during week 3–6. Each visit lasted 60 minutes. For the control group, the study lasted 6 weeks and each visit lasted 40 minutes.
The therapy dog team consisted of a privately owned 2-year-old female Labradoodle and her female dog handler. During the visits the elderly talked to and/or was engaged in physical activity with the dog. For the dog group, the participants' blood pressure and heart rate were measured at 0, 20 and 60 min using a combined blood pressure and pulse gauge (Type 6050 3V/2W Braun, Braun AG Kronberg. Germany). For the control group, the same parameters were measured at 0 and 20 minutes. The collected data was analyzed using Mixed Linear Models in SAS. Unpaired and pairedt-tests were used as post hoc tests.
Results: Regular visits by the therapy dog significantly decreased the blood pressure of the elderly (systolic: $p = 0.032$, diastolic: $p = 0.06$) as well as heart rate ($p = 0.028$) after 5 weeks. These effects were maximal at 20 minutes. In contrast, visits from the researchers alone in the control group increased the participants' systolic blood pressure ($p = 0{,}007$) and heart rate ($p = 0.02$). When the effects observed in the elderly belonging to the dog and control groups were compared, the elderly in the dog group were found to have lower systolic blood pressure ($p = 0.056$) and heart rate ($p = 0.03$) during week 5 and 6, compared to those in the control group.
Three participants in the dog group suffered from hypertension (i.e., SBP > 140 mmHg and DBP > 90mmHg). When these individuals were studied separately, a significant decrease in systolic blood pressure ($p = 0.005$) and heart rate ($p = 0.04$) was observed, whereas no significant effects were seen in the normotensive individuals.
Conclusion: Regular visits by a therapy dog decreased blood pressure and heart rate for residents living at nursing homes for the elderly. This effect seems to be especially prominent in individuals with high blood pressure. The results open up for an alternative to drug therapy in hypertensive elderly.

P063 – Canine Assisted Therapy in Depressive Disorders

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The actual healing effects of canine-assisted therapy, particularly among psychiatric disorders, have been poorly studied, particularly with respect to symptomatic improvement beyond the subjective. Our goal was to study the influence on symptoms of depressive disorders by canine assisted therapy. With adherence to the Declaration of Helsinki 2008, patients were recruited from inpatient general psychiatric wards. The core inclusion criterion was presence of a moderate to severe depression that met ICD-10 criteria.

The Beck Depression Inventory, (here in the revised BDI-II version) is a recognized self-evaluation instrument to assess the severity of depressive symptomatology. To capture potential previous experience with domestic animals to assess the influence of this on the study, a questionnaire to capture this and attitudes to animals and animal-assisted therapy was developed.

In this study, the choice regarding the breed of the dogs was the Australiana Working Kelpie, which originated directly or by rearing from the Wyreema Stud in Australia. A total of 11 dogs participated in the study.

We utilized 8 thirty-minute sessions scheduled twice weekly. The dog randomly assigned to a specific patient accompanied that patient through the 4 weeks. Considerations of attachment formation within a short duration of therapy led to construction of special situations within the therapy. 60 Patients were randomized to two therapy arms. The study was initiated with each patient by completion of the attitude and experience questionnaire and the Beck Depresion Inventory II. Those in study arm 1 underwent a 4 week phase of treatment as usual with the addition of dog-assisted therapy, and those in study arm 2 underwent treatment as usual. After 4 weeks, patients completed the BDI-II again, then crossed over to the other arm of the study. After another 4 weeks, a third BDI-II was completed.

46 of the original 60 patients completed the study. For the BDI-II, 3 t-tests of unrelated samples of the 3 sampling episodes were calculated. While the total score, as expected, did not differ at the time of the first sampling, the average score between the groups after 4 weeks showed a highly significant difference ($t(44) = –4.677$; $p \leq ,001$). Participants in the first study arm had a score of 15.46 (SD = 8.703), lower than in the second study arm (M = 27.77; SD = 9.154). With respect to the third BDI-II completion at the 8 week mark, no significant average score differences could be identified. The analysis of the suicidiality item of the BDI-II was undertaken using nonparametric methods in view of its ordinal character. 3 Mann-Whitney U-tests were done on the data of the three measurements. These showed no statistically significant difference at the time of the first measurement between the study arms. At the time of the second data point, a highly significant difference ($U(46) = 134$; $p \leq ,001$), and at the time of the third data point, a significant difference between the arms with respect to the suicidality item was noted. To determine the therapeutic effects, Wilcoxon Z tests were calculated separately for both study arms.

Therapeutic effects were assessed using a two factor repeated measures ANOVA with the therapy arm variable as group factor and the 3 data collection points as a measurement repetition factor. The BDI-II total score $F(2, 44) = 18.78$, $p < .0001$ and the BDI-II suicidality item $F(2, 44) = 7.29$, $p = .0012$ had a significant interaction. The inclusion of dogs in the context of treatment is helpful in more rapidly diminishing the burden of depressive symptoms, and in particular suicidality.

P064 – Dosage Effects of Therapy Dog Visitation on Loneliness, Stress, Anxiety and Biological Responses among the Aging

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Background: Older individuals are prone to psychosocial stress, anxiety, and loneliness related to life changes which promote negative biological processes including inflammation and immune dysregulation. Therapy dog (TD) team visitation, which includes a casual visit from a therapy dog and animal handler, is a potential therapeutic intervention to reduce the negative impact of biobehavioral processes associated with aging. The effectiveness of TD team visitation in attenuating the biobehavioral processes of aging is not clearly delineated and limited evidence is available to determine the best therapeutic "dosage," or the time required to illicit positive biobehavioral responses. Due to the limited number of TD teams in the USA, examination of the dosage effect is important to TD visitation practice in order to maximize benefits among senior living residents.

Objective: To examine the effectiveness of a 10 (TD10) or 20 (TD20) minute TD team visit, versus a visit without a dog, on senior living residents' biobehavioral responses, including self-reported stress, anxiety, and loneliness and biological measures of peripheral skin temperature (PTEMP), salivary cortisol (sCort), alpha-amylase (sAA), C-reactive protein (sCRP), and interleukin-1ß (sIL-1β).

Method: Using a randomized 3-group (n = 12 each) repeated measures experimental design, thirty-six elderly senior-living resident participants were subjected to a mild cognitive stress task first and then provided a 10 or 20 minute visit with a therapy dog team, which included a registered therapy dog and animal handler, or to a comparison group with the same animal handler but without a dog. Data were collected before and immediately after the TD visit, and 10 and 40 minutes after the TD visit. Repeated measures included three self-reported visual analog scales (stress, anxiety, and loneliness) and saliva for sCort, sAA, sCRP, and sIL-1β.

Results: General linear mixed models revealed significant interactions of group and time with the TD10 significantly more effective in reducing anxiety ($F (8,162) = 2.0$; $p = .045$) and loneliness ($F (8,162) = 2.0$; $p = .041$) than the TD20 and comparison group without a dog. A significant effect of time with decreases in self-reported stress ($F (4,170) = 3.7$; $p = .006$), state anxiety ($F (2,103) = 5.2$; $p = .007$), sCORT ($F (2,99) = 16.83$; $p < .01$) and sIL-1ß ($F (2,100) = 5.54$; $p = .005$) after the cognitive stressor were revealed among all groups, with no differences between group responses.

Discussion: Ten minute TD team visits appear to be more effective in reducing anxiety and loneliness than 20 minute TD team visits or visits without a dog in senior living residents. Findings are important given the limited number of TD teams and resources in the USA to visit senior living residents in need. A 10 and 20 minute TD visit in reducing stress, state anxiety, sCORT and sIL-1ß after a mild stress challenge among senior living residents are similarly beneficial to a visit from a person without a dog.

P065 – The influence of assistance dogs on children with Autism Spectrum Disorder and their families

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The positive influence of assistance dogs on the lives of children with Autism Spectrum Disorder (ASD) has been reported in the literature, however, limited studies have been conducted examining the impact on the child's family. This study aims to establish the emotional and behavioural changes that have occurred for children with ASD after they have received an assistance dog, and to examine the influence of these changes on the child's family. This study used a qualitative, phenomenological approach to understand the dynamic life experiences in the context of six families. Purposive sampling was used to recruit participants, whilst data collection occurred through semi-structured interviews and a qualitative, participatory research approach called Photovoice. In depth semi-structured interviews were performed to explore what life was like for the child and the family before they had an assistance dog and to discuss the influence of the assistance dog on the child and family. Researchers then utilised Photovoice, where participants are asked to take photos to represent and reflect on their life and the changes in their child and their family since receiving their assistance dog. Images were discussed, again using semi-structured interviews, to understand the themes that the images represented. Coding focused on statements that related to the central themes of the research; emotional changes, behavioural changes and impact on family members. Axial coding and selective coding made sense of emerging patterns and made causal connections respectively. The qualitative design provided the researchers with an in-depth understanding of the particular experiences of each family, which was enhanced by also using Photovoice method. Two central themes, emotional changes and behavioural changes, were clearly identified. Five of the six families stated that their child's emotional state had changed since receiving their assistance dog. Each of these five families stated that their assistance dog successfully interrupted the escalation of emotions and provided emotional comfort for their child. Similarly, all five parents reported a noticeable decrease in daily anxiety levels of their child. Five of the six families interviewed expressed great enthusiasm for the changes in their child's behaviour since receiving an assistance dog. A common theme centered on a reduction in aggressive behaviour towards themselves or others as a response to a situation or stimulus. In addition to these central themes, a number of sub themes were also identified. These included "dog as teacher", "improved play" and "increased sensory input". Four of the six families interviewed stated that they believed that it was the assistance dog "leading by example" that had enabled their child to learn more positive behaviours. Similarly, an increase in play behaviours was noted by all six families. All six families reported that their assistance dog provided sensory input to their child with five families stating that this appeared to have a significant positive influence on their child's behaviours. A number of emerging themes were also identified from the data. These include greater communication skills, a decrease in use of medication, companionship and improved community access. All six families stated that their child's assistance dog had resulted in a significant positive change within the family. The findings of this study highlight the importance of this area of research and indicate that there is significant need for future research to assist in establishing the role of assistance dogs within the lives of children with ASD. The positive influence of assistance dogs is complex and holds significant benefit not only for the children and families accessing the support of an assistance dog, but for the community overall. Future directions for this field of research are also discussed.

P066 – Evaluating AAT for traumatized youth in a community agency: A pilot study

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In the United States, an estimated 68 % of youth experience a traumatic event by the age of 16 (Copeland, Keeler, Angold, & Costello, 2007). Youth who experience trauma commonly present in clinical settings with symptoms of posttraumatic stress disorder (PTSD) as well as problematic emotional, behavioral, physical, and social functioning (Copeland et al., 2007). Animal-assisted therapy (AAT) is a mental health intervention in which therapy animals and trained clinicians work together to alleviate psychological symptoms and improve functioning. AAT is associated with beneficial outcomes for adults who have experienced traumatic events (Yorke, Adams & Coady, 2008), but less is known about the effect of AAT with youth who have experienced trauma. To explore the effect of AAT on youth healing from traumatic experience(s), mental health therapy was provided to a sample of youth seeking treatment after experiencing trauma (n = 8). Youth ranged in age from five to sixteen years old and identified as either Caucasian, African-American, or Asian; 50 % of youth were male. Six youth received AAT; two received standard mental health therapy without an animal present. For this study, two dogs specifically trained and certified for therapeutic work were integrated into therapy sessions. Dogs were continually assessed for signs of stress and calming signals through video recording and photographs of sessions. Ethical guidelines for AAT were established, and procedures to ensure canine happiness were developed. Youth were screened for any history of animal abuse or allergies prior to participation, and signed consent prior to participation. Dogs participating in therapy did not display signs of stress, but did show infrequent calming signals. Data was gathered via Youth Outcome Questionnaire (YOQ; Burlingame et al., 1996) to assess for functioning, and paired sample t-tests were conducted to evaluate the impact of treatment on functioning. There were no significant differences in YOQ scores between time 1 and time 2 for youth receiving AAT ($p = .52$). The study was limited by a small sample size, inconsistent time periods between data collection, and inconsistent number of AAT sessions. These barriers to evaluation are found frequently in community AAT agencies. While findings from this study do not support the hypothesis that AAT can help traumatized youth improve functioning, the results do present a unique opportunity to discuss the best methods for evaluating traumatized youth receiving AAT, and barriers to evaluation commonly faced by agencies providing AAT. Further, reporting of null findings is imperative to the development of AAT. Ethically and professionally, AAT researchers and clinicians must have access to the totality of evidence with which to apply to evaluation or practice. Implications include the need to support agencies providing AAT to implement effective methods for evaluating outcomes. Recommendations are offered to facilitate evaluation of AAT with traumatized youth, and procedures to ensure canine happiness are presented.

P067 – A standardized equestrian rehabilitation program increases both social and motor behavior in children with autism spectrum disorders

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Recently, an increasing number of studies has begun to examine the beneficial effects of the inclusion of animals in both recreational and therapeutic interventions (Animal Assisted Interventions, AAIs). Children with Autism Spectrum Disorders (ASDs) have been highlighted as a target population that may benefit from AAIs, mainly for the recognized ability of some animals to positively engage people, thus potentially counteracting the social withdrawal characterizing these subjects. AAIs with horses (also known as Therapeutic horseback riding or Equestrian Rehabilitation) usually involve mounted riding activities and are currently recognized as one of the most effective animal-assisted rehabilitative activities for children with ASDs. Previous studies have shown that interactions with horses on a regular basis are able to improve quality of life of children with autism, mostly by assisting them to develop communicative and social skills, manage behavioral problems and thus promoting social integration. However, although encouraging, these evidences are still based on a scarce number of studies and their generalization is often limited by common methodological weaknesses (e.g. lack of a control group). The purpose of the present study was to examine the efficacy of an equestrian rehabilitation program (ER) in children with ASDs. Both overall effect on ASD symptomatology and effects on specific areas of functioning (communication, sociability, cognition and motor skills) were evaluated. A sample of 6–12 years old children with ASD (n = 15) participated at weekly sessions consisting in structured activities involving horses. Sessions were held in riding centers and followed a standardized protocol including both riding activities and work on the ground (e.g. grooming). Outcomes were evaluated through standardized assessments (i.e. the Vineland Adaptive Behavior Scale, Tower of London test, and Wisconsin Card Sorting Test) and were compared to those obtained by a sample of children (n = 18) not attending the equestrian rehabilitation program and comparable for age and diagnosis (control group). Analyses performed show an improvement in both social and motor functioning in the group attending ER sessions. Enhanced problem-solving skills and visual-spatial abilities were also observed in children who participated to structured activities involving horses. Our findings represent a first step towards a more in-depth knowledge of the potential use of horses to counteract social withdrawal in children with ASDs. The improvement of executive and motor functions observed is also encouraging especially in the light of its correlation with children's quality of life.

P068 – Horses, Autism and Therapy: De-centring the Speaking Subject

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Ever since the publication of Thinking in Pictures (Grandin, 2006; 2012) and Horse Boy (Isaacson, 2010), animals in general and horses in particular have been linked to autism. The relationship, it is suggested, improves the condition of autism and is variously described as empathic, healing and life-changing. Most theoretical frames are implicit, but most infer some behavioural change in the Person(s) Diagnosed With Autism (PDWA). This paper offers a view beyond behaviour change and places the horse and the PDWA central.

Aim: Programmes (e.g. ABA) that have been designed to "improve" PDWA usually use Pavlovian behavioural principles. The aim is to normalise through behavioural change, and when animals are involved this usually means riding a horse. It is argued that it is the rhythm of the horse that soothes. Equine Assisted Therapy (EAP) works from the ground, and uses the principles of herd behaviour to understand communications and interactions. Key here is the emphasis on understanding rather than changing.

Method: This study sought to examine if contact with a horse on the ground could have a different impact. We specifically were interested in communication, as the lack of which is usually a central tenet in the autism diagnosis. Our case study comprised six sessions over four months with a group of eight PDWA, three of which also received 1-2-1 EAP. Following EAGALA principles, the intervention team consisted of a Mental Health Specialist, an Equine Specialist, and multiple horses. Sessions ranged from 20–50 minutes, and included 1-2-1 and group sessions. Session 3 also involved parents. Methodologically, we used the principles of Esther Bick for our observations.

Results: We observed that (1) eye contact initiated by horses was reciprocated; (2) flow of energy was regulated and understood in a mixed herd environment; (3) group/herd membership and boundaries were expanded. We found that when we do not assume that autism is something to be "cured" or normalised, and rather remove the speaking subject from the centre, we focus more clearly on the horses and PDWAs. As for neither the former nor the latter the Other is assimilated by language (Fink, 1995), non-verbal behaviours and herd patterns take centre stage and a whole new subject arises – one not limited by an autism diagnosis. EAP allows us to view PDWAs as productive rather than deficient. We conclude by reflecting how it takes a horse to reconfirm human dignity.

P069 – Veterinary Student Knowledge and Perceptions of Human-Animal Interaction and Pet Therapy Programs

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Animal-assisted activities (AAA) and animal-assisted therapy (AAT) programs are a growing interest, but current programs vary in their safety and health policies. Veterinarians can have an important role in ensuring the safety of both the animals and humans involved. Therefore, the goal of this study was to assess the knowledge and perceptions of first year veterinary students on various aspects of pet therapy programs, and to compare these with practices in a random sampling of nursing homes and hospitals. A survey which included multiple questions on various safety and policy issues was administered to first-year veterinary students on their perception of pet therapy programs. None had received formal education on AAA/AAT prior to the survey. Completed surveys were available for 91 of 103 veterinary students. Fifty-eight and 67 % of students thought that all or most nursing homes and hospitals, respectively, were required to have a policy on visiting animals. Most (75 %) responded that veterinarians, animal handlers, and facilities should share the responsibility for ensuring safe human-animal interaction in pet therapy programs. Eighty-four percent of students thought all or most national and local pet therapy groups require rabies vaccination and negative fecal test. These results will help veterinary schools better educate future veterinarians to help AAA/AAT programs.

P070 – Pet adoption triggers empathy in individuals with autism

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Alteration of social interactions is one of the characteristics of autism. Numerous strategies or therapies are used to improve communication skills or at least to reduce social impairments. Animal-assisted therapies are used widely, but their relevant benefits have never been scientifically evaluated.

Here, we evaluated the link between the presence or the adoption of pets in families with an individual with ASD and the changes in his or her prosocial behaviors. Of 260 individuals with autism, two groups of 12 individuals and two groups of 8 individuals were assigned to: study 1 (pet adoption after age of 5 versus no pet) and study 2 (pet versus no pet).
Evaluation of social impairment was assessed at two time periods using the ADI-R algorithm and a parental questionnaire about their child-pet relationships. The results showed that 2 items changed positively between the age of 4 to 5 and time of assessment in the pet adoption group (study 1): "offering to share" and "offering comfort". Interestingly, these items reflect empathy. There seemed to be no significant changes for the other groups. The interactions between individuals with ASD and their pets were more reported in the situation of pet adoption than pet presence since birth.
These findings open further lines of research on the impact of pet's presence or adoption in families with individual with ASD. Given the potential ability of individuals with ASD to develop empathy, related studies are needed to better understand the mechanisms involved in the development of such child-pet relationship.

P071 – Interest in animal-assisted therapy in patients with implanted cardiac electronic devices

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Background and Objective: Animal-assisted therapy (AAT) is mainly carried out in institutions. It is unknown if outpatients with cardiovascular disorders are interested in visits of AAT teams in their homes. The aim of the pilot study was to assess the interest of patients with implanted electronic devices (IED) in AAT.

Methods and Results: Included were 75 patients, (18 females, mean age 69 years) who attended the outpatient clinic for control of antibradycardic pacemaker (n = 15) or implanted cardiovert-er-defibrillator (n = 60). Twenty-three % of patients were current pet owners, 48 % previous pet owners and 29 % had never owned a pet. Pet owners were younger than non-pet owners (63.5 versus 72.0 years, p = 0.010). 16 % of the study cohort showed interest in AAT visits in their homes. Two patients after the first visits rejected continuation. The rate of acceptance of our approach was hence low, mainly because the patients considered themselves too busy, healthy, or due to a general disinterest in AAT.

Conclusions: Based on our data we propose that potential benefits of AAT cannot be investigated by home visits of AAT teams in outpatients with IED.

P072 – Positive effects of animal-assisted interventions on elderly people suffering from dementia: A systematic literature review

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Background: More and more staff members of nursing homes are becoming aware of the positive effects of interacting with animals on elderly people suffering from dementia and they integrate dog, rabbit or cat in various ways in their everyday practice. Research on the potentially beneficial bio-psycho-social effects of animal-assisted interventions on people with dementia was dominated by individual case reports, practical reports and field studies with very small sample sizes for a long time. Only since the 1980s, larger experimental or quasi-experimental studies, thorough qualitative investigations and highly differentiated evaluations of existing programmes, have been established. An overview of existing studies is given that shows several effects of animal-assisted interventions on people suffering from dementia which are evaluated and confirmed already.
Objective: A systematic literature review was conducted to identify and examine recent studies investigating bio-psycho-social effects of animal-assisted interventions on people suffering from dementia.
Search strategy: In a first step of the literature review, potential studies were searched in relevant scientific databases in the fields of medicine, psychology and nursing (e.g. Academic Search Complete, CINAHL, PsycINFO, PubMed, Medline) (search period: 1970–2013). To complete the review of the current state of research, in a second step, a manual search in two large topic-specific online bibliographies (www.anthrozoology.org [until 2012]; www.petpartners.org) was performed.
Inclusion and exclusion criteria: To be included in the review, studies have to (1) investigate any bio-psycho-social effects of animal-assisted interventions on people suffering from dementia, (2) enroll at least ten participants (sample size $n \geq 10$) and (3) provide results in articles written in English.
Findings: In total, 18 studies met the inclusion criteria for the review. The results refer mainly to different positive psycho-social effects of animal-assisted interventions for people suffering from dementia. Some studies suggest that the interaction with an animal, in most cases a dog, promotes emotional well-being, enhances communication and reduces certain behavioural and psychological symptoms of dementia (such as aggression or agitation). Physiological effects, however, have hardly been investigated or confirmed.
Overall, the studies vary a lot in terms of study design, the investigated type of animal-assisted intervention and the variables studied. Most of them involve only small samples (sample size: $n \leq 30$ in 13 of 18 studies). Given these methodological deficiencies, the results should be interpreted in a prudent way and cannot be considered reliable in any respects.
Conclusion: There is undoubtedly need for more profound high-quality research on the effects of animal-assisted interventions on elderly people suffering from dementia. However, recent studies provide encouraging preliminary results, since the reported outcomes were almost unanimously positive and clearly indicate an effectiveness of animal-assisted interventions in nursing homes.

P073 – Adult Females. Informal Learning Experiences with Equines

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Few researchers have systematically investigated the role of equines in the everyday lives of adults who choose to take on the responsibility of equine ownership and enter into a human-equine partnership. There are many theories as to why horses offer a unique type of partnership with humans, but what do individuals interacting with equines in their everyday lives have to say on the matter? How do we make meaning of these relationships? Exploring these relationships yields insights into the nature of human-equine interactions, and may offer ideas for incorporating equines into therapeutic and educational settings. My purpose in the current research study was to explore to essence of the human-equine relationship. Using heuristic methodology, I conducted interviews and observations in humans' and horses' shared space when possible, and gathered artifacts offered by participants, paying particular attention to the roles of equines in participants' lives (including my own), the potential for learning through interactions with equines in an everyday setting, and the potential to transfer learning within this context to other areas of life.
Seven adult females ranging from 40 to 60 years of age participated in informal interviews and provided artifacts such as poems, short stories, visual artwork, and photographs. At the time of the study, each owned between one and seven horses, and we each shared a philosophy of natural horse(wo)manship, also promoted by the two horse trainers we shared in common. Ten equines participated in the study in the sense that five interviews were conducted in the presence of the horses. I also contributed my own notes following interviews, journal entries and blog posts, and photographs. In analyzing the data, five themes emerged. First, it became clear that horses play an integral role in self identity. Second, participants viewed horses as "greater than" themselves, becoming teachers or mentors encouraging personal growth, facilitating relationships with other humans, and offering additional nurturing experiences. Third, participants viewed horses as "equal to", recognizing them as unique individuals, describing them as companions and friends. Third, participants viewed horses as "lesser than" in that they viewed their horses as dependents requiring care and nurturing. Finally, some of the participants looked beyond their personal equine experiences to note larger historical and spiritual roles fulfilled by horses, as well as the potential for horses to serve as catalysts for social change. Ultimately these themes blend to create the comprehensive equine-experience. It is also important to note that engagement in a human-horse relationship can create additional physical, mental, and emotional stress. However, when I questioned them about the challenges of horse ownership, all participants concluded that the benefits outweighed the stressors. My final (re)presentation of the data included a data poem for each participant to highlight these themes, but also honor our unique equines experiences and relationships. The insights and experiences shared by women in this study are consistent with ideas from the fields of biophilia, human-animal bond research, and theories of learning including informal learning and transfer of learning. This suggests the potential for others to also engage in meaningful experiences with equines. However, with changing time and culture, we must continue seeking to understand the roles of animals in humans' lives (and vice-versa), especially horses and other animals classified as livestock or considered nontraditional companion animals. Additionally, we have chosen to interact with horses and incorporate them into our daily lives, but what is the experience for someone who may or may not be as invested in the idea and only interacts with a horse for an hour or two a week?

P074 – Attitudes towards use of animals in 5th grade and 9th grade students

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Attitudes towards animals can provide relevant information to understand human social processes, individual behaviors, and social norms. Several studies have shown that attitudes towards other species are strongly related with individual variables (e.g. empathy, aggressive behavior, moral disengagement), as well as interpersonal ones (e.g. family violence). Unfortunately, many of those studies have given special attention to the description and categorization of attitudes instead of the analysis of the variables that predict their development. Focusing on such analysis could be important for designing interventions to change attitudes towards animals.
This study explored the relationship between attitudes towards animal use (e.g. experimentation, consumption, entertainment) and individual variables in a sample of 1511 Colombian 5th and 9th grade students. Independent sample t-tests showed differences between boys and girls. Specifically, they showed that boys reported greater agreement with animal use ($t = 4.19$; $p = .000$) and higher scores in domain ($t = 3.22$; $p = .000$) and utilitarian ($t = 3.90$; $p = .000$) attitudes when compared to girls. Multiple regression analyses per group showed that in 5th grade students, beliefs legitimizing aggression ($\beta = 0.318$; $p = .000$), sexist attitudes ($\beta = 0.294$; $p = .000$), and gender ($\beta = –0.14$; $p = .031$) had significant effects on attitudes towards animal use. In 9th grade students, domain attitudes were explained by beliefs legitimizing aggression ($\beta = 0.261$; $p = .000$) and sexist attitudes ($\beta = 0.195$; $p = .005$). Utilitarian attitudes were explained by beliefs legitimizing aggression ($\beta = 0.236$; $p = .000$) and gender ($\beta = –0.173$; $p = .000$). Our results suggest that critical thinking and strategies to change sexist attitudes and beliefs legitimizing aggression might be useful when designing interventions based on attitudes towards animals.

P075 – Naming choice of rabbits kept at Japanese kindergarten is related to names of rabbits appearing in children's stories

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Naming animals (e.g., pets and farm animals) by owners is an expression of their attention and love toward them (Ishida 1990; Bartensha & Rowlinson 2009). Many Japanese kindergartens keep rabbits for educational purposes, and children often name these rabbits. Our preliminary study in kindergartens suggested that the welfare status of named rabbits was better than those of nameless ones, and that children and teachers often named rabbits after those in children's stories. Rabbits are indeed one of the most popular characters in children's picture books. Japanese kindergartens own many picture books among which rabbits play certain roles in the story. Maternal narrative input plays a facilitative role in the development of socio-cognitive ability in young children (e.g. Adrian, Clemente & Villanueva 2007). Naturally, picture books assist kindergarten teachers in teaching children about human-animal relationships. The purpose of the study is thus to investigate the historical changes of names of rabbits appearing in children's picture books that are published in Japan.

Using the almanac of children's picture books published in Japan (including foreign books: mostly western stories translated into Japanese), we first picked out the books wherein rabbits appeared in the stories within the period between 1953 and 2006. We then classified the stories by name. The proportion of stories in which rabbits have names in relation to the entire set of rabbit stories was compared among different decades using Chi-square tests.

Eight hundred and thirty-six rabbit stories were classified by name. Calling "rabbit" or "hare" in the stories was regarded as nameless rabbits. Rabbits had names in 538 stories out of 836 picture books surveyed (Japanese books: 398, foreign books: 438). "Benjamin" (a personal name), "Whity" (named after its appearance), "Basil" (named after a plant) and "Pudding" (named after food) are some examples. Only a few rabbit stories appeared in the 50s and 60s. The proportion of the Japanese stories in which rabbits have names significantly increased ($\chi^2 = 19.0$, df = 2, $p < 0.0001$) through the decades (70s: 39.3 %, 80s: 51.6 % and 90s: 75.3 %), while the proportion did not change in foreign stories (70s: 67.8 %, 80s: 67.9 %, 90s: 72.3 %; $\chi^2 = 0.537$, df = 2, $p = 0.764$). The proportion of Japanese stories was significantly lower than that of foreign stories in the 70s and 80s, but there was no significant difference in the 90s (70s: $\chi^2 = 0.537$, df = 1, $p = 0.0018$; 80s: $\chi 2 = 7.13$, df = 1, $p = 0.0076$). The results suggest that Japanese perception of animals is becoming similar to the perception of Westerners. Ishida (1990) also reported that the present-day Japanese are showing a tendency to name their pets after people's name compared with the olden days. In conclusion, the trend of naming animals in children's picture books could be a good indicator of people's perception of animals, and that would have an effect on the children's perception of animals kept at kindergarten.

P076 – The effect of weekly visits accompanied by a dog on children's perceptions of welfare of animals kept at classes in Japanese kindergarten

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Many Japanese kindergartens keep small animals for educational purposes, but the animal welfare in many kindergartens falls short of the Japanese Animal Welfare Standards and Guidelines (Morimoto and Tanida, 2013). We have been visiting kindergartens with trained dogs for several years to expose children and teachers to a better understanding of the welfare of dogs as well as animals kept in classrooms. Our visiting program could stimulate children's interest in dogs, but did not have positive effects on children's perception of the welfare of classroom animals. We designed a new project in which children are not only interacting with our trained dogs, but also participating in activities geared towards environmental enrichment for classroom animals for the purpose of improving animal welfare. The aim of this research was to study the effect of our new visiting activity on children's perception of the welfare of classroom animals.

A total of 78 children (mean age = 5.00) at 3 kindergarten classes keeping rabbits and fish were the subjects of our study. Eight to 10 researchers who study dog training as well as handling small animals at Hiroshima Animal Care College visited the kindergarten. The children were visited once a week for 11 weeks. Each visit in the first 9 weeks consisted of 3 educational programs, such as "interacting with our trained dog," "environmental enrichment of rabbit cages" and "environmental enrichment of a fish tank". We reviewed the last 9 activities with children during the 10^{th} and 11^{th} visits. Each program lasting 30 to 40 min was videotaped continuously and simultaneously with 4 cameras, and the behaviors and utterance of children during the activities were recorded. The changes in the fish tank environment throughout our visits were recorded with a digital camera. The changes of the nocturnal behavior of rabbits in the cage were taken with motion-triggered cameras for over 3 months. The effect of each educational program on children's behavior and utterance was compared using a 3 x 3 Latin square (3 educational programs, 3 educational stages, 3 groups). The nocturnal behavior of the rabbits was compared before and after the environmental enrichment of the cages using the Wilcoxon's signed-rank test.

Before our visits, the fish tank showed unhealthy conditions with muddy water, and the cage size of rabbits fell short of the welfare standards. During the 9 visits, the students and children cleaned the fish tank, planted aquatic plants, and provided rocks and hiding spaces in the tank. They attached a new cage to the rabbit cage to enlarge the living space, and provided a rabbit house, forage materials (e.g. hay) and toys during the visits. The number of children's utterance and behavior during the activities was not significantly different among the 3 educational programs, but their behavior and utterance increased when they attended the enrichment activities in all programs. Nocturnal activities of rabbits significantly ($P < 0.05$) increased after the enrichment. When we revisited the kindergarten one month after the end of our project, the rabbits' cages and the fish tanks were well maintained. The results suggest that our visiting program was effective in changing the children's perceptions of animal welfare at the kindergarten.

P077 – Stress hormone patterns of nine-year old children during dog-assisted reading: which factors predict individual responsiveness

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Animal-assisted interventions bear great potential in education. Recent evidences indicate that the presence of a dog may promote children's learning processes, particularly during stressful test situations (Beetz et al., 2013). However, more empirical data are needed and the mechanisms underlying this effect are not yet fully understood. We tested the effect of the opportunity to interact with a dog on children's stress hormones (i.e. cortisol) in an Upper Austrian primary school. Nine nine-year old children (N = 4 females and 5 males) agreed to participate in the reading tasks. Each child went through two independent reading task sessions, one with the testing person, the dog and its human companion, and one with the testing person and without the dog. During each 60-minute session the child passed two reading tests, including breaks for interacting with the dog. Over the course of the 60 minutes the child provided six saliva samples. From the saliva, cortisol was measured using EIA. Scores for reading skills were retrieved by standard tests and behavioural interactions between the child and the dog were measured from video records. Overall, cortisol levels were lower during dog-assisted sessions than during sessions without a dog. Also within sessions, the predicted stress-reducing effects of the presence of a dog on the children's cortisol levels were observed: in five of the nine children, cortisol levels were lower during the second reading test (i.e. after 40 minutes) than during the first reading test. However, the observed effects of the dog assistance were not statistically robust (RM-ANOVA, $F = 2.1$, $df = 1$, $p > 0.050$), whereas individual differences explained some of the observed variation ($F = 26.3$, $df = 8$, $p < 0.001$). Thus, the supporting effect of the dog assistance must be viewed in a more differentiated way. For example, two children had higher cortisol levels with dog than without a dog, and two additional children showed high stress levels regardless of the dog. We will present a detailed analysis in search for factors predicting a positive effect of the presence of a dog during learning. We aim at adding empirical evidence for improving the practice of dog-assistance in school education and for a nationally, as well as internationally comparative database.

P078 – The Effects of Experiences with Animals on the Reading Comprehension Skills of Students in the Seventh Grade

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Method: A quasi-experimental study was conducted with two seventh-grade classes at William Howard Taft Middle School. One class received daily 20-minute animal interaction experiences for 5 days. Following the week of animal interactions in fall 2007, students in both classrooms were given the Degrees of Reading Power (DRP) test. The individual results for the two groups were compared to the individual results for the spring 2007 DRP test. An independent samples t-test was used to analyze the differences in scores between the two groups.

Results: The hypothesized significant difference in reading comprehension growth, as measured by the DRP test, between the seventh-grade students who had classroom exposure to animals and those who did not have classroom animal interactions was not supported. Analysis of the t-test suggested no statistically significant difference between the two participating groups and their growth in reading comprehension, as measured by the DRP.

P079 – Effects of a Reading Education Assistance Dogs (R.E.A.D.®) Program on Second Grade Elementary Students

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Reading skills are an important component of academic success. Promoting literacy can lead to increased academic performance, and positive attitudes about school (Wilfong, 2008). Ideally, reading assistance programs should be complementary to regular reading instruction and provide additional reading practice in a low-stress environment that promotes confidence and engagement. The presence of an animal has been associated with decreased levels of stress during participation in a reading exercise (Friedmann, et al., 1983). Therefore, the goal of this study was to assess the effect of a six-week after-school canine-assisted reading program for second-grade students in a public elementary school. Second-grade students were randomized to one of two groups. Children in the intervention group (n = 15) were included in a six-week program in which they read to dogs registered through Pet Partners® and whose handlers had completed Reading Education Assistance Dogs (R.E.A.D.®) training. Children in the control group (n = 15) received a standard classroom curriculum. Students' reading skills were assessed biweekly using the Dynamic Indicators of Basic Early Literacy Skill (DIBELS) test and attitudes towards reading were measured by the Early Reading Attitudes Survey (ERAS; Academic and Recreational). Biweekly DIBELS scores (analyzed by ANOVA with repeated measures) did not change significantly for either the control or intervention group ($p > 0.05$), the Academic ERAS scores (analyzed by Wilcoxon signed ranks tests) did not change significantly for either control or intervention group ($p > 0.05$), the Academic ERAS scores increased significantly in the intervention group ($p = 0.002$), but not in the control group ($p = 0.06$). These results increase our understanding of the impact of R.E.A.D. ® programs on children's attitudes about reading and better inform future research evaluating the integration of reading programs that include dogs.

P080 – Psychophysiologic Benefits of Dog-assistance for Reading Performance?

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A number of studies have shown that dogs can have various positive effects on humans, mainly via their relaxing influence and their social acceptance by humans (Beetz et al. 2012; Julius et al. 2012). Along these lines they may also facilitate learning and performance at school. As a test of this hypothesis and because an increasing proportion of children in Austrian elementary schools shows poor reading skills (e.g. the "PISA study"), we initiated a dog-assisted reading pilot program with 36 third-graders (9–10 years of age, 17 boys and 19 girls) of three different Viennese primary schools. In our study we aimed at elucidating whether the presence of a friendly dog can improve the reading performance in the short run and if this improvement is related to the stress-reduction effect due to the presence of a dog. Children were tested separately on their reading performance in the presence of a coordinator, once in the presence of a friendly dog and its owner (behaving passively) and once without a dog. Succession of the two conditions was counterbalanced. Dog teams trained and approved for school visits were contributed by "Schulhund.at – Verein Rund um den Hund". The test procedure was divided into different phases. After a short instruction by the investigator (L.S. or S.A.), the children were allowed to get in contact with the dog or draw in the no-dog setting respectively. Then two reading tests (Repeated Reading and ELFE) were conducted. In the end, the children would relax in close contact with the dog or draw respectively. To assess stress levels, heart rate was measured by a POLAR heart rate belt which was applied right at the beginning. In addition, six salivary cortisol samples were taken over the test situation. To relate the amount of body contact with the dog to the stress level and reading performance, behavioral data were collected by video recording. At the time being, we analyzed reading performance and cortisol. For the latter we found a significantly positive effect of the presence of the dog: area under the curve increase (AUCi) calculated for the entire sampling time differed significantly between the two settings (paired t-test: $T = –2.047$, $df = 35$, $p = 0.048$). Analyses of behavior and heart rate as well as further analyses of cortisol and reading performance will follow.

The present study was conducted under ethical best practice rules. We acknowledge financial support by Mars Austria and thank the Vienna school authorities to grant permission to conduct this study.

P081 – Is the dog smiling? Children from 4–7 years misinterpret dogs' facial expressions

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Almost half of school children reported that they were bitten by a dog (Beck & Jones,1985; Spiegel, 2000) and in other research 20 % of dog-owning parents reported their child bitten (Wilson, Dwyer and Bennett, 2003). Child-initiated interactions with the dog trigger up to 86 % of injuries at home (Kahn et al. 2003). Recently, it was found that young children do not discriminate a dog's body signals, but look mainly at the dog's face (Lakestani, et al., 2006). While there has been anecdotal evidence that children mistake an angry, teeth-baring dog face for a smiling one, there is currently no systematic empirical evidence on the misinterpretation of dogs' facial expressions.

We tested 21 4-, 20 5-, 24 6- and 24 7-year-old children and 30 adults on neutral, aggressive and friendly human and dog facial expressions. Participants saw black and white images on paper in random order and were asked in a semi-free labelling task to describe the emotional state of the person or the dog.

Results show that while adults make hardly any mistakes (less than 1 %) on both stimulus types (dog and human faces), the majority of 4-, 5,- 6- and even 7-year-olds make mistakes interpreting dogs' facial expressions. For example, of the 4-year-olds 67 % misinterpret angry dogs' faces. Looking only at the angry dog faces, 40 % of children misinterpret these and 30 % of these misunderstand aggressive dog faces as "happy". Five-year-olds show 35 %, 6-year-olds 25 % and 7-year-olds 16 % mistakes. Again, most of the mistakes consist of misinterpreting angry dog faces as "happy" (41–86 % of errors are "happy" errors). In contrast, children presented significantly better performances regarding human faces, often exceeding 90 % of correct responses.

These results indicate a severe lack in interpretation abilities in children of facial expressions of dogs which could contribute to the high incidence of dog bites, especially in younger children. Angry dog faces are more difficult for children to understand than happy ones. Children reach adult level of performance only after 7 years of age for angry dog stimuli, while they reach adult level by 4 years of age regarding happy stimuli.

Given this result, we can advise children and parents of this misinterpretation in order to prevent injuries and inform dog bite prevention programmes to help prevent further dog bite incidents.

P082 – How children and parents interpret dogs' body language

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With bite figures from interview data as high as 47 % (Beck & Jones, 1985; Spiegel, 2000), and National Health Service statistics in the UK showing a 40 % increase in dog bite figures in 2008 and even higher increases, at times of over 100 % in more recent years (NHS, 2008; 2012), we are addressing a serious and wide-spread – but largely avoidable – problem. When trying to enable safe interaction between children and dogs, it is vital that children are able to interpret the animal's signalling correctly to avoid injury and distress. However, it has been shown that children and adults often do not understand dogs' body signalling (Reisner & Shofer 2008). Without tuition, children look mainly at the dog's face. In addition, children often confuse a fearful or angry dog with a friendly one (Meints, Racca & Hickey, 2010).

This study investigated cross-sectionally and longitudinally how 3-, 4- and 5-year-old children interpret dogs' stress signaling (N = 43, 34 and 36 respectively). We tested at Time 1 (before and after training intervention), Time 2 (after 6 months) and Time 3 (after 1 year) by showing dog videos according to the escalation steps of appeasement signalling (Shepherd, 2002). Videos had been assessed independently by four experienced dog behaviour experts and were then grouped into four categories (high, medium, low distress and "happy"). We investigated children's evaluations of dogs by using a 5-point scale with faces ranging from happy (1) via neutral to unhappy (5). We recorded their looking behaviour using a Tobii Eye-tracker. Parents (N = 33) also took part in separate sessions and underwent the same procedure. We collected questionnaire data, e.g. on dog ownership, SES, demographics, bite incidents.

First results on correct answers (pre and post) show a main effect of Age – knowledge improves significantly with age ($F(3,122) = 15.05$; $p < .0001$). We also observed a highly significant main effect of Learning ($F(3,122) = 56.61$; $p < .0001$) with risk judgements improving from pre-training at time 1 to test at time 1 and 2. Most significant improvements in learning take place in 5 year-olds and adults ($F(3,122) = 6.80$; $p < .0003$). We also found a main effect of Distress Judgement ($F(3,366) = 243.90$; $p < .0001$) – participants show some, but not full awareness of risk and least distress recognition was shown by 3-year-olds. There were no main effects for Gender or Dog Ownership.

The error analysis shows that errors are made in all distress categories (high, medium, low). The lower the distress category, the more errors we find. The younger the participants, the more errors occur and the more serious the errors are – again, we find significant misinterpretation errors of highly distressed dogs as "happy" – these errors occur before training to 50–65 % in 3–5-year-olds and 17 % in adults and are reduced after training to 17–28 % in 4–5-year-old children with reduction to no errors in adults.

We conclude that successful teaching of dog signalling is possible. Especially children from 4 years onwards profit from the intervention and show significant improvements in knowledge straight after the intervention and also over time. Increased awareness and knowledge can lead to safer behaviour with dogs, risk reduction and potentially less bite incidents while dogs profit as they are treated more appropriately.

P083 – Does the Blue Dog change behaviour? The First Longitudinal Assessment of the Blue Dog Bite Prevention Programme

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The Blue Dog dog bite prevention DVD and parent booklet are used in over 21 countries worldwide and have been translated into 19 languages. It has been shown that the "Test Yourself module" on the Blue Dog dog bite prevention DVD successfully teaches children safe behaviour with dogs (Meints & De Keuster, 2009; Schwebel & Morrongiello, Davi, Stewart & Bell, 2012). We were interested to find out if also the more general, educational Blue Dog stories on the DVD increase children's knowledge about safe behaviour with dogs. We were further interested to see if children use the acquired knowledge and change their behaviour with their own dog.
Thus, we carried out an empirical assessment of children's learning using the interactive "Blue Dog" DVD. In a longitudinal with cross-sectional experimental design, thirty-three 3-, 4- and 5-year-old children were initially tested on a laptop with a set of 15 different interactive and animated child-dog-scenes. They had to choose either a safe or an unsafe outcome of the interaction. In the following training phase children were asked to watch the Blue Dog stories which inform children about typical risk situations with the family pet in the family home and surroundings. Then, in the second testing phase on the same day, different cartoon actors and dogs were used for the same scenes as on the first testing occasion, interspersed with distracter scenes. Children again were asked to choose the safe outcome. Children were again tested after 8 weeks, 6 months and 1 year. Half of the children were allowed to take the DVD and parent booklet home, the other half only took the booklet home. A repeated-measures ANOVA was carried out with Age, Blue Dog group (DVD & booklet vs. booklet only) as independent variables and answer scores of the chosen outcomes in the various test phases as dependent variable.
Results show significant increases in correct responses after using the DVD in all children ($F(1.30) = 32.16$; $p < .0001$). Children retained this knowledge in all testing phases with the exception of the youngest children in the condition without the DVD – younger children profit more from being able to use the DVD. As expected, older children exhibit significantly more correct responses than younger children ($F(2.30) = 9.89$; $p < .0005$). Assessment results indicate that children learn successfully from the Blue Dog educational stories module on the DVD. Therefore, the DVD helps to educate children to behave safely with dogs. Inspection of the accompanying parental questionnaires after the 8 week time point revealed that by this stage 38 % of children interacted more safely with their own dog and about 50 % of children acted more safely with dogs in general. Also, 74 % of parents found the booklet useful to teach their children safe behaviour with dogs. In addition, about a third of all parents said they learned new information about their dog, that it has changed their supervision behaviour with their child and that it has changed their behaviour with their own dog.
We conclude that the findings provide evidence that the Blue Dog programme helps to educate children to behave safely with dogs. It can aid in dog bite prevention and contributes to the welfare of the whole family: children, parents and the family dog.

P084 – Growl or no growl? Differences in children's interpretation of dogs' distress signalling.

Meints, Kerstin; Just, Janine
University of Lincoln, Lincoln, UK

Pets play a significant role in improving human health and well-being across the life-span. However, given the steep increase in dog bites in the UK in recent years (http://www.hesonline.nhs.uk), the risks of dog ownership also need to be addressed, potential risk factors identified and effective prevention paths offered. It has been shown that children often confuse a fearful or angry dog with a friendly one when asked to describe a dog's emotional expression using still images (Meints, Racca & Hickey 2010) and that children and adults often do not understand dogs' signalling (Reisner & Shofer 2008).

We tested 22 4-year-olds and 24 5-year-olds showing them videos of dogs according to Shepherd's (2002) appeasement signalling. We investigated children's judgements by using a 5-point face scale ranging from happy (1) via neutral to unhappy (5). We measured if similar misinterpretations of dogs showing teeth as "happy" occur even when the stimuli are videos and not still images. As recent studies by Flom et al. (2009) and Pongrácz et al. (2011) suggest that additional acoustic input may enhance children's correct interpretation of dog signalling, we also tested if audible distress signaling (i.e. growling, snarling) influences children's judgements.

Results show a main effect for Risk Situation ($F(3.102) = 29.45$; $p < 0001$) with children distinguishing high risk dog behaviours from low and medium risk displays, however, they did not discriminate between medium and low risk. Significantly lower scores were found for videos of friendly dogs – this shows that children interpreted these stimuli correctly. While scores for the high risk group are higher than for the other groups, overall, these scores are still lower (average of 3.2) than expected, possibly due to 81 % of children scoring some of the dog videos as "very happy". Children often chose "very happy" when dogs exposed their teeth.

We then compared children on a subset of high risk displays (i.e. growling dogs with exposed teeth) by showing video stimuli with or without sound to investigate if audible growling increases children's correct answers. There were no age group differences, but a significant increase in scores when stimuli were shown with sound, raising mean scores to 3.8 (out of 5) ($F(1.34) = 19.48$; $p < 0001$).

In sum, this research confirms that children commit errors interpreting dog's facial expressions: even when videos instead of still images are used, children still misinterpret highly distressed displays as "happy" and relaxed. While sounds increase children's awareness, overall this awareness does not fully reflect the displayed risk situation. This highlights the urgent need to teach children to recognise and interpret dogs' distress signalling appropriately to avoid future injury. In further research or interventions teaching children dog body language, it would be advisable to use training stimuli with sound as this seems to enhance correct recognition of dog signalling for the higher risk signals.

P085 – Better safe than sorry: The "Hundesicherheitstraining" for children and adolescents

Glenk, Lisa Maria[1]; Burger, Eva[2]; Turner, Karoline[2]
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"Hundesicherheitstraining" for children and adolescents has been launched in Vienna in 2009 by Lisa Maria Glenk, Karoline Turner, and Eva Burger, a multiprofessional team of experts with a background in psychology, biology and veterinary science. The training concept builds on psychological and learning theories and integrates the latest canine science and human-animal interaction study outcomes. Theoretical and practical sequences with a specifically trained dog are carried out in five subsequent weekly units a 50 minutes. The primary aim of the intervention is to teach children to understand dogs' verbal and non-verbal cues and to instruct them how to behave in a potentially dangerous encounter. Children are taught to recognize signs of stress and/or discomfort in dogs, ideally before they become manifest, and how to react accordingly. Moreover, children learn how to approach a relaxed and friendly dog and some examples of quiet, non-arousing play are demonstrated. Throughout the training, great emphasis is put on gentle interaction and species-appropriate handling of the participating dog/s. Out of the five sessions, one is solely dedicated to the understanding of dog health, preventive care and animal protection. Background, concept and contents of the program "Hundesicherheitstraining" and participants' statistics will be presented.

P086 – Children's facial proximity behaviour – a risk factor for facial bites?

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[1]University of Lincoln, Lincoln, UK; [2]St Mary's University College, Calgary, CAN; [3]University of Ghent, Ghent, BEL

The majority of dog bite accidents happen at home and involve children under the age of 7 (Kahn et al. 2003) and a familiar dog. The prevalence of bites that lead to hospital treatment in children is double as in the general population (Kahn et al. 2004) and often children suffer from dog bites resulting in facial injuries (Bernardo et al 2002, Kahn et al.2003; Schalamon et al 2006). Fifty-five percent of children suffer post-traumatic stress disorder following a substantial bite (Peters et al. 2004). According to research these bites are independent of the size of the dog (Kahn et al 2003), but more related to the age of the child – however, it is unclear why young children get bitten mainly in the face and neck area.

As in the majority of cases (86 %, Kahn et al., 2003) children's behaviour triggers bite injuries, we studied if young children's tendency to lean in on objects of interest could be a contributing cause of facial bites. As young children's tendency to lean in has only been anecdotally observed so far, we investigated if this leaning-in behaviour exists and under which conditions we can trigger such behaviour. More specifically and in relation to the risk of dog bites, we studied the role of smell, mobility, novelty and height of the object (e.g. positioned at floor, chair, table-level) on children's facial proximity and leaning-in behaviour. We used objects and toy animals as stimuli as well as carrying out a first exploration with small animals.

We video-recorded all trials and used a custom-made grid to code for physical proximity and leaning in behaviours. A total of 24 2-year-olds (7 females and 17 males), 24 3-year-olds (16 females and 8 males), 24 4-year-olds (15 females and 9 males), 24 5-year-olds (12 females and 12 males) and 24 6-year-olds (13 females and 11 males) participated in the study.

Children showed highly significant effects of intrusive facial proximity especially with moving items (e.g. animates/toy animals) or novel items ((F(2, 220) = 42.12, $p < .0001$; F(1, 110) = 13.17, $p < .0001$). A highly significant main effect for age was found (F(4, 115) = 6.43; $p < .001$). Children of 2 and 3 years showed significantly more proximity behaviours than 4-, 5- and 6-year-old children. In addition, we also gathered first evidence that children show clear leaning-in behaviour with small animals.

Thus, we can raise parental awareness of younger children's intrusive inspection behaviour, integrate this knowledge in prevention messages and contribute to reduction in bite injuries, especially to children's faces.

P087 – The effect of the Classroom CaninesTM program on reading, social/emotional skills and attitudes to dogs of selected primary school students

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A number of children struggle with literacy, social/emotional skills and motivation to attend school. While there are a number of initiatives to support these children, dogs have been reported to be significant to the social and cognitive development of children who lack social (Martin & Farnum, 2002) and literacy skills (Scott, Haseman & Hammetter, 2005). The Delta Society Classroom CaninesTM program provides assistance to children identified as having difficulties with literacy learning and/or social/emotional skills. Through the program, a trained dog and handler visit a school on a weekly basis and work with children in a classroom setting. This research investigated the impact of the Classroom CaninesTM program on the reading and social/emotional skills and attitudes to dogs of 11 selected students at a primary school in Australia in 2013. The students, who ranged in age from 5–11 years, were identified as falling below or being at risk for falling below the academic benchmarks for their year level. The study utilized both quantitative and qualitative data, including reading scores, attendance records, classroom observations, artefacts (work samples), interviews with teachers and students, and researcher journals.

Overall attendance and reading scores improved during the Classroom CaninesTM program. The majority of students reported improvements to themselves as learners including enhanced confidence, attitude and cooperation, which were supported by the teachers' impressions. Students reported improvements in social relations with both their peers and their teachers:"Kids are nicer to me and me to them. They don't pick on me now"; "I was mucking up in class… I didn't know the teacher [well] but now I do and I don't muck up". Students' attitudes to animals, particularly dogs, also appeared to improve during the program. While all the students said that they liked animals at the onset of the study, 4 reported that their interactions with dogs had improved: "I've been getting along [with dogs], getting better and better"; "… I have a dog at home. I get along with it better".

In conclusion, findings from the study support the benefits of dog-assisted programs to motivate children and improve their reading, confidence and self-esteem, as well as enhance relationships with people and dogs. This study was funded by a grant from Woree State Primary School, Cairns, QLD, Australia; work was conducted under James Cook University Human Ethics research Committee approval, No H4195.

P088 – The effect of Dog Assisted Activities on adolescents in a psychiatric hospital for youth using Mediated Learning Experience method – a pilot study

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Animal-assisted intervention (AAI) has been reported to have positive effects in many therapy situations with children including children with emotional disorders The suggested benefit of AAA is also believed to improve children's emotional and social well-being. Fine (2010) suggested that during Animal Assisted Activities (AAA) the presence of a dog facilitate by young people with behavioral problems an improvement of social skills, reduction van aggressive behavior and the young people are less likely to relapse to previous inappropriate behavior. The purpose of this study is to improve the social skills of adolescent with behavioral and psychiatric problems by using dogs and Mediated Learning Experience (MLE). Mediated Learning Experience (MLE), is a typical human modality of interaction that is responsible to the unique character of the human being which is structurally modifiable (Feuerstein, 1999).

The subjects: The subjects live in two residential treatment groups in a psychiatric hospital for youth in the Netherlands. The children that participate in this study are diagnosed with light intellectual disabilities combined with psychiatric disorders and behavioral problems. The 25 subjects (11 boys ; 14 girls. Age: 12–17 years old) live in the psychiatric hospital and most of them attend school inside the hospital. This program is carried out by two volunteers and two dogs. The volunteers have experience in the (mental) health care and with this type of patients. The two dogs (9 years old and 6 years old) belong to the volunteers. The dogs had been evaluated for AAA work and had experience visiting healthcare facilities with their owners. The children come to activities accompanied by one of the residential staff.

The program: Each activity with the dogs is offered weekly and lasts 45–60 minutes depending on the number of subjects present. Maximal number of subjects in each session is four. The mood of the subjects was measured before and after each session by a lickert-scale device and self-report questionnaires. The residential staff that attended the sessions also filled a questionnaire in which they could indicate the effects of the sessions on the children. The Feuerstein Mediated Learning Experience (MLE) method is applied during the treatment (Feuerstein, 1999).

Results: The communication and social skills (cooperation, resilience and self esteem) improved. Based on self reporting and observations of the residential staff, the program was effective in giving most of the children a sense of accomplishment, feeling of connectedness, increased a sense of self determination and were reported to be more compliant after each session. After a number of sessions clients are more daring and less anxious. In addition, the mood of the subjects improved after these sessions. 82 % of the subjects reported an improvement in their mood and evaluated the sessions positively as a whole. 18 % of the subjects reported that there was no change in the mood, however, they evaluated the sessions as positive. The presence dogs offers a quiet and less threatening atmosphere during the activity.

P089 – Occurrence and factors associated with dog walking and dog owner knowledge of parasitic transmission

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This study aimed to investigate the frequency of dog walking in the UK and its relationship with dog fouling. It also investigated the level of knowledge that dog owners have of parasitic transmission due to dog fouling. Dog walking has been frequently found to be beneficial for both dog owners and dogs. However, limited research has been carried out on the relationship between dog walking and dog fouling. It has also been previously stated that the occurrence of dog owners picking up after their dog(s) has fouled is higher when dogs are kept on a lead (Westgarth et al., 2010).

Dog faeces which are not picked up by an owner posse a potential health risk to the public and cause a general feeling of frustration and disgust for the general public. Therefore, to tackle a problem such as dog fouling appropriate legislation is provided by the government allowing individual councils to control this problem as they see fit. However, there is limited research relating owners' knowledge and views of dog fouling laws and parasitic transmission. Therefore, a questionnaire was designed, piloted and distributed face to face and online throughout ten locations in the UK. A total of 459 respondents were received over a period of five months.

Of the 459 respondents, approximately half of all respondents (54.8 %) claimed to walk their dog(s) more than once a day. The length of time the individuals spent walking their dog(s) varied as approximately 30 % walk their dog(s) for 20–40 minutes (31.9 %), 40–60 minutes (28.9 %) and more than 1 hour (29.5 %). Whilst the remaining 9 % and 0.7 % walked their dogs 10–20 minutes and less than 10 minutes respectively. Furthermore, when in public 3.3% never kept their dog on a lead, 19.1 % not very often, 31.0 % about half of the time, 15.8 % a lot of the time and 30.8 % all of the time. How often dog(s) were kept on a lead was significantly associated with how often dog(s) were walked on average ($x^2 = 48.850$, $df = 16$, $P < 0.001$).

285 (62.3 %) respondents disagreed with the statement "The law to prevent dog fouling is effective". The vast majority (94.8 %) of respondents knew that dog faeces could transmit parasites to humans. The knowledge and source of this information was gathered and 138 (31.7 %) of respondents stated this information as either common knowledge/always known or can't remember. The question "Do you know what the fine for dog fouling is in your area?" resulted in one hundred and ninety-eight (43.1 %) respondents stating "no" or "don't know", whereas, two hundred and fifty six respondents answered (55.8 %) "yes" to the question. There was no association between knowledge of fines and location ($P = 0.1$).

Overall, this study found that the majority of the public appeared to be aware that dog faeces can transmit parasites. Furthermore, despite dog fouling being highly publicized, the majority thought that the law was ineffective. Additional preventative schemes could also be investigated to assess their impact on illegal dog fouling.

P090 – The Animal Studies major at Eastern Kentucky University: We did it and you can too!

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Eastern Kentucky University began its Animal Studies major, the first such undergraduate major in the world, in August 2010; its first graduates were in December 2012. The major is interdisciplinary and incorporates training in and exposure to a diversity of fields of knowledge, including applied fields (agriculture, law, conservation), sciences (biology, psychology, physical anthropology, primatology), and the arts and humanities (art, literature, philosophy, sociology, cultural anthropology, history). The major received support from numerous faculty members at its inception and, though spearheaded by Robert Mitchell, required agreements about course offerings from numerous departments across campus. The desire to create the Animal Studies major derived mostly from an ongoing fascination with animals shared by numerous faculty and students. It also developed somewhat from frustration with the mutual ignorance expressed between the sciences and the humanities in discourses about animals.

Our Animal Studies major provides students with a means to become knowledgeable about animals and their relationship with humans from diverse perspectives, and simultaneously experience and learn from a strong, traditional liberal arts education. The lives of animals, the human-animal connection, the complexities of human-animal relationships, ethical and moral concerns about animals, representations of animals and humans, and the significance of animals in human evolution, history, culture, and civilization are all aspects of this knowledge and understanding. The major concentrates on nonhuman animals, their interactions and relationships with people, and the mutual influences humans and nonhuman animals have on each other's existence, evolution, and history. The cross-disciplinary training encourages students to think critically about issues while maintaining diverse perspectives. Animal Studies broadens students' perceptions of animals, of animals' relationships with humans, and of humans' relationships with animals.

We plan to discuss how the Animal Studies major developed at EKU, its current status, and a portrait of the issues and interests of concern to our majors. Our major is currently being used to implement a similar major in Canada, and we suspect that it can be useful to others wanting to creating an interdisciplinary Animal Studies major at their university. A discussion of the difficulties we experienced will be useful for others hoping to avoid any problems when developing their own Animal Studies program.

P091 – Anthrozoology from a new perspective

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Researchers of the human-animal bond have hitherto primarily focused on the effects of human-animal interactions on the quality of life of vulnerable human populations and on health outcomes of the general population. Many social, psychological and physiological processes were revealed and Social Support Theories, Attachment Theories, as well as the functioning of hormones were applied to explain the positive outcomes of human-animal interactions and interventions (Julius et al 2013).

Although our knowledge in these areas continues to increase, much remains unclear about the origin of the lasting human-animal bond. Neuroscientific research (Panksepp, 2011; Porges, 2007) reveals that animals and humans are equipped with similar emotional circuits. This may give reason to hypothesize that a basal (non-verbal) human-animal relation originates in a similar fashion than a basal (non-verbal) human-infant relation.

One of the aims of the recent founded Chair in Anthrozoology (2013) at the Open University of the Netherlands is to focus its theory and research on filling in that knowledge gap. Theoretical inspiration is drawn from developmental psychology, cultural psychology, evolutionary science and neuroscience. For example, a dynamic systems perspective on the co-construction of a behavioral interaction is expected to be equally applicable to early human-infant interactions (Fogel, 1993; Van Geert, 2005) and early human-animal interactions. A closely associated cultural psychological perspective on the coming about of second order interactions reveals a basic mechanism that theoretically should apply to human-animal interactions as well. Evolutionary views on domestication and co-evolution of humans and some animals are helpful to understand the affordances and possible interactions between the man and animal. Neuroscientific studies of oxytocin and cortisol levels may teach us about the quality of the human-animal bond for both participants.

In order to study the co-construction of behavioral patterns between man and animal, qualitative and quantitative techniques can be applied. Much research will involve ethology, that is, qualitative observations. Promising techniques that some of our researchers have worked with to analyze observation data include micro genetic analysis and frame analysis, which originate in developmental psychology. We will expound on this technique during our presentation. It allows the researcher to compute among others initiative, turn-taking, and synchronicity in the relative contributions of participants in an interaction. These phenomena can be perceived as markers of an ongoing mutual tuning process between the participants, which results in relatively stable behavioral patterns. It is expected that detailed qualitative results will help us better understand the basic effective elements that underlie successful human-animal-intervention studies.

P092 – Defining the Academic Discipline of Anthrozoology

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Since the founding of the International Society for Anthrozoology in 1991, there has been an exponential increase in the number of academic courses of study focusing on human-animal relationships. Most of these courses are designed to offer a special area of study under the aegis of psychology, sociology, literature or other existing departments. Recently, however, a number of institutions have begun offering programs awarding undergraduate and graduate degrees in the field of Anthrozoology. This exciting international development attests to the importance of this field and to the uniqueness of the concept. But it also raises some questions. What are the learning outcomes expected of a student who receives a degree in Anthrozoology? What skills and knowledge can a student expect to acquire during the course of study? What objectives are shared by the Anthrozoology curricula at different institutions, thus confirming a common definition of what it means to study Anthrozoology? These questions are not just important to a student interested in the field, but also to faculty members who are evaluating candidates for degree programs and to potential employers who are perusing resumes of job applicants. With these questions in mind, a group of ISAZ members participated in a Forum following the 2012 Annual Conference with the objective of identifying the key areas of interest that define the study of Anthrozoology. Subsequent to this Forum, a survey was conducted to prioritize these categories, and a Working Group was established to formulate the guidelines that define the academic discipline of Anthrozoology. These guidelines are not meant as limitations or as a rigid formula binding academic institutions as they endeavor to construct an Anthrozoology program. Especially considering the international nature of the discipline, it is to be expected that local and regional interests and capacities will dictate the curriculum offered by a school or college, especially regarding sub-specialties or emphases. The guidelines offer a framework for building an Anthrozoology curriculum with similar learning outcomes as those of other institutions offering Anthrozoology degrees. The purpose of this presentation is to update the ISAZ membership regarding the status of these guidelines and to stimulate further discussion.

Plenaries ISAZ Satellite Meeting

How concepts of sentience affect concerns about animal welfare

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The term sentience is generally used to refer to having the capacity to have feelings, but what abilities are needed for this? A definition that refers to this is: a sentient being is one that has some ability: to evaluate the actions of others in relation to itself and third parties, to remember some of its own actions and their consequences, to assess risks and benefits, to have some feelings and to have some degree of awareness. Should scientists consider such matters? In order to use science to understand the world, complex concepts are often needed for complex phenomena so there must be definition and evaluation of, for example, cognition, feelings, awareness, sentience and welfare. Scientific investigation of cognition, emotion, and awareness in a wide range of animals, including birds, reptiles, fish and various invertebrates, has informed us of their abilities. We also need to consider these same abilities in humans before and soon after birth and when brain-damaged. If we use or interact with animals, we have moral obligations in relation to their welfare. For humans and non-humans we have to consider their abilities to cope with their environment. Cognitive and emotional capacities have complex effects on coping ability. Less cognitive ability will often mean more difficulty in coping. On the other hand, more awareness could mean more potential for mental anguish. Hence we should use objective measures of animal welfare when evaluating the impact of various treatments on individuals. An understanding of the components of sentience also helps us to assess the needs of individuals and, in providing for them, to improve welfare.

Can Animals Be Moral? Should We Care?

Rowlands, Mark
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Not so long ago, the question, "Can animals act morally?" was summarily dismissed. However, in recent years, at least some scientists and philosophers have begun to flirt with the idea that perhaps some animals can. In part, this flirtation is grounded in a wealth of empirical evidence, and in part because of the rise of new ways of thinking about morality and moral motivation. In this paper, I shall briefly survey some of these reasons. The question of whether animals can act morally, however, tends to be quickly followed by another: "Why does it matter?" What difference does it make to the way we treat – or should treat – animals? I accept that the core of the moral case for animal rights does not depend on whether they are capable of moral behavior. However, I shall argue that it does make some difference both to the way we evaluate them and the way we treat them. This difference is not insignificant.

Satellite Meeting – Contributed Talks

Dogs, gods and robots: deconstructing anthropomorphism

Bradshaw, John
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Anthropomorphism is self-evidently central to the relationship between owners and their animal companions (Serpell, 2002), but recent advances in understanding of the nature and causes of anthropomorphism have come not from anthrozoology but from robotics (Duffy, 2003), the evolutionary psychology of religious belief (Bulbulia, 2004), and cognitive psychology (Epley, Waytz & Cacioppo, 2007). Somewhat paradoxically, scientists in these various disciplines often include "cute" animals or simulations of animals as test stimuli in their studies, presuming that these will be perceived anthropomorphically.

Anthropomorphism is a process whereby humans (and possibly some non-human primates) interpret actual or imagined events using human-like mental states and motivations: targets for such projections include the weather, inanimate physical objects, technological agents such as computers and robots, and a wide range of non-human animals. Among adults, the strength of the anthropomorphism varies with many factors, but primarily: morphology, promoted by human-like features and/or movements; the availability of alternative explanatory frameworks; the need for social contact, indicated by both reported and induced feelings of social isolation; and a need to understand and control the unpredictable (Waytz et al., 2010). Anthropomorphism may even enhance well-being by counteracting feelings of anxiety brought on by a perceived lack of capacity to control external events, or loneliness. Anthropomorphism may be a fundamental human trait: young children routinely anthropomorphise non-living entities; as they mature they gradually (but by no means entirely) reject this approach as they learn the distinctions between things, non-human animals, and people (Jipson & Gilman, 2007).

Religious belief is perhaps the most extreme expression of anthropomorphism, since its target ultimately has no physical existence. Evolutionary psychologists often argue that such beliefs are a consequence of interaction between various modules within the human mind that evolved for other purposes, initially the agency-detection device and the Theory-Of-Mind system, followed by higher-level cognitive systems (attachment, kinship, social exchange, status competition) that determine the details of the belief system appropriate to the social context in which they emerge (Kirkpatrick, 2011).

Relationships with pet animals are often held as being second only to religious beliefs in the strength of their anthropomorphism (e.g. Epley, Waytz & Cacioppo, 2007). Common explanations for this include: the neotenous features of some (but by no means all) pet animals; the human-like temporal and physical organisation of their behaviour; and their expressions of attachment to their owners, which provide social reward. These are all compatible with the more general models of anthropomorphism from other disciplines, but intriguing predictions of these models include: that unexpected or unpredictable behaviour in pets should enhance anthropomorphism; and that anthropomorphism of pets may in itself enhance general well-being without the need for intervening concepts such as social support (Antonacopoulos & Pychyl, 2010).

Cognitive studies and animal welfare: Why, When & What

Péron, Franck
University of Lincoln, Lincoln, UK

In the recent years, "cognition" has become a new area of interest for people working on animal welfare.

First of all, cognitive tasks can be used as enrichment to improve the environmental conditions of the captive animals (domestic or not) providing them stimulations. The task can require the use of different sensorial modality, some exploration/locomotor activity, some "intellectual" activity (mean-ends understanding, flexibility, reasoning by exclusion, remembering the previous location/solution, etc.), but also physical activity (exploration, podomandibular manipulation, etc.) and social interactions (with the experiment/owner). All those elements should provide both internal activation of the reward circuit and external reward, but also reduce the boredom and improve the relationship.

Cognitive studies can also be used to reveal the internal state of the individuals. Several paradigms can be used to assess animal welfare such as the successive negative contrast – we observe the reactions of animals which stop being rewarded as it was previously for doing the same action – or the cognitive bias task. In the cognitive bias, animals are trained to discriminate between two types of stimuli (according to location, colour, sound frequency or texture) one positively (i.e. palatable food) and one negatively reinforced (i.e. bitter food). Then, the individuals are tested with ambiguous intermediate stimulus in order to see if they interpret it as "positive" or, on the contrary, "negative". In the second case, the animal will spend more time getting there or in some cases will not even go. This response is interpreted as being a negative cognitive bias or a pessimistic attitude. Using this paradigm in different species ranging from mammals to insects, scientists found how general husbandry practices such as cage cleaning or physical restrain technique could impact on animal welfare.

As intelligence is one of the criteria considered to decide if an animal is sensitive or not, testing animals' cognition offers not only a new approach to their emotional state and welfare, but also a chance to change their status (i.e. cephalopods in the European Directive 2010/63/EU). Indeed, the cerebral pathways engaged when an animal has to interpret the stimuli from its environment and to display appropriate behaviours are similar to those involved in the processing of fear, pain, joy, etc.

A review of the literature will be presented in order to illustrate the link between cognition and welfare, the different options and their implications for vertebrates but also invertebrates.

Animals and Tourism: An ethical scrutiny of relationships between tourists and wildlife

Burns, Georgette Leah
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This review examines ethical stances taken towards animals, particularly wildlife, in tourism contexts. Its objectives are to understand how societal views of wildlife, in the context of tourism, have changed over time and explore what implications this may have for the field in the future.

The base of tourism in individual pursuit for personal satisfaction meant that it long proceeded under the framework of an instrumental approach: that is, the industry has been based on valuing its product by its use for the tourist. Appreciating an animal only for its extrinsic value downgrades, or even denies, its capacity for independent agency. Thus, tourism can exemplify an anthropocentrically focused relationship that leaves animals as the underprivileged counterparts in their interactions with humans.

This review explores literature at the intersection of tourism, ethics, animal studies and wildlife management, including work by key scholars, such as Manfredo (2008), Fennell (2006) and Wolfe (2010), in this emerging field. Codes of conduct for wildlife watching and tourist-wildlife interactions are also examined, and examples of human-animal interactions in wildlife tourism settings included.

The findings from this review show that as tourism scholars and practitioners look toward more responsible ways to engage with animals as tourism products, they increasingly turn to the field of environmental ethics. Growth in the scholarship in this field is evidenced by a chapter on "animals and tourism" in a new tourism ethics text by Lovelock and Lovelock (2013) and a proposal to reframe wildlife tourism management to align with more ecocentric values by Burns, Macbeth and Moore (2011).

The way society engages with wildlife as a result of the movement toward more ethically responsible forms of tourism is changing. This has direct implications for the way humans and wildlife interact in tourism contexts, but also shapes (and is in turn shaped by) broader societal values, influencing the nature of the tourism product, the way it is marketed and the policy frameworks it operates within.

Morality in animals? A review of what that might mean from an ethical and ethological perspective

Benz-Schwarzburg, Judith
Messerli Research Institute, University of Veterinary Medicine, Vienna, AUT

The aim of this presentation is, firstly, to clarify what open questions we face today when it comes to morality in animals. I will give an overview of a selection of problems and of some possible answers to them. My claim is that we currently lack an empirically based theory of minimal morality in non-human animals, especially from a philosophical side. Secondly, discussions on animal minds and animal ethics have to be further connected. Therefore, I not only will address the theoretical level (how can we interpret moral behaviour in animals and what concepts do we need to develop appropriate interpretations?), but also the practical level of human-animal-interaction (what are the ethical implications if animals share the roots of moral reasoning with us?)
Research in Comparative Cognition supports the assumption of a continuum rather than a divide between humans and other animals. Charles Darwin already claimed humans and other animals only differ in degree, not in kind even with regard to complex cognitive abilities. He included an important reservation, though: a true moral sense is reserved for humans only. Up to now, philosophers in general agree to this reservation. I will show that this might be partly due to the lack of adequate theories and concepts to describe animal morality. I will address two areas of discussion (one (A) is philosophical the other one (B) is ethological in nature):
(A) Firstly, I will argue that Immanuel Kant's idea of autonomy which is most influential in western thought seems too demanding to conceptualise moral agency in animals, yet alternative concepts are possible. Furthermore (and very much linked to Kant's long shadow), a strong connection between moral reasoning and moral responsibility seems to interfere with assigning moral understanding to animals. Here as well, other concepts could be developed which are orientated towards the limited moral understanding and, therefore, also limited moral responsibility of human children.
(B) Secondly, for an empirically based theory of minimal morality in animals we might have to shift our focus from abilities that have been dominating the discussion on animal cognition for the past 20–30 years (like theory of mind) to other abilities we just started to explore (like inequity aversion, reconciliation and cooperation). New insights could be gained from these studies.
In the second part of my presentation, I will address the moral implications of assigning moral understanding to animals. Up to now, the divide between moral subjects and moral objects most often clearly assigns humans to the first and non-human animals to the latter group. What does it mean for the human-animal relationship and for the moral status of animals if we add morality to the ever growing number of complex socio-cognitive abilities other animals share with us? I will argue that morality (as understood by biologists) is just another complex socio-cognitive ability. In the philosophical tradition, however, it constitutes a corner stone of what qualifies a human being as a person. And persons are holding powerful human rights. While there is a bioethical discussion on whether humans who do not yet or anymore possess complex socio-cognitive abilities hold human rights like a right to life (see discussions on medically assisted suicide or abortion) there is no doubt, however, that humans who possess such abilities hold the according rights. Therefore, conceptualising morality in animals could add a special weight to discussions on animal rights and even strengthen claims for human rights – like animal rights.

Brute facts and the struggle for morality. Gaps and bridges between science and normativity.

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The gap between (scientific) facts and normativity was and is highly debated in philosophy. Can we conclude from mere facts to any kind of moral obligation? The largely accepted naturalistic fallacy serves as an argument against the blunt assumption that we need no further premise when having, for instance, relevant research findings to know what we should do. Science and normativity/morality seem to be separated by an abyss. The paper shows in three steps that this gap is nevertheless bridged in some places.
1. What about the interchange between research findings and certain socio-historical (also moral) significances, now especially of animals? Are there actually merely brute facts? Even a presupposed question of an experimental setting relates to a certain scientific landscape which is not to be seen apart from influential social structures and dispositives. These facts have lost their "bruteness" even before they arise – as the today well known concept of the paradigm shows already clearly (Kuhn 2012, 24f.). Moreover, every interpretation of so-called brute facts happens again within a societal context, therefore from a certain point of view.
2. At the same time, we have to concede that science rests in powerlessness if the integration of research findings not only into public debates, but also in the structures of our lifeworld, fails. The acquired knowledge of cognitive science, welfare science and ethology may lead then to ethical claims, but remain either unheard or appear as utopian or even moralism. The claim of a right treatment of animals under conditions which oppose this treatment might happen in good faith, but are often futile. Only if matters of facts turn into matters of concern (see Latour 2004) they develop a level of visibility and comprehensibility which can influence collective behavior and societal structures. Then it is possible that science determines (at least to a certain extent) the way we see animals, even on an intuitive level.(see Merleau-Ponty 1966, e.g. 83). As Cora Diamond states convincingly, a rational and scientific argumentation in ethical debates is essential. At the same time we cannot set aside certain perspectives, habits and normalities as normativities which could confer significance to rational grounds and research findings (Diamond 2012, 57–82).
3. To put it the other way around: Science and its influence on public debates depend to a certain degree on (not purely rational) traits and habits in society. The lifeworld is ground and horizon of the (moral) significance of research findings (Husserl 1954, 4). But these findings can, of course, also change significances and habits fundamentally when they meet the ground and horizon in an adequate way – as we could experience in history regularly. Ethics without science would remain blind, but science without ethics would oftentimes remain sense-less. Sensitivity for the gaps and bridges between science and morality in our life world plays thus a major role in the interdisciplinarity of applied ethics.

Kant on brutes: facts and an internal critique

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The German philosopher and leading figure of the Enlightenment, Immanuel Kant, promotes an indirect duty view (Regan 2004, 177), where animals don't have a moral status and, therefore, cannot be objects of direct moral concern. Nevertheless, duties regarding animals are possible if they ground on analog duties to persons. The reception of his ethical work presented in § 16–18 of Metaphysics of Morals and the section Of Duties to Animals and Spirits in Kant's Lecture of Ethics turn out mainly negatively within the field of animal ethics. Kant's ethics has been regarded as hostile to animals and even speciesist since Schopenhauer's critique in On the Basis of Morality (1840). His categorisation of animals as things and phrases like "animals exist only as means" (Kant 1990, 458) support such interpretations.
As opposed to common rejection based on an external normative framework, this paper aims to present an internal critique of Kant's view on animals which will lead to a differentiated picture of the standing of animals in his moral philosophy. Internal critique refers to a type of critique that does not rely on an external normative system, for instance a sentientist framework. This internal approach is based on the assumption that the foundations for Kant's ethics are sound and, therefore, the dichotomy between persons (morally autonomous beings) and things (animals, plants and inorganic matter) is correct. The critique comprises two steps: (I) The first one is a defense of Kant's approach regarding the moral standing of animals in his theory. It will be shown that animals play a more important role in Kant's ethics than commonly assumed, applying the method of paratextual analysis. (II) The second step is an argument against Kant's focus on his system of duties. It will be argued that it contains several inconsistencies concerning duties with regard to animals.
(I) A paratextual analysis will be used as an appropriate method in order to examine Kant's position regarding animals. According to the terminology by Gérard Genette (1993), the paratext includes pieces of text that are physically related to the main text, for instance titles, lists of content, and prefaces. These side texts significantly influence the reader's perception and must not be neglected in an interpretation. A paratextual analysis of the Episodic Section (AA VI, § 16–18,) shows that duties with regard to animals are prominently positioned within man's perfect duties to himself as a moral being. These duties are the most important ones in Kant's system of duties. Therefore, it can be argued that duties with regard to animals are more important in Kant's ethics than assumed in common interpretations of Kant's ethical work on animals.
(II) Although Kant emphasises that man can treat animals as he wants to (AA VII, 127), he makes clear statements about ethically permitted ends and modes of instrumentalisation of animals. The main problem is now that he cannot ground all the duties concerning animals on duties to oneself. Furthermore, some duties cannot be related to corresponding duties in the human realm at all.
The results of the internal critique can be seen as a starting point for another examination how accurately duties concerning animals would have been designed within a Kantian ethics.

Written and spoken words: representations of animals and intimacy

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As a sociologist, I have generally relied on in-depth interviews to elicit accounts of families and the relationships and the practices through which they are constituted. In this paper I draw on two different sets of data, responses to a Mass Observation directive and in-depth interviews with 20 people who share their domestic space with animals, in order to explore the differences in the ways people write and talk about their relationships with animals. I suggest that writing about relationships with animals produces a particularly intimate account which is almost confessional, while talking to another person about similar relationships renders the intimacy less obvious and represents human-animal relations in a different way. I conjecture that this is because the written accounts are composed with a particular audience in mind; panellists aim to provide an accurate record for posterity and do not shy away from recording the intimate details of their daily lives – the information divulged is not mediated by another human being. Interview data, in contrast, are co-constructed in conversation with another person, there is the possibility of judgment during the course of the interview and, because of this, the ways in which human-animal intimacy are represented take a different form. I reflect on the benefits of drawing on both sets of data to develop an understanding of the significance of non-human animals to personal and family life.

Posters

The influence of human-animal relationships on public perception of the morality of animal use

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Public perception of the morality of different forms of animal use varies depending on perceived animal sentience, potential suffering and the relationship humans have with the individual species. A disconnection often exists between animal sentience and human-animal relationships, with the public commonly attributing increased sentience to companion animal species and exhibiting greater concern regarding their ethical treatment in contexts such as animal experimentation. This study investigated if public perceptions about the morality of animal use are influenced by human-animal relationships.

An online questionnaire was used to collect data via posting on SurveyMonkey® and promotion on social networking websites. Respondents were selected opportunistically and via a chain-referral strategy. Questions were answered using a 10-point Likert scale. The first section of the questionnaire focused on the relationship between public perception of the morality of intensive farming and animal experimentation. The second section focuses on the influence of human-animal relationships on perceptions of the morality of animal use.

There was a positive correlation found between public perception of the morality of animal experimentation and intensive farming ($r_s(88) = 0.410$, $p < 0.001$). Strong positive correlations were also found between perception of the morality of animal use and benefits for humankind for both animal experimentation ($r_s(88) = 0.867$, $p < 0.001$) and intensive farming ($r_s(88) = 0.867$, $p < 0.001$). No significant difference was found between respondents' acceptance of animal experimentation utilising different species. There was also no difference found regarding the use of dogs in research as opposed to for consumption, however consumption of farmed pigs was more accepted than consumption of pet pigs ($U = 2254.000$ $n1 = 82$, $n2 = 82$, $P < 0.001$) or use of pigs in research ($U = 2096.500$, $n1 = 82$, $n2 = 82$, $P < 0.001$). Whilst perceptions of levels of suffering were generally high, no significant differences were found between perceived suffering experienced by different species during scientific procedures.

These findings suggest that human-animal emotional relationships are not promoting discord between the public and the scientific community or increasing tolerance towards intensive farming. Whilst human-animal relationships were not found to influence acceptance of using different species in research, the difference found between consuming pet pigs versus their use in research and farming indicate how the human-animal relationship can influence perceptions of the morality of animal use, further indicated by the uniform poor acceptance of consuming farmed or pet dogs, or utilising dogs in research.

Understanding equine cognition and zooanthropology in the horse-human relationship for an ethical coexistence and quality of life

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Over the past decades, studies regarding the animal-human relationship have found increasing interest, striving for a better understanding, positive interaction and application in the development of activities between animal and human. At the same time, studies in equine science are bringing growing evidence and definitions of equine welfare and well-being, for example the importance of social learning and other cognitive abilities. However, conventional models of interaction still create a filter for practical understanding of equine cognition in the daily interaction between horses and humans, as the interaction protocol is still mainly based on the dominance paradigm and on an anthropocentric perspective. The result is that horse-human interaction includes training methods that facilitate an active interaction, but who would risk to put under pressure exactly what one is looking for – a relationship based on understanding.

A horse is a socio-cognitive animal. Equine cognition has been shaped by the evolutionary process, both by the environmental challenges and horses' complex social dynamics, resulting in strong socio-cognitive characteristics. Understanding these characteristics should be the foundation of any interaction with human, starting with accepting their social needs for an affiliative environment whenever undertaking unknown interactions with human. This means, first of all, avoiding any kind of stereotypical impact from training techniques, as they might reduce the cognitive-relational abilities and disturb the behavioural expressions in the relationship with humans.

Due to tradition and culture and our performance-oriented society, it is both difficult to accept and to apply a socio-cognitive approach, where the relationship is not based on the horse as a subordinate or object and where the focus is not on immediate results. Preserving and taking the cognitive skills into account plays an important role in avoiding tension both in the horse as in the human-horse interaction. It means considering the horse's abilities to think, to search for information, to elaborate and process information, to follow one's own inner motivation, to express emotions or intentions, to solve problems, to adapt to changes, and especially to develop relationships based on affiliative expressions. All these elements form the core of any experience, and each one constitutes an experience by itself, leaving behind the assumption that a horse should be trained and conditioned.

In short, for their well-being and an ethical interaction with human, horses should be able to actively participate in a socio-cognitive environment, taking initiative from their own inner motivation and express explorative and affiliative behaviour, having the human as a partner in shared experiences.

These baseline indications are reassumed in the cognitive-zooanthropologic model, where the cognitive abilities of animals are central. It allows us to see and understand animals as Others, as subjects, as differently cognitive and therefor able to provide a referential contribution. In the development of a reciprocal relationship and a socio-cognitive context where horses live together and share experiences, the focus is on the horse's abilities to build (latent) learning experiences itself, which will create a rich living environment for the horse, both with others and in the relationship with humans.

Equine zooanthropology focuses on the ability to define the elements of a sound relationship between horses and human, the definition of a cognitive context and the ability to create awareness, inviting research to extend focus on different elements of relationship dynamics and well-being indicators.

Vethics for Vets

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The Unit of Ethics and Human-Animal-Studies at the Messerli Research Institute aims on encouraging and supporting interdisciplinary scientific research into human-animal bonding. As veterinarians play a prominent role in the field of human-animal interaction in modern societies, the project Vethics has been launched in 2013 as a cooperation between the institute and the Austrian Ministry of Health. The idea is to explore the ethical dimension of the professional day-to-day life of veterinarians, e.g. to identify key topics and crucial conflicts that emerge in different fields. Our poster gives an overview about the whole structure, main topics and aims of the project. The core principle of the project – to bring practical experience and knowledge from official veterinarians into dialogue with ethical expertise – is realized in the setting of several expert workshops. The methods we applied during the workshops are presented and explained, as well as our general theoretical approach. In 2013, we already had two workshops about the topic "Killing animals." The presentation of the results completes our poster.

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