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## NEWSLETTER

AMERICAN ASSOCIATION OF **HUMAN-ANIMAL BOND VETERINARIANS** 



### Update from the President:

Dr. Emilia Wong Gordon, DVM

Welcome to our Spring Newsletter! We are eagerly anticipating AVMA 2013 in Chicago (July 20-23). This year our traditional human-animal bond track has expanded to two days and is co-hosted with the International Association of Human-Animal Interaction Organizations (IAHAIO). IAHAIO's peer-reviewed material will be presented in a number of 20-minute talks with concurrent poster sessions. "Humans and animals: the inevitable bond" will be jam-packed and fast paced!

In addition to the innovative and practical subject matter, this conference will allow human-animal bond professionals from all over the world to meet and engage in fruitful discussions. From IAHAIO's website (iahaio.org): "What sets these conferences apart from any other HAI conference is the merging of investigators with those working in HAI practice and the veterinary medicine field, with the express purpose of stimulating dialog and listening between the groups."

This newsletter contains a preview of some of this year's offerings. While all of the sessions concern the human-animal bond, many sessions are directly relevant to veterinary practitioners. For example: Rebecca Johnson, PhD, RN, FAAN, President of IAHAIO and her collaborators

will present a session on "Outcomes of Owner Visits to Hospitalized Dogs", a group from Japan will explore workplace difficulties faced by veterinary technicians and investigators from Chicago will give a session on the mental health of human caregivers of animals with chronic illnesses.

There will also be several sessions looking at veterinary student education, including how attitudes toward animal sentience change and whether objectification processes occur during veterinary school. We'll also get a fascinating look at how bovine pain scoring and empathy are linked in veterinarians in Finland. A group from the UK will share how veterinarians can collaborate with other companion animal professionals on the issue of "Protecting Dog-Friendly Greenspace" and the implications for business, animal welfare, and the HAB.

There will be many sessions on companion and therapy animals working and living in classrooms, nursing homes, and other facilities. These sessions, many of which focus on children, look at animal and human welfare and stress and how they are interrelated.

As always, we will hold our Annual General/Business Meeting at AVMA and



Dr. Gordon with Solo.

all members are encouraged to attend! This year the one-hour meeting will be on Saturday, July 20th from 12-1 pm in the Haymarket room, Hyatt Regency Chicago.

Thank you for being a Member and please continue to spread the word about AAH-ABV. We are planning a website expansion at www.aah-abv.org. Check back frequently for updates! We always want to hear from our members; e-mail us anytime at connect@aahabv.org.

Last, we recently launched our brandnew listsery! We are very excited to finally have a way to quickly get in touch with members and for members to share ideas. If you are a Charter, Full (DVM), Student, or Honorary member you should have received an invitation to join the listserv. Please join, participate, and let us know at the above e-mail address if you encounter any technical problems. See you in Chicago!

### ANNUAL GENERAL MEETING AT AVMA CONVENTION IN CHICAGO ON SATURDAY, JULY 20TH, 2013

Please join us for our Annual General Meeting at AVMA in Chicago on Saturday, July 20th from 12 -1 pm in the Haymarket room, Hyatt Regency Chicago. AVMA Shuttle service provided to and from Convention Center. Members, please check your e-mail for important voting updates including proposed amendments to the AAH-ABV Constitution.



#### **Greetings from Guest Editor:**

International Association of Human Animal Interaction Organizations (IAHAIO) And AAH-ABV Programming at the 150th AVMA Convention

Chicago, IL - July 20-22, 2013

By: Rebecca A. Johnson, PhD, RN, FAAN, President, IAHAIO

The upcoming collaborative venture between the IAHAIO, AAH-ABV, and AVMA provides an unprecedented opportunity for cross-germination between veterinarians, veterinary medical technicians, students, and other professionals who work in the human-animal interaction community. In this community are people from a multitude of disciplines, professions, and ranges of activity including research, practice, and education. IAHAIO registrants at the convention (we expect 800) will include physicians, nurses, physical & occupational therapists, social workers, psychologists, educators, epidemiologists, sociologists, anthrozoologists, zoologists, anthropologists, biologists, ethologists, and animal scientists. We will also welcome those who are actively engaged in animal assisted activity (making visits with their animals to hospitals, schools, and/or nursing homes), animal assisted therapy

(professionals who work with animals to help people reach specific treatment goals), animal welfare and service dog work.

The two and a half exciting days of HAI programming will occur in several formats including keynote and plenary sessions, brief oral presentations, moderated poster presentation sessions, and traditional poster presentation sessions. for keynote and plenary presentations, which are invited, all presentations at IAHAIO's conferences are peer reviewed. We received 200 abstracts submitted by authors from 26 countries. Each of the abstracts received two reviews by members of the Scientific Review Committee (28 members) resulting in decisions for or against acceptance with a third reviewer to finalize the decision as needed.

At this conference, we will award the first-ever William F. McCulloch Award for Excellence in HAI Practice and/or



Dr. Rebecca Johnson

Education. Those who know Bill are keenly aware of what a giant he is in HAI and how kind and unassuming he is. IAHAIO is honored to formally recognize Bill's significant contributions to our field. This ongoing award will acknowledge outstanding achievements of practitioners and educators in the field of humananimal interaction, in particular Animal Assisted Interventions, such as AAA and AAT. Successful individual applicants,

... continued on page 3 ...

#### Greetings from Guest Editor: ... continued

organizations or projects pursue evidence-based practical approaches in agreement with the IAHAIO principles and strive for evaluating their results via objective outcome measures. A main criterion is the impact their contributions make to the positive perception of the field by the public and by decision makers at both the domestic and international levels. The McCulloch Award will be a major historymaking event at the beginning of the IAHAIO-AAH-ABV sessions.

As the conference approaches, an IAHAIO Conference Planning Committee

comprising 15 members (including Dr. John Wright from AAH-ABV) is working to plan IAHAIO's events including a gala reception with featured speaker: celebrity author, radio host, and widely regarded public speaker **Steve Dale**. The Committee is also planning our excursion which will be an architectural boat tour of Chicago, IAHAIO's Annual General Membership meeting, and our much celebrated banquet at the Navy Pier Grand Ballroom with a very innovative presentation and entertainment entitled, "Native Americans and Human-Animal Relationships" presented by Dr.

Arieahn Matamonasa-Bennett of DePaul University, and Mr. Art Shigone who is a traditional Native dancer and lecturer on traditional culture.

AAH-ABV President Emilia Gordon shared with you a brief view of presentations, and we have some "snippet" comments from a sampling of presenters in this NL issue for you to enjoy. We are very enthusiastic about the breadth, depth, and quality of the presentations that will comprise our collaborative venture! See you in Chicago!

#### **Keynote Address:**

The Addictive Neurochemistries of Human-Animal Bonds: From Brain Opioids to Oxytocin

Dr. Jaak Panksepp, Professor, Veterinary & Comparative Anatomy, Pharmacology & Physiology,

College of Veterinary Medicine, Washington State University

#### **Plenary Presentations:**

Human-Animal Interactions: A Neural Exercise Supporting Health

Dr. Stephen Porges, Professor of Psychiatry, Director, Brain-Body Center, Department of Psychiatry University of Illinois at Chicago

One Health: Dog Walking in an Era of Overweight and Obesity: Strategies for Both Ends of the Leash

Dr. Rebecca Johnson, Millsap Professor of Gerontological Nursing, Sinclair School of Nursing; Professor & Director,

Research Center for Human-Animal Interaction, College of Veterinary Medicine, University of Missouri, President, IAHAIO

Animal Assisted Interventions: Animal Welfare and the Role of the Veterinarian

Dr. Elizabeth Ormerod, Chairman, Society for Companion Animal Studies, Burford, Oxfordshire, England

#### **Note from the Editor:**

#### Laura Baltodano, DVM



I am excited to announce some new additions to the AAH-ABV newsletter. The "HAB in the News" is geared towards headlines regarding the importance and relevance of the human animal bond in society. Going forward, each newsletter will also include a "Book Review" section. Please contact me with ideas for book reviews that you feel might interest our members. Future newsletters will have themes; the next two newsletters will highlight member benefits and end-of-life care. My goal is to bring relevant, current news and information concerning the human animal bond to our members. As always, I welcome ideas and articles that will aid in advancing our mission to promote the positive influence of human-animal interactions in society. I hope you enjoy the new changes to the newsletter!

### PRESENTATION PREVIEWS: IAHAIO/AAH-ABV SESSIONS

Selected presenters (identified by your Editor) were asked to respond to three questions about their work to form the basis for this preview of poster and oral presentations which will be given at the IAHAIO/AAH-ABV sessions of the 150th AVMA Convention in Chicago, July 20-22, 2013. We are pleased to share these previews with you and hope that you will find them an enticing sample of what we will experience in Chicago. The questions we asked were:

- How did you decide to study this topic?
- What is your major finding?
- How do your findings advance human-animal interactions (HAI)?

## One Health: Dog walking in an era of overweight and obesity: Strategies for both ends of the leash

Rebecca A. Johnson, University of Missouri, USA



#### **Abstract**

A large share of the industrialized world is recognizing and struggling to address an epidemic of overweight and obesity which has also extended itself to companion animals. Creative strategies are needed that transcend species and help to facilitate physical activity. The nature of human-animal interaction (HAI) as a key facilitator of physical activity for both ends of the leash will be explored. In particular, what components of HAI and the human animal bond are most likely to facilitate cross-species physical activity, what role dog walking can play when it is incorporated into treatment plans for people and companion animals, and what are the theoretical and empirical bases for advocating dog walking? The potential for dog walking as a communities-wide intervention

and its applicability across cultures will be discussed. Attention will be paid to clinical implications around dog walking and its potential for advancing One Health practice in a variety of disciplines.

This work grew out of my research on relocation of older adults in which I found that physical limitations were common reasons for them to relocate to a nursing home. In our first study we achieved significant weight loss among participants. Subsequent studies showed that older adults' normal walking speed increased significantly after dog-walking and that dog walking was associated with increased physical activity outside of the dog walking. The findings show that HAI can have important implications for health and well-being.

## The impact of Anthropomorphism and Zoomorphism on the Human – Animal Bond

Judith Adams, Anne McBride, University of Southampton, Southampton, UK



#### Abstract

The use of animals for companionship has increased in popularity during the past fifty years and the utility of animals within the domestic setting has changed in its function (Nast 2006). Affective changes in the human-animal bond show an improvement in human well-being and animal welfare (Podberscek, 2006). However, we suggest that affective, emotional attachments (Tomkins 1995) may explain the emergence of anthropomorphic and zoomorphic behaviors, which can detrimentally affect well-being, welfare and

the human – animal bond. Anthropomorphism in pet ownership may be contrary to good animal welfare, for example overfeeding, the proliferation of dressing up 'fashion clothes' and the use of pet toys which would be more in keeping with human babies and children. We also discuss the use of the term Pet Parent, whereby pet owners refer to themselves as "Mummy" or "Daddy" rather than Pet owner and refer to their animals as "fur-kids" rather than pets.

### The impact of Anthropomorphism and Zoomorphism on the Human - Animal Bond ...continued

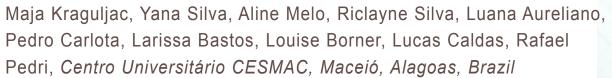
Research on Zoomorphic behavior and in particular, people who identify with the attribution of animal traits in human beings and those who dress like and assume characterizations of animals (furries), has shown strong associations with anthropomorphic behaviors (Gurely, 2001 & Gabasi et al 2008), this is contrary to previous scientific studies on anthropomorphism alone. We suggest that rather than viewing anthropomorphism and zoomorphism as opposing psychologies, they are parallel and often seen as combined behaviors in animal ownership, this may have a negative effect on the welfare of animals and the human-animal bond.

After writing and researching in the field of human- animal sexual interactions for the past 6 years, I have found that human beings tend to project their emotional states and feelings onto animals, especially companion animals and this



has lead me to investigate the boundaries of the human – animal bond. We have hypothesized that instigating an infrastructure of prevention and early treatment would assist in the welfare of both humans and companion animals in cases of extreme anthropomorphic and zoomorphic behaviors.

## Animal-assisted Physical Activity: a New Resource to Aid in Obesity Treatment





#### **Abstract**

The studies published during recent years dealing with the A/ TAA (Animal-Assisted Activity and AA Therapy) demonstrated that the company of these living beings can decrease stress and anxiety in human patients. Current study aims to promote psychomotor development of the participants and animal-human interaction, for improvement in those volunteers health and quality of life. Physical exercises organized with any age female volunteers, belonging to the group for obesity treatment at parent institution were promoted. The weekly sessions of exercises with 90 minutes duration occurred during six month period with the constant monitoring with previously selected and trained dog therapists participation. The volunteers had their systolic and diastolic blood pressure (SBP/ DBP) measurements realized before and after exercise and after relaxation with the dog, heart rate (HR) controlled continuously during the sessions and values of handgrip strength measured before and after exercises. Dogs had their heart rate (HR) and respiratory frequency (RF) controlled during the sessions. It was noticed that the mean SBP at rest and after exercise became significantly lower in human volunteers after six months considered

in the study. At the same time, comparing the volunteers initial SBP with the SBP after relaxation within the animal presence in the same session the values were also significantly lower (p less 0.05). Currently, the study in question is in continuity with a larger number of participants. Until now, it was noticed that, besides the physiological benefits acquired, animal therapists cause in human volunteers involved greater welfare for them attested.

Obese people involved in weight loss programs are more likely to only modify their consumption calorie-rates and are less likely to combine diet modification with exercise. Our TAA group developed the hypothesis that if we had subjects engage in physical exercise together with a companion animal they would be more likely to exercise regularly. Our findings show a positive correlation between having an animal exercise partner and continued motivation to remain in an exercise program leading to weight loss. Incidental findings showed that all obese volunteers who attended our A/TAA program nowadays have more sympathy with abandoned animals, help promote adoptions, have more interests in animal health, interactions and behavior.

## Effect of a Therapy Dog on the Language Development of Preschoolers

Sheila Bernstein, Hofstra University, Hempstead, NY, USA, Bernstein Speech-Language Pathology, PLLC, Bayside, NY, USA

#### **Abstract**

Animal-Assisted Therapy (AAT) is "a goal-directed intervention in which an animal that meets specific criteria is an integral part of the treatment process." (Delta Society) AAT is directed or delivered by a licensed professional with specialized expertise, and within the scope of practice of her profession. AAT is designed to promote improvement in human physical, social, emotional, and/or cognitive functioning. AAT is provided in a variety of settings and may be group or individually administered.

The key features of AAT include specified goals and objectives for each individual and measurement of progress. The present study quantitatively measured the effect of the presence of a certified therapy dog and handler team on the language of typically-developing three year olds during low-structured play. Five typically-developing three year old children participated in two sessions: one without the dog and one with the therapy dog. The dependent variable was language performance as defined by analysis of language complexity and identification of speech acts and their frequency. The independent variable was the presence

of a dog/handler team. Language samples were collected and analyzed using the Structured Analysis Language Transcripts (SALT) (Miller, & Chapman, 1985) and variety and frequency of illocutionary acts were calculated. Results revealed a significant increase in the overall use of morphological features (complexity) and communicative intent (speech acts).

I work with preschool-aged children who use few words and rarely relate to others. I brought my puppy to my office and allowed the children to help socialize her. I noticed a tremendous surge in talking and interactions. As I found no previous studies documenting the effect of AAT on language development, I was inspired to investigate. The children showed marked increases in linguistic complexity and sentence length and more varied interactions in the presence of the therapy dog/handler variable. The results align with the positive effects of AAT studies from other health professions, and show promise for successful inclusion of therapy dogs within the speech-language pathology.

# The Effect of Horse-Assisted Activities on Adolescents' Experience of Mastery and Perceived Self-Efficacy, Self-Esteem and Social Support



Hilde Hauge<sup>1</sup>, Ingela Lundin Kvalem<sup>2</sup>, Bjarne O. Braastad<sup>1</sup>, Bente Berget<sup>1</sup>, Marie-Josè Enders-Slegers<sup>3</sup>, Ingeborg Pedersen<sup>1</sup>, <sup>1</sup>Department of animal and aquacultural sciences, Norwegian University of LIfe Sciences, Ås, Norway, <sup>2</sup>Department of Psychology, University of Oslo, Oslo, Norway, <sup>3</sup>Department of Clinical and Health Psychology, University of Utrecht, Utrecht, The Netherlands

#### **Abstract**

Little research has been conducted on equine-assisted activities for adolescents without any behavioral problems. To investigate the impact of activities with horses on normal adolescent's mastery of tasks, self-efficacy, self-esteem and social support an intervention study with a cross-over design and control group was initiated. This 3-year project investigated psychological effects of a 4-month intervention once a week in which young adolescents were working with horses and riding at farm-based stables.

The study comprised 75 adolescents from a normal group of Norwegians aged 12-15. The adolescents were given standardized questionnaires on perceived social support, self-efficacy and self-esteem as well as self-report of learning to handle the horse. Half of these adolescents functioned as a control group before they were given their intervention. In addition the adolescents were video-recorded early and late in the intervention to investigate

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## The Effect of Horse-Assisted Activities on Adolescents' Experience of Mastery and Perceived Self-Efficacy, Self-Esteem and Social Support

. . . continued

adolescent's behavior towards the horse and the horse's response. Perceived social support was found to increase throughout the intervention when compared to the control group. No effect was found on general self-efficacy or self-esteem. From early to late in the intervention period we found an increase in mastery of tasks in relation to the horse through video-recordings. Pearson correlation and analysis of regression was used to find that perceived social support was important for development of mastery of the horse measured by both questionnaires and video-recordings. This intervention study combining different methodologies showed that equine-assisted activities might have a positive psychological effect on a normal group of adolescents.

I found that neither my personal experience nor available data were sufficient to understand the benefits of activities involving interactions between horses and adolescents; therefore, I designed a research project to further investigate. An ordinary group of adolescents participating in a four month intervention with horses showed an increase in perceived social support when compared to a control group. Analyzing the interaction through video observations indicated a change of mastery in relation to tasks with the horse during the intervention. This study gives an indication of which factors might be important for a positive outcome of activities with horses for psychological development of ordinary adolescents.

## Companion Animals as a Conduit for Fostering Social Networks and Social Support

Lisa Wood<sup>1</sup>, Hayley Christian<sup>1</sup>, Andrea Nathan<sup>1</sup>, Claire Lauritsen<sup>1</sup>, Karen Martin<sup>1</sup>, Stephen Houghton<sup>1</sup>, Ichiro Kawachi<sup>2</sup>, Sandra McCune<sup>3</sup>, <sup>1</sup>The University Of Western Australia, Perth, Western Australia, Australia, <sup>2</sup>Harvard University, Massachusetts, USA, <sup>3</sup>WALTHAM Centre for Pet Nutrition, Leicestershire, UK

#### **Abstract**

Growing evidence indicates loneliness and absence of social support are significant risk factors for poorer mental and physical health. Most research to date considers companion animals as being a direct source of support to their owners. This study looked beyond direct support and considered the broader ripple effects of companion animal ownership as a catalyst for friendship formation, social networks and social support. To empirically examine the relationship between pet ownership, local social network ties and different forms of social support. A random telephone survey of residents in one Australian (Perth; n=704) and three U.S. cities (San Diego, Portland, Nashville; n=700 each) was conducted in 2012. Differences between pet and non-pet owners were analyzed separately for each city using chi square statistics, independent t-tests and logistic regression to adjust for demographics. Preliminary results indicate more Australian pet owners than non-pet owners had gotten to know new people in their area since moving (89% vs. 81%, p=0.003), dog walking being the third highest mechanism for friendship formation. Pet owners had greater network ties within their neighborhood than non-pet owners (71% vs. 55%, p<0.001), 52% having met someone through their pet that could be approached for advice or a favor. U.S. data collection is ongoing



and results will be compared in the presentation. Social isolation and a lack of social support are detrimental to both individual and community wellbeing. This research suggests companion animals may be an under-recognized mechanism for strengthening social networks and social support.

I initially stumbled into the field of Human Animal Interaction research when I was involved in a broader study looking at factors that influence sense of community and social captial in urban neighbourhoods. I had included some pet related questions in the community survey, and found that pet ownership was postively related to higher social capital, greater community involvement and elevated perceptions of suburb friendliness.

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### Companion Animals as a Conduit for Fostering Social Networks and Social Support ... continued

The paper being presented in Chicago relates to a new cross-country study (3 cities in the USA, 1 in Australia) that builds on my original research to look at the social, community and health benefits of pet ownership. The paper focuses



specifically on companion animal ownership as a catalyst for friendship formation, increased social networks and social support from other people.

The study has found that in both countries, pet owners are more likely to get to know new people in their area and to have made friends via their pet. Importantly, we have observed that the social contact facilitated by pets is not limited to a wave or social

conversation, but often translates into tangible social support, with many pet owners reporting that they have met someone through their pet that they can approach for advice or a favour.

The majority of studies to date have focused on the 'one to one' benefits accruing from interactions with pets, but this is the first cross-country study to look at the broader social and community benefits derived from the presence of pets in our lives and communities. This research suggests that companion animals may be an under-recognised mechanism for strengthening social networks and access to social support; both important protective factors for mental health and wellbeing.

### **HAB** in the News:

### OWNING A DOG IS LINKED TO REDUCED HEART RISK

By Anahad O'Connor - online at well.blogs.nytimes.com

The nation's largest cardiovascular health organization has a new message for Americans: Owning a dog may protect you from heart disease.

The unusual message was contained in a scientific statement published on Thursday by the American Heart Association, which convened a panel of experts to review years of data on the cardiovascular benefits of owning a pet. The group concluded that owning a dog, in particular, was

"probably associated" with a reduced risk of heart disease.

People who own dogs certainly have more reason to get outside and take walks, and studies show that most owners form such close bonds with their pets that being in their presence blunts the owners' reactions to stress and lowers their heart rate, said Dr. Glenn N. Levine, the head of the committee that wrote the statement.

**Read Full Artcile:** <a href="http://well.blogs.nytimes.com/2013/05/09/">http://well.blogs.nytimes.com/2013/05/09/</a><a href="http://well.blogs.nytimes.com/2013/05/09/">http://well.blogs.nytimes.com/2013/05/09/</a><a href="http://well.blogs.nytimes.com/2013/05/09/">heart-association-weighs-in-on-pets/</a>

### THE DOG WHO TEACHES KIDS TO TALK

By Lisa Collier Cool - online at health.yahoo.net

Boo, a 12-year-old black Lab mix, isn't very smart, but he's helped disabled kids learn to read—and even to speak.

Before meeting Boo, Marc Oliviere, then 6, had never said a single word. If his mom April, said, "Good morning," Marc would just stare. Meals were a guessing game as the Mahopac, NY mom held up various foods and waited for him to point to his choices.

And when he came home from kindergarten with cuts on his back, April had to call the school to find out what happened. It turned out that another kid had bitten him during recess. But Marc wouldn't tell her who did it, or if he was in pain.

**Read Full Artcile:** <a href="http://health.yahoo.net/experts/dayinhealth/dog-who-teaches-kids-talk">http://health.yahoo.net/experts/dayinhealth/dog-who-teaches-kids-talk</a>

### **BOOK REVIEW:**

By: Dr. Emilia Wong Gordon, DVM

### ZOOBIQUITY: THE ASTONISHING CONNECTION BETWEEN HUMAN AND ANIMAL HEALTH

By Barbara Natterson-Horowitz, M.D. and Kathryn Bowers

Obesity. Depression. STDs. Cancer. Veterinarians know that animals suffer from these ailments common in humans. But how many human doctors routinely think about animal disease?

Dr. Barbara Natterson-Horowitz, a UCLA cardiologist, started doing just that in 2005 when the LA Zoo called her to help with a case of heart failure in an emperor tamarin. Her initial attempts to befriend the animal by making eye contact were sternly halted by the veterinary team, who feared triggering capture myopathy. Natterson-Horowitz later realized that veterinarians had recognized this life-threatening syndrome in emotionally stressed animals decades before a similar condition was described in humans.

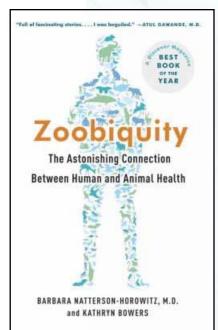
Natterson-Horowitz and her co-author, science journalist Kathryn Bowers, offer an innovative, entertaining, and engaging look at similarities between animals and humans and how these can be used to understand and treat disease in all species. The book is divided into chapters, each focused on a single topic including cancer, sexual behavior, addiction, eating disorders, and adolescence. Within each topic, examples from multiple species are discussed.

One of the most interesting chapters, "The Feint of Heart," is about vasovagal syncope (human term)/ alarm bradycardia (veterinary term). It's hard to imagine how fainting could confer

a survival advantage, but the authors present convincing examples from both human and veterinary literature. In addition to the "playing dead" component of fainting, the vagal state often results in loss of control of bodily functions, which can repel predators (human and animal). So, "fight or flight" should really be "fight, flight, or faint!"

Zoobiquity takes One

Health to a new level by introducing a "species-spanning approach to the diagnostic challenges and therapeutic puzzles of clinical medicine." The writing is accessible yet contains enough detail to engage the reader from start to finish. Doctors and other caregivers for all species will enjoy this book.





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