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Science Week Speaker Details

BOVA

Bova Compounding began operating in 2007 in response to enquiries received from vets to the new compounding department of Bova Chemist. These local vets were pioneers in that very early stage, they saw the ability of compounding to increase the compliance of their patients by slightly modifying commonly supplied treatments to suit the particular case. Since those early enquiries, Bova Compounding has grown quickly by dedicating itself primarily to the veterinary market.

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Dr Gabrielle Carter

BVSc (Hons), MSc, MANZCVSc, DACVB

Good Pet Behaviour, Advanced Vetcare
Level One, 26 Robertson Street,
Kensington, VIC 3031

Veterinary Specialist in Animal Behaviour

Dr Heather Chee

BVSc (Hons) MANZCVS(Veterinary Behaviour)

RSPCA Yagoona, 201 Rookwood Rd, Yagoona 2199

Heather graduated from the University of Sydney in 2007. She worked for 5 years in small animal private practice in Newcastle and the ACT before moving back to Sydney to be part of the behaviour team at the RSPCA NSW working alongside a behavioural vet and trainer in shelters throughout the state.

Dr Amanda Cole

BVSc MACVS

RSPCA Yagoona, 201 Rookwood Rd, Yagoona 2199

Graduated Sydney University 1999 BVSc, directly after graduation moved to the the UK where I worked for 3 years as a small animal practitioner for a charity. After moving back to Australia worked in 2 small animal practices as a general practitioner and completed my membership in Behavioural Medicine in 2010. Currently working at the RSPCA Yagoona as a Behavioural Veterinarian.
Dr Kevin Cruickshank
BVSc, BSc (Hons) Zoology.

Gold Coast Vet Surgery, 2800 Gold Coast Hwy, Surfers Paradise, QLD, 4217.

Kevin is a general practice vet who has an interest in veterinary behaviour and providing practical solutions to owners, whilst coming from a sound scientific and evidence based medicine approach. Together with his wife Dr Fiona Cruickshank, who also has an interest in behaviour, Kevin owns and operates a busy small animal veterinary practice.

Dr Cam Day
BVSc BSc MACVS (Animal Behaviour) Veterinary Behaviourist

Dr Cam Day is a veterinary surgeon, a veterinary behaviour consultant and media presenter. He claims to have three professions, the first as a pet-owner managing the mayhem of his Mutts, Moggies and other various creatures. The second is as a husband to his wife Kathryn and as a parent of three children and the third is Veterinary Behaviour Consultancy.

He is one of the few veterinarians in Australia working full time as an veterinary behaviour consultant. Consulting with dog and cat owners on a daily basis, he helps to solve problems such as aggressive behaviours, excessive vocalising, anxiety and panic disorders and compulsive behaviour and many other behavioural maladies in pets.

Dr Cam is committed to animal welfare and he is the inaugural and current Chair of the Queensland State Government Animal Welfare Advisory Committee, a role he has maintained since 2004. He is also an Adjunct Associate Profession with the University of Queensland Veterinary School. He consults to media organisations and has been doing veterinary talk-back radio continuously since 1984.

Dr Sally Gardiner
BVSc MANZCVSc (Veterinary Pharmacology) MBA

Elanco Animal Health, 112 Wharf Rd, West Ryde NSW 2112

Sally earned her Bachelor of Veterinary Science degree from Massey University in New Zealand and upon graduation, worked in small animal practice in Melbourne before moving across to veterinary industry. This piqued her interest in veterinary pharmacology and she attained her college membership in this discipline in 2006.

Sally has gained a broad understanding of veterinary industry through sales, technical and management roles across multiple organisations is currently employed with Elanco Companion Animal Health in the function of Technical Services Manager.

She completed her MBA in 2010 which culminated in her Master's thesis on the Business case and Marketing Strategy of Reconcile® (fluoxetine) for dogs in Australia and New Zealand.
Tracy- Lynne Geysen

Partner Couper Geysen – Family and Animal Law Brisbane

Level 29, 239 George Street, Brisbane 4000 PO Box 12139, George Street, Brisbane 4003

Tracy-Lynne has been practising exclusively in family law since she 2000. Since that time she has had much experience in all areas of family law including difficult children and property matters.

She has worked as a tutor at QUT and is a mentor in the QUT mentor program. She is currently completing her Masters of Laws. Just prior to commencing her own practice in August 2009 she was a Minister appointed Panel member of the Redress Scheme of the Forde Inquiry, the Commission of Inquiry into the abuse of children in Queensland Institutions.

Tracy is one of the founding members of BLEATS (Brisbane Lawyers Educating and Advocating for Tougher Sentences), a group set up in 2007 and currently consisting of some 300 lawyers including 6 Queens Counsel and 1 Senior Counsel and about 150 support staff including vets, psychiatrists and a psychologist prosecuting matters on a pro bono basis for the RSPCA. It is estimated BLEATS have saved the RSPCA more than $1,900,000 in legal fees (their annual legal budget is $50,000). In addition to family law she specialises in animal law, and her firm is the first law firm practising in this area in Australia.

Louise Ginman

BSC

Unit Supervisor of Carnivores, Exotic Fauna Precinct, Taronga Conservation Society Australia, Bradleys head Rd. Mosman NSW 2088

Louise worked as a veterinary nurse in a busy Sydney practice for over 4 years before joining Taronga Zoo in 1994 to work as a keeper and Unit Supervisor on the carnivore unit. Louise has worked with a range of both large and small carnivores including large and small felids, wild canids, bears, Meerkat, Otter, Red Panda and Binturong. Louise has high level skills in the husbandry of carnivores encompassing all aspects of carnivore care including exhibit design and maintenance, development and implementation of work routine and procedures, carnivore diet formulation and feeding, carnivore behaviour, enrichment, conditioning and breeding. Louise has been instrumental in the development and implementation of training and conditioning carnivores for co-operative care behaviours as well as trained the carnivore team to a high level in carnivore reproduction and successful breeding.

Louise regularly presents at conferences and seminars on animal training as well as carnivore management. Louise’s involvement with dogs and dog behaviour spans over 20 years. She is president of the Association of Pet Dog Trainers Australia Inc., has a Bachelor of Science Degree from Macquarie University and is a Delta accredited CGC instructor having completed her Certificate IV in Companion Animal Services in 2010.
Dr Susan Hazel

BVSc BSc(Vet) PhD GradCert (Public Health) MANZCVSc (Animal Welfare)

Lecturer in Animal Behaviour, Welfare and Ethics,

School of Animal & Veterinary Sciences, University of Adelaide, Roseworthy SA 5371 Australia

Dr Karen Higginbottom,

PhD, BSc (Hons) Zoology,

Adjunct Associate Professor (Griffith University), Cert IV Companion Animal Services. Canine Behaviour Solutions, Mount Tamborine; and Griffith University, Brisbane.

Karen runs an animal behaviour consulting business, operating principally through referral from veterinarians and dog-related organisations. She has successfully completed the Behavioural Medicine program of the Centre for Veterinary Education, and is a Delta-accredited Professional Dog Trainer. She also conducts research and consultancy in animal behaviour and management, and was formerly a university wildlife lecturer. She has 67 academic publications, including 20 in animal behaviour.

Dr Robert Holmes

Robert is a veterinary and animal behaviour graduate. He runs Animal Behaviour Clinics, an international consulting service, predominantly dealing with dogs and cats. He is based in Melbourne with regular visits to Sydney and Adelaide, and is Chair of the Animal Welfare Science Centre Advisory Committee.

Professor Emeritus Katherine Albro Houpt

VMD PhD DACVB

Katherine is Professor Emeritus at Cornell University's College of Veterinary Medicine and is a diplomate of the American College of Veterinary Behaviorists. Her research has concentrated on clinical animal behavior and welfare. She has published over 100 papers as well as a textbook, Domestic Animal Behavior, now in its fifth edition. She directed the Animal Behavior Clinic at Cornell University’s Hospital for Animals and has trained both residents and graduate students. She now directs Animal Behavior Consultants of Northern Michigan.

She shares her home - Carrousel Ranch- with Denver, the Cairn, as well as Chessa, the Arabian mare, and Gus, the Swedish Gotland pony.

Dr Trepheena Hunter

BAgSc (hons), MAgSc, BVSc (hons), MANZVC (behaviour)

Good Pet Behaviour www.goodpetbehaviour.com
**Dr Frederique Hurly**

BVSc, MPhil

Frederique completed the BVSc degree in 1997, at Onderstepoort, South Africa. While in private practice, she became more and more interested in animal behaviour. She completed the Basic and Advanced Companion Animal Behaviour courses offered by the University of Pretoria in 2002. In 2010 she completed the Veterinary Behaviour Medicine Course (University of Pretoria) and in 2012 did the Veterinary Behaviour course through Sydney University. As South Africa offers no further opportunity of studies in behaviour or ethology she decided to sit the Board Membership exam of the Australian and New Zealand College of Veterinary Scientists in June/July 2013.

She was in private practice till 2009, when she sold her practice to enable her to spend more time with her children (2 and 5 years old). She lectures for Ethology Academy, and gives seminars on behaviour to the public and behaviourists. She opened BehaviVet Consultancy, only dealing with behaviour cases.

She is a senior accredited member of Animal Behaviour Consultants of South Africa, a member of South African Board of Companion Animal Professionals and the chair person for Animal Behaviour Interaction Group of the South African Veterinary Association.

She has a passion for animal behaviour and has made it her goal to encourage her South African colleagues to include animal behaviour in everyday practice.

**Dr Kim Kendall**

BVSc, MANZCVSc (cat medicine and animal behaviour)

Dr Kim Kendall graduated as a vet scientist from Sydney University last century. She travelled the world fairly aimlessly but enjoyably for many years until a passion for cat medicine took hold. After gaining her Membership to the Australian College of Veterinary Scientists (in Cat Medicine) and then establishing the East Chatswood Cat Clinic on Sydney's North Shore, she then discovered cats understand us better than we do them. To clarify the what and the why of their changes in behaviour, she then studied for and gained Membership in Animal Behaviour in the ANZCVSc in 2004. A better understanding of these behavioural messages will have to suffice till cats learn English or telepathy. Her husband and their 2 recycled cats have to put up with a lot of nonsense sometimes, but from chaos comes order.
Dr Jacqui Ley
BVSc(Hons), MANZCVS(Veterinary Behaviour) PhD DECAWBM

Jacqui is the inaugural Hills Resident in Veterinary Behavioural Medicine and is currently working with Kersti Seksel and the Sydney Animal Behaviour Service in Sydney and the Melbourne Veterinary Specialist Centre in Melbourne. She also runs a home visit based behaviour practice, Animal Behaviour Consultations, in Victoria.

She graduated from Melbourne University in 1995 and worked in companion animal practice in metropolitan Melbourne. While studying she recognised veterinary behavioural medicine as an area of veterinary medicine that brought together her interests in animal behaviour, animal training and the functioning brain. She obtained her membership to the Veterinary Behaviour Chapter of the Australian College of Veterinary Medicine in 2000.

Jacqui has completed her PhD in 2009 describing a model and a questionnaire for assessing canine personality at Monash University as part of the Animal Welfare Science Centre. She has also investigated, with Dr. Pauline Bennett, what makes a good relationship between an owner and their dog. Other research interests include the Human-Animal relationship and factors affecting this, tests for measuring fear and other behaviours and emotions in dogs and the social relationships in dogs and cats. She is also involved in studies investigating diagnosis and treatment of behaviour problems in animals. She has been involved in teaching the Graduate Certificate in Animal Welfare at Monash University.

In 2011 she became a Diplomat of the European College of Animal Welfare and Behavioural Medicine. In 2013 she sat her examinations for FANZCVS in Behavioural Medicine.

She has contributed to text books and regularly presents original research at international conferences as well as conducting continuing education for veterinarians on the diagnosis and treatment of mental health disorders in animals. She has presented to dog owners, dog trainers, dog walkers, veterinary nurses, and dog clubs about owning dogs, understanding dogs, cats, horses and other pets and helping them fit into our confusing and complex world.

Dr Katherine Macmillan
BVSc (Hons) MANZCVS (Veterinary Behaviour)

KM Behaviour, Melbourne – kmbehaviour@gmail.com

Katherine graduated from the University of Melbourne in 2001. She obtained her membership in veterinary behaviour in 2010 and has served on the committee of the Australian Veterinary Behaviour Interest Group (AVBIG) since 2010. She currently conducts referral behaviour consults in Melbourne as well as working as a locum veterinarian.
Dr Finola McConaghy
BVSc, DipVetClinStud, PhD

Technical Services Manager, Ceva Animal Health
11 Moores Road, Glenorie NSW 2157

Finola graduated from the University of Sydney Veterinary School in 1990 with the University Medal. She completed an internship at the University Veterinary Centre at Camden followed by a PhD in equine exercise physiology, focusing on heat regulation during exercise. In 1995 Finola studied as a resident in Large Animal Medicine at the New Bolton Center, University of Pennsylvania then returned to the University Veterinary Teaching Hospital in Sydney and worked as a registrar in small animal anaesthesia.

Finola returned to equine practice in 1996 and worked at Silver Pines Veterinary Services in Mittagong, NSW before starting with Ceva Animal Health (then Nature Vet) in 1999 as a Technical Services Manager. Finola has been at Ceva Animal Health ever since as is responsible for the Research and Development and Technical Services Departments. Her research interests at Ceva Animal Health include equine osteoarthritis. Finola is a past-AVA NSW board member and is a current member and Past President of the AVI committee. Finola currently represents AVI on the AVA TAC and APVMA ILC committees. Finola has competed with her own horses in horse trials and dressage since 1985.

Dr Michael McDowell

Dr Michael McDowell is a Paediatrician specialising in child development and behavioural disorders. He runs the Child Development Network, a private multidisciplinary service for children based at the Mater Hospital in Brisbane.

Dr McDowell’s medical and paediatric training was in Sydney. He undertook further training at the Children’s Hospital, Boston, USA, along with a Masters of Public Health from Harvard University. In 1997, he received a Churchill Fellowship and in 2004 completed a PhD at the University of Queensland. He has an Associate Professor appointment at the University of Queensland.

Finally, Dr McDowell is the Foundation President of a newly-formed for developmental paediatricians, the Neurodevelopmental and Behavioural Paediatric Society of Australasia.

Dr Sally Nixon
BVSc

Sally graduated from the University of Melbourne in 2000. After graduations, she worked full-time in mixed practice in rural South Australia for 3 years before locuming around Australia in mixed practice work for 4 years. Travelled and worked as a scuba diver for three years from 2007-2010 and worked 2 full-time small animal jobs in England during that time. After attending a 1 week ESAVS (European Small Animal Veterinary Scientists) course in behaviour medicine in Luxembourg, decided to concentrate on the field of behaviour medicine. Completed a CVE postgraduate course in behaviour medicine in 2012 and now is a hopeful candidate for membership into ANZCVS.
Professor John Pearn

John is the Senior Paediatrician and Emeritus Professor of Paediatrics and Child Health at the Royal Children’s Hospital, in which he continues to serve as a senior physician after more than four decades of clinical service. He has special interests in the role of animals in the lives of children.

For 25 years he chaired the Ethics Committee responsible, then inter alii, for the welfare of animals used in experimental research. With his wife he was a Registered Kennel for West Highland Terriers with pedigreed dogs sent throughout Australia and overseas.

In a parallel career to that of clinical paediatrics, he has served as Surgeon-General to the Australian Defence Force (1998-2000) and both in that role and in his civilian clinical practice, he has enjoyed an extensive association with animals – both with the sharing of their joys and the treatment of injuries and illnesses caused by them.

Professor Pearn has published extensively in the field of both clinical and experimental toxinology, human and experimental snake bite envenomation and injuries to children resulting from horse-riding accidents, dog bites and tick infestation. He was awarded the Higher Doctorate of Medicine at the University of Queensland for studies in experimental toxinology; and in 2008 was awarded an Honorary Doctorate of Science from James Cook University for his work in genetics and experimental studies of human clinical envenomation.

He has published extensively in the field of human-animal interactions, in subjects ranging from massive bee-stings to platypus envenomation. Professor Pearn chairs the Ethics Committee of the Queensland Children’s Hospital and has special interests in the bio-medical domain which encompasses issues relating to altruism and themes of benign paternalism as these relate to vulnerable children and animals involved in the advancement of knowledge.

Dr Caroline Perrin

BVSc MACVSC (Veterinary Behaviour)

Sydney Animal Behaviour Service,

55 Ethel Street Seaforth NSW 2092 sabs@sabs.com.au

Caroline graduated from the University of Melbourne with a BVSc. She has been an examiner for candidates for membership of the Australian and New Zealand College of Veterinary Scientists in veterinary behaviour and has served on the executive of the Australian Veterinary Behaviour Interest Group (AVBIG) of the Australian Veterinary Association. Caroline is currently in the second year of her residency in veterinary behavioural medicine at Sydney Animal Behaviour Service (SABS). She shares her life with Lily the Burmese and other non - cat species.
Dr Gaille Perry

BVSc, MACVSc (Animal Behaviour), PhD, DipEd, BedSt, Cert IV in Assessment and Workplace Training

Gaille graduated from the University of Queensland in 1970. She then worked in her own mixed practice for 10 years. During this time, her hobbies were showing, breeding and training Border Collies, Old English Sheepdogs and Arabian horses and she was an accredited horse show judge. In 1982, she returned to university, gaining a DipEd that year and a BEdSt in 1983.

She was appointed as an Instructor at TAFE that year, and for 26 years taught animal behaviour and training to veterinary nurses, training class instructors, local laws officers, kennel and pet shop staff, service dog personnel and zookeepers. Gaille retired from TAFE in 2011 to pursue her other interests, which have included consultancies for the Queensland Government, RSPCA and AWL.

Her interest in behaviour led to Membership of the Australian College of Veterinary Scientists in Animal Behaviour in 1993 and a PhD in dog and cat behaviour in 1999. Gaille began working in the behavioural practice at Seaforth in 1999. She is Director of Studies for the Delta Society's Canine Good Citizen Instructor Course, which conducts accredited training for class instructors from all over Australia. Gaille is the behaviour consultant to the RSPCA in Brisbane and a regular speaker at conferences and seminars in Australia and overseas. A long time dog and cat owner, Gaille enjoys working with dog and cat owners to manage their pet's behaviour.

Dr Kersti Seksel

BVSc (Hons) MRCVS MA (Hons) FACVSc DACVB DECAWBM

Sydney Animal Behaviour Service,
55 Ethel Street Seaforth NSW 2092 sabs@sabs.com.au

Kersti graduated in Veterinary Science from Sydney University. She has a BA in Behavioural Sciences with a major in psychology as well as a MA (Hons). She is a Fellow of the Australian College of Veterinary Scientists in Animal Behaviour, a Diplomate of the American College of Veterinary Behaviorists and a Diplomat of the European College of Animal Welfare and Behavioural Medicine.

Kersti is the principal of a specialist practice in behavioural medicine in Sydney. She has presented at numerous conferences nationally and internationally as has written many text book chapters, written a book, Training Your Cat and is a regular contributor to print and electronic media and is a consultant on VIN (Veterinary Information Network). She shares her life with her partner Norm and Indi – a “special edition” dog – both of whom helped her on her journey of knowledge about life and behavioural medicine.

Dr Charmaine Tham

Charmaine graduated from Melbourne University in 2004, and her professional background is in private practice and industry. She is on the executive committee of the ANZCVS Chapter of Veterinary Pharmacology where she was formerly past president. Her current role is as Veterinary Operations Manager for Zoetis, and she is here to speak today as a committee member of the AVA's Australian Veterinarians in Industry special interest group.
Dr Catherine Tiplady

BVSc, B App Sci (Hons1)

Centre for Animal Welfare and Ethics, School of Veterinary Science, University of Queensland, Gatton, Queensland Australia 4343

Catherine Tiplady is a veterinarian who graduated from the University of Queensland in 2008. Since then, Catherine has worked in veterinary practice, completed a postgraduate Honours degree in ‘Domestic violence and animal abuse’ and has continued researching this topic as a PhD candidate at UQ’s Centre for Animal Welfare and Ethics (CAWE) at the UQ School of Veterinary Science. Catherine’s two PhD supervisors are Professor Clive Phillips (director of CAWE) and Dr Deborah Walsh (family violence practitioner and lecturer at UQ’s School of Social Work and Human Services). Catherine has authored a book entitled ‘Animal Abuse: Helping Animals and People’, published by CABI in 2013 with contributors including Prof Clive Phillips, Dr Deborah Walsh, Dr Cam Day, Cassandra Day, Phil Arkow and others.

Dr Cameron Whittaker

BVSc, DVCS, MACVSc, Dip ACVO

Sydney University graduate of 1989, mixed animal practice down the South Coast and in England for 2 years after graduation. Internship at Sydney University, with a residency in veterinary ophthalmology at University of Florida. On faculty at Ohio State University as an Assistant Professor, and since 1998 have been practicing in Sydney with Dr Jeff Smith and Dr Kelly Caruso.

Currently lecturer in veterinary ophthalmology at Sydney University, and have lectured through various parts of the world, including South Korea, Japan, New Zealand and North America. Have published 3 books on veterinary ophthalmology, contributed numerous peer reviewed articles, and have been Editor of the journal of Veterinary Ophthalmology. Most proudly I am married to Kelly Caruso, and we have 2 chocolate labradors, whom we sometimes don't love after yet again eating their mother's cookies, and 3 adopted cats. Special interests include all aspects of ophthalmic surgery, glaucoma, and retinal diseases.

Kathy Wilson

Kathy is a Delta Accredited Instructor with a Certificate IV in Dog Behavioural Training.

A teacher in a former life she has had the honour of being a tutor and assessor for the Delta Society's Canine Good Citizens © Instructors Course for several years. Kathy runs puppy, adolescent and adult dog training classes as well as behaviour consultations for the Lake Veterinary Hospitals Group in Lake Macquarie, NSW, where she has been involved for the past 32years.

A dog lover and owner of corgis and golden retrievers all her life, she has been able to follow her passion in fostering the human/animal bond, positive reinforcement training and is committed to training people to train their dogs.
Behavour Disorders seen in Humans but not Animals

Dr Michael McDowell

The assumption that humans are differentiated from animals has a proud tradition: “And God said, Let us make man in our image, after our likeness: and let them have dominion over the fish of the sea, and over the fowl of the air, and over the cattle, and over all the earth, and over every creeping thing that creepeth upon the earth. So God created man in his own image, in the image of God created he him; male and female created he them”. (1)

In the consideration of how humans differ from animals, many thoughts come to mind, a process that may not occur when animals contemplate humans. These concepts include spirituality (imago Dei), morality, consciousness, free will, language and cognition. It stands to reason then, that understanding human behaviour is an entirely different contemplation when compared to understanding the behaviour of animals.

This talk will extend beyond evidence-based practice into the 'dark matter' of practice-based evidence, and share a set of considerations from the cauldron of clinical experience.

Step 1. What is it?

The consideration of child behaviour can be a difficult process. There is a difference between raw data (what the child said or did), as compared to interpreted data (the child was defiant). Behaviour is not a continuous state, such as having diabetes. Much of the consideration of behaviour reconstructs what has previously occurred. The term behaviour presupposes the child to be the locus of causation. By contrast, a child can also be considered a barometer, responding to the messages of the world within which the behaviour occurs, past and present. At each of these definitional steps, there is the potential to lose objectivity through the lens of human filtering.

Step 2. Is it a problem?

In health care of children, somebody must decide whether the observed behaviour falls outside the range of normal, and judge why it may or may not be a problem. Behaviour may be considered against developmental and social norms. The point of reference may vary: the interpretation of the observer, evaluation against standardised tools, or considered in light of the potential harm to the child themselves. One teacher's insolence is another teacher's inspired creativity.

Step 3. What is the presumed causal process, and, in light of this, what is the most effective management?

The full glory of human interpretation gains access at this step. We make assumptions regarding what happens within the 'black box' of the human central nervous system. Those of you with children at school, particularly if your children are naughty, may have heard of 'responsible thinking rooms' or something similar. This behavioural methodology, widespread throughout Queensland schools, builds on the proposition that children are considered, rational creatures who have just made the wrong choice. Consequently, the compassionate use of social isolation allows opportunity for necessary, beneficial reflection. With or without assistance, children reflect on their mistakes, and in a transformation of enlightenment, choose the more virtuous path. The assumptions behind both causation and intervention may be considered uniquely human.

This talk will rummage around the landscape of concepts we apply to behaviour believed to be problematic, and consider to be typically human. Somewhat unhindered by peer-reviewed science, we will consider communication and cognition, mental health, social intuition and moral choice.

In child health care, the characterisation of behaviour requires a developmental framework,
that enables us to differentiate the egocentric tantrums of an energetic toddler from the allegedly mature behaviours of a typical teenager. With acronyms such as ASD, ADHD, OCD, ODD, PTSD, BPD, CD, RAD and so on, we efficiently encapsulate children into categories considered to be uniquely human. Are they?

References

(1) The Bible (King James Version) Genesis 1.26-27

Random notes

Behaviour and human
Different ethics
Human Behaviours
Cause
- Normal
  - Developmental Non-compliance
- Exaggerated normal
- Pathological
- Don't understand
  - Autism
  - Cognition
  - Language
- Know, want to, hard - insight
  - OCD
  - Fear, Depression, anxiety
- Know, cognition changes
  - RAD - insecurity
  - Anger – Flight / Fight
  - Schizophrenia / Bipolar
- Know, don't want to
  - Sociopathy / Psychopathy
Does human social anxiety disorder model conflict aggression in dogs?

Dr Gabrielle Carter

People with social anxiety disorder report that they experience extreme anxiety and panic attacks in social situations. However, they also have a normal and strong drive to be socially involved and form lasting relationships. Dogs with conflict related aggression show body language that reflects a motivational conflict, most often to approach and withdraw at the same time. In the context of social interactions this may be seen as a dog approaching a person and seeking interaction, and at the same time showing anxiety or avoidance behaviour. This shared motivational conflict suggests there may be some parallels between conflict related aggression in dogs and human social anxiety disorder. A review of current human literature on social anxiety disorder reveals some considerations for understanding the neurobiological basis of conflict related aggression in dogs, as well as treatment options.
Is this dog depressed? Unravelling depression and anxiety in dogs

Dr Trepheena Hunter

Dogs are frequently diagnosed with anxiety conditions but are we missing dogs that present with depression? In human psychiatry, depression and anxiety are common diagnoses. This paper will explore these diagnoses and look at why we use antidepressants to treat dogs with anxiety.
Observational similarities between human Asperger’s syndrome and canine anxiety.

Dr Amanda Cole

This paper describes a five-year observational study of a child with Asperger’s Syndrome and a Jack Russell Terrier with generalized anxiety. Striking parallels were noted between the presenting symptoms, coping strategies, and response to different modes of therapy.

Definition:

Asperger’s Syndrome was first described in 1944 by Hans Asperger and is now simply known as an Autistic Spectrum Disorder. Asperger’s children fail to read social cues, have poor eye contact, become fixated on obscure objects, suffer sensory sensitivity and use repetitive speech and movement. Unlike many other disorders on the Autistic Spectrum, Asperger’s patients have normal cognitive ability and suffer primarily from a social impairment.

Anxiety is defined as an emotional response to a stimulus that predicts a harmful or unpredictable outcome. Dogs suffering from generalized anxiety have a negative emotional response to a wide variety of stimuli within their environment.

Presenting Signs:

The pathogenesis of the two conditions is not the same, however the presenting symptoms bear striking similarity. The author postulates that this similarity arises from the fact that both conditions result in stress responses of freezing, flight and fight, to what are generally viewed as innocuous environmental stimuli. Both subjects also display similar coping mechanisms of repetitive or stereotypic behaviours in response to stressful stimuli.

An inability to communicate with conspecifics in an age appropriate manner was evident in both subjects. Species typical children aged 2-3 years and puppies aged 8-14 weeks will actively seek interaction with non-threatening conspecifics. Both subjects however, would display freeze or flight responses to affiliative behaviour and often respond aggressively to the presentation of play gestures by a conspecific. The intensity of response was proportionate to number and familiarity of conspecifics encountered. Although the majority of responses were moderate, in more extreme cases both subjects were known to distance themselves from the social group and compulsively masturbate.

The presence of children would evoke the most dramatic aggressive or avoidance responses in the subjects. The author speculates it is the unpredictable and often clumsy communicative styles of children that cause the greatest confusion and frustration in these subjects.

Both the child and the dog would generally gravitate to the most sedentary adult in the room. Both would often lean against these adults and would direct grooming behaviours towards them such as hair brushing or licking.

Noise sensitivity was apparent in both subjects with the response dependent upon the volume and pitch of the noise present. A general increase in volume would result in withdrawal and trembling. Higher pitched or repetitious sounds such as fire alarms or jack hammering would cause a more pronounced response of escape behaviour or repetitive vocalisation. The boy would repeat a familiar phrase over and over again whilst the dog would either repeatedly lick the air or bark rhythmically. Both would exhibit an increase in respiratory rate and pace back and forth. These responses would continue for 5-30 minutes following the cessation of the noise.
Neophobia was present in both subjects. Changes to their normal visual landscape resulted in pacing, repetitive vocalization and an inability to focus on daily routines such as eating. Major changes to the landscape, such as new furniture, would cause both to avoid entering the room. Following environmental change, both would display hyper vigilance for days to weeks, visually scanning the walls of each room for flies or other small differences.

**The role of Serotonin:**

Serotonin has been implicated in the pathogenesis of both canine anxiety and human Asperger’s disorder. A lowered serotonin level and decreased number of serotonin receptors within the limbic system have been reported in both disorders. Serotonin enhancing drugs including SSRI’s and TCA’s have been used successfully in both disorders resulting in decreased fear responses, aggression, compulsive/stereotypic tendencies, and sleeplessness. The positive effects of these medications in the treatment of anxiety and Asperger’s are likely to be multi-modal. Firstly the drugs cause a decrease in fear response which alleviates the clinical symptoms brought about by stress. Secondly, the anti-dopaminergic effect may play a role in effecting the central reward centre and indirect pathway to decrease the occurrence of repetitive behaviours.

The canine was placed on Fluoxetine at 18-months of age and exhibited a decrease in hyper-vigilance and aggression within approximately 6 weeks of commencement. The boy has not received any pharmacotherapy but in light of the fact that the anxiety experienced by Asperger’s patients contributes greatly to their clinical presentation, the author suspects that a serotonin enhancing drug would be a beneficial adjunctive therapy.

**Calming techniques, consistency and the power of choice:**

A behavioural modification program was developed for both subjects based on the anxiolytic properties of positive reinforcement and improved environmental predictability. All techniques were first taught when the subjects were in a positive emotional state and were most successful when the subjects were given the choice to participate in the technique.

The daily routines of both subjects were modified to provide greater consistency and predictability. A daily image chart was designed for the child to provide a visual cue of what would happen next, whilst the routine of the dog was changed to provide 5 points of consistent contact per day, including 2 meals, 2 play sessions and 1 training session. This modification alone provided an obvious change in both the frequency and severity of clinical symptoms in both subjects.

Positive reinforcement was employed to provide predictable and pleasurable outcomes for specific behaviours. The child was given small and achievable tasks to perform, and the dog was asked to sit several times a day to receive a reward. Initially both subjects required high value rewards such as a liver treat for the dog or a lolly for the child. Gradually these rewards were reduced and replaced with simple praise or for the child a sticker on his achievement chart.

A calming exercise was taught to both subjects to provide coping mechanisms for future stressful situations. The boy was taught a breathing and counting technique, whilst the dog was taught a sit, stay, look exercise. Both subjects have been observed to independently adopt these techniques during times of conflict or frustration. Furthermore, both were observed to have increased concentration abilities following performance of these exercises. The author postulates that the meditative like quality of these exercises causes enhanced gamma synchrony in these subjects allowing an increase in attentiveness and learning capacity.

As both subjects exhibited difficulty transitioning between activities, they were taught an exchange technique where one activity was replaced by a more desirable one. An exchange word was taught to both subjects and a more salient item was provided following relinquishment of the object. The exchange cue is now only intermittently reinforced and the subjects are both displaying limited to no signs of anxiety when asked to transition between activities.
Both subjects experienced anxiety around eating in social groups and were taught response substitution via the use of redirection games. The family group was divided into teams during eating times with the fastest eating team being rewarded with dessert. For the dog a cue for toy was introduced where the dog retrieved a toy from a basket to receive a treat. Both subjects began independently initiating these games when challenged with unfamiliar guests at the dinner table, and both would attempt to include the visitors in their redirection game.

A word on language and prognosis:

The role of language (both verbal and physical) is core to the presenting symptoms of both disorders. It is, however the author’s view that language is most crucial when viewed in terms of how the carer employs it in reference to the subject. Many Asperger’s children and anxious dogs prior to appropriate diagnosis are labeled “stubborn”, “reserved”, “cocky”, “shy”, “naughty”, “submissive” or “dominant”. When used, these words imply a certain obligation on behalf of the carer to correct or punish the subject, and to refrain from providing comfort or support. The danger of these labels is that they obscure the underlying motivation of the behaviour, causing a delay in diagnosis and the use of techniques such as positive punishment that are counter-intuitive to the desired outcome9,14.

Speaking both professionally and personally the author believes that a mental shift is required within the medical professional as a whole in terms of the way we view and treat behavioural disorders. Questioning clients about the behaviour of their pet or child is just as important as acquiring a thorough vaccination history. Shame or anxiety on behalf of the parent has been indicated as a causative factor in the delay in diagnosis of Autistic disorders12,13, and it is the author’s belief that an open and empathetic dialogue initiated by medical professionals would help bridge the gap between initial onset of clinical signs and diagnosis. It is fundamental to the future of these patients that professionals accept and act on the notion that a shy puppy or child may not be normal and may not simply grow out of it, as easily as we accept that a deficiency in insulin production is a problem that will not simply get better with time.

Conclusion:

Although humans and canines are inherently different species, this observational study has illustrated a strong resemblance between responses to stress and positive behavioural modification. The significance of this similarity lies in its encouragement for greater cross-pollination between human and veterinary fields in terms of diagnosis and treatment of mental disorders.

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Behavioural Genetics

Emeritus Professor Katherine Houpt

Genetic determinants of behavior have made possible domestication and the varied uses to which we put animals, particularly dogs.

Breed differences

In this well investigated species there are breed differences in behavioral neoteny, in temperament, in social signaling, in prevalence of behavior problems and opinions of dog experts on behavioral characteristics of various breeds.

At Berkeley, Jasper Rine and Elaine Ostrander crossed border collies and Newfoundland. The F2 generation was bred and in the F3 generation it was found that the various behavior traits associated with each breed—retrieving and giving eyes for border collies and love of water and friendliness for Newfoundlands were inherited separately. At the University of Arkansas selection based on behavior resulted in two strains of pointers—a nervous and a normal strain. The former are much more difficult to train.

Behavioral and physical characteristics may co-evolve. Some, like pugs, have puppy-like facial features—short nose and full cheeks whereas German shepherds are fully adult. He ranked the breeds by developmental stages: heelers (huskies and corgis), headers-stalkers (collies) object players (hounds retrievers, and poodles) and adolescents (St. Bernard, Komodors and Great Pyrenees). The sheep guarding dogs show juvenile behavior such as play and lack mature sexual behavior.

Most impressive is the effect of breed on the response to early isolation and handling. If puppies are completely isolated from the third to the twentieth week of life, they are markedly disturbed. Beagles react most fearfully, and Scottish terriers are more hyperactive and show an impaired (higher) threshold to pain. Partial isolation from three to sixteen weeks has different effects on different breeds. Beagles become less active; terriers more active. The Jackson Laboratory group found that the early environment of puppies had no effect on the reaction of some breeds to mild punishment (saying “No” and hitting with a newspaper). Basenjis ignored the punishment; Shetland sheepdogs were always inhibited by the punishment. Beagles and wirehaired fox terriers were inhibited only if they had not been punished in early life.

The signals of wolves such as growl, stand over, stare, crouch, and submissive grin were compared to those of various breeds of dogs. Ten breeds of dogs were compared to wolves. Dogs of each breed lived in groups, ranging in size from four to seven. They were observed for several hours and the behaviors they exhibited compared to those of wolves. Siberian huskies were more like wolves than Labradors Retrievers. The fewest behaviors were observed in the Cavalier King Charles spaniels, Norfolk terriers and French bulldogs. The authors interpreted this as meaning that behaviors had been lost with domestication due to paedomorphosis.

The largest study of opinions of breed difference is that of Hart and Hart. They surveyed 48 veterinarians and 48 obedience judges as to 13 traits in 56 breeds of dog. Principle components analysis revealed 3 factors—reactivity, aggressiveness, trainability— and a fourth factor that included playfulness and destructiveness. Cluster analysis of breeds with similar traits revealed 7 clusters. It is interesting that snapping at children clusters with reactivity, not with aggression.

The first studies on genetic differences in learning ability were carried out at Jackson Laboratory in Maine. Scott and Fuller reviewed the experiments, which compared learning ability in five breeds of dogs: cocker spaniels, beagles, wirehaired fox terriers, Shetland sheepdogs, and basenjis. These particular breeds were chosen because they did not differ much in body size, nor did any breed possess a breed-specific anatomical peculiarity, such as the achondroplasia of basset hounds. The five breeds were tested for their ability to learn
three types of tasks: forced training, reward training, and problem solving. The extensive studies at Jackson indicate that care must be taken in comparing intelligence, even within a species, because breeds of dogs differ markedly in their relative performance depending on the task to be learned.²

**Behavior problems**

The statistics on deaths caused by dogs allows one to determine breed differences in aggression. Between 1979 and 1998 pit bulls killed the greatest number of people followed by Rottweilers, German shepherds, huskies, malamutes, Dobermans, and chows. These are all large breed dogs, but other popular large breeds such as Labradors and golden retrievers are not on the list. It is most interesting that Rottweilers have overtaken pit bulls and now kill more people per year. The number of Rottweilers registered had increased five fold between 1979 and 1998, but the number of fatalities increased seven fold. The statement is often made that popularity ruins the breed, but what probably happens is that while the percentage of aggressive dogs within a breed remains the same, the total numbers increase so there are more aggressive dogs of that particular breed. Unfortunately, these statistics and the tendency of people to sue if bitten have led insurance companies to refuse policies to owners of pit bulls or Staffordshire terriers, German shepherd dogs, chow chows, and Dobermans. Breed specific legislation has been enacted in only a few communities, but the insurance companies are essentially doing that nationwide. The breeds most likely to bite are miniature Dachshunds and Chihuahuas probably because their bites are tolerated.

Canine aggression is the most common problem presented to clinical animal behaviorists and results in human injuries and canine euthanasia. One goal of canine behavioral geneticists is to eliminate aggressive dogs, or dogs carrying genes for aggression from the gene pool. The hunt for the gene involved in aggression is very difficult. For example, one may select one neurotransmitter- for example serotonin. The difference between aggressive and non-aggressive dogs could be due to a gene controlling synthesis of the neurotransmitter, reuptake of the neurotransmitter, the enzymes that inactivate the neurotransmitter or genes that controls expression of any of the above genes.

There have been several promising candidate genes for canine aggression. These include dopamine D4 receptor, the long form of which is associated with risk seeking behavior in humans. Although Nimi and colleagues showed that a usually gentle breed of dog, the golden retriever, had the short form of the dopamine D4 receptor and the territorially aggressive Shiba has the long form, this is not associated with behavior but rather with the genetic differences between an Asian and an Anglo-American breed.⁴

Monoamine oxidase A is an enzyme which breaks down dopamine and a mutation that lowers the amount of that enzyme is associated with incarceration of humans, if they had a bad childhood environment. There is evidence in dogs that aggressive individuals have lower cerebrospinal levels of 5-hydroxyindole acetic acid and homovanillic acid, the major metabolites of serotonin and dopamine respectively.⁵

Takeuchi and her colleagues have identified polymorphisms in several genes in five breeds of dogs (golden retriever, Labrador retriever, Maltese, miniature schnauzer, and Shiba). Hashizume et al. identified a single nucleotide polymorphism (T199C) located on the putative third exon of the canine monoamine oxidase B gene, which causes an amino acid substitution from cysteine to arginine. Takeuchi et al. found four single nucleotide polymorphisms (SNPs) in the tyrosine hydroxylase and dopamine beta hydroxylase genes. Ogata et al. found two single nucleotide polymorphisms in the glutamine transporter gene (GLT-1). The authors have related the polymorphisms with the breed behaviors as identified by Hart and Hart, although there is no direct evidence these could explain interbreed differences in behavioral problems.⁶

Coat colour is genetically determined and, because the precursor molecules of pigment are also the precursor molecules for neurotransmitters, it is not surprising that behavior differs with coat colour. Yellow as opposed to black or chocolate Labradors are more likely to have
back yard problems- barking, chewing, and digging and to be more likely to present to a behavior clinic for aggression.7

There is high heritability of aggression – at least in golden retrievers, with heritability estimates of scores of 0.9 for aggression toward strangers, and 0.88 for aggression to owners. Heritability of aggression towards other dogs is 0.91. Van den Berg investigated 3 genes involved in serotonin function: serotonin receptor 1A, (htr1A); serotonin receptor 1B (htr1B) and serotonin receptor 2A (htr2A); serotonin transporter gene (slc6A4). Linkage analysis of pedigrees of Golden retrievers did not demonstrate that any of these genes were linked with aggression.8

A gene for aggression has been identified. A polymorphism of the neuronal/epithelial high-affinity glutamate transporter is associated with aggression toward strangers in Shiba inu. The neuronal/epithelium high affinity glutamate transporter was also associated with activity in Labrador retrievers as was a polymorphism of the catecholamine methyl transferase gene.

Of course, both nature (genetics) and nurture (environment) play a part in determining behavior, but it is only recently the mechanism of early environmental influences on behavior have been discovered. Rat pups that were licked a lot by their dams grew up to be less susceptible to stress and more reproductively competent. This was true of foster pups as well as the mother’s biological offspring. The mechanism of this effect is demethylation of the gene. In this case the affected gene was the one for glucocorticoid receptors (GR), a process that strongly influences the expression of genes. This kind of nongenomic effect is of interest because it explains why, for example, a cloned animal does not have the same temperament as the original.9

References


Separation Anxiety in Dogs and Cats with Reference to Homeostasis

Dr Kersti Seksel

Introduction

Homeostasis ("standing still") is the property of a system that regulates its internal environment and tends to maintain a stable, relatively constant condition of properties such as temperature or pH. It is the process in which the body’s internal environment is kept stable.

Separation anxiety is the term used to describe the condition exhibited by dogs (and cats) that are overly attached or dependent on people, especially family members. There are several different forms of separation related distress. The condition is often over-diagnosed as the term is now in common usage by the community but of more concern is that it is just as often under-diagnosed or left untreated.

These pets become extremely anxious and show distress behaviours such as vocalisation, destruction, house-soiling, inappetence, inactivity and even vomiting or diarrhoea if they are either totally or virtually separated from the people (usually owners.)

The longer that these conditions are unrecognised and untreated, the more complex they appear to become and therefore, potentially the more difficult to treat.

Separation Anxiety and Separation Related Problems in Dogs

Diagnosis is based on a complete behavioural history and thorough physical examination. It may involve complete blood work, dermatological and neurological work up as well as radiography to rule out contributing or concurrent medical factors.

Clinical Signs

Dogs may follow the owners from room to room (velcro dogs) and begin to display signs of anxiety as soon as the owners prepare to leave. Some, but not all, of these dogs crave a great deal of physical contact and attention from their owners and they can be very demanding. During departures or separations they may begin to salivate or pant profusely, vocalise, eliminate, refuse to eat, become destructive or become quiet and withdrawn. Most often these behaviours appear to occur within about 20 minutes of the owner’s departure.

While these distress behaviours usually occur every time the owner leaves, they may only be seen on selected departures, such as work-day departures, or when the owner leaves again after coming home from work. Additionally, many dogs with noise phobias have concurrent separation anxiety and may exhibit marked destructiveness, house-soiling, salivation and vocalisation if this occurs when the owner is absent.

Differential Diagnosis

As the separation anxiety or separation distress complex involves many different signs a complete physical examination is necessary to rule out other cause for the signs. For example house-soiling may be due to medical problems such as renal problems, diabetes, any cause of polyuria, polydipsia or GI upsets.
Environmental factors such as leaving the dog alone for longer than it can control its bladder should also be considered.

Vocalisation may be due to any condition causing pain. Dogs with cognitive dysfunction may also exhibit signs similar to separation anxiety.

**Treatment**

The aim of treatment is to teach the dog to tolerate being left alone. Concurrent or underlying other medical problems should be treated.

Environmental management, behaviour modification and medication are generally recommended.

**Environmental Management**

Although it has been advocated to ignore the dog pre departure and post arrival this is NOT helpful and many owners find it impossible to carry out. Ignoring the dog for 20-30 minutes before the owner leaves or after the owner returns home may actually increase anxiety in the dog and make the departures even more traumatic.

Providing the dog with a mat or other visual cue for relaxation can be helpful. Pairing this with a scent such as lavender or Adaptil spray can further assist.

**Behaviour Modification**

This involves changing the dog’s emotional state and achieving homeostasis. The first step involves teaching the dog to be relaxed in the owner’s presence. Only when the dog learns to relax will it be possible to teach the dog to stay calm at other times or places. Once this step is achieved only then it will be possible for the dog to accept short departures.

Lying quietly should always be rewarded. This is done by using quiet praise (whispering) to the dog whenever it is lying down. The owner should not use food, pats or enthusiastic praise as that raises the arousal level of the dog.

Only when the dog learns to be calm and relaxed can a more formal program of relaxation such as the sit/ stay /look programme be started. This programme aims to teach the dog to remain calm and stay (perhaps on its mat) for progressively longer periods of time.

Although attempts to decouple the departure cues that trigger the anxious response may be attempted this is not always necessary or possible. This means first identifying the cues that trigger the stress response such as picking up car keys or locking the door. Then the owner picks up keys or locks doors many times each day without actually leaving.

The dog should never be punished no matter how upset the owner may be about the behaviours exhibited. Punishment only serves to further increase the dog’s anxiety as well as impede learning of non-anxious behaviour. It also damages the human animal bond and can be a welfare issue.

**Medication**

Medication is often needed especially in severe cases where there has been extensive damage to the dog and/or its environment. It has also been shown that dogs improve about four times faster when medication is used in combination with behaviour modification than when behaviour modification is used alone.

Complete blood work including a biochemistry panel should be done prior to medication to determine a baseline especially for liver and kidney parameters. Many dogs may require
medication for a prolonged period (at least 8-12 months) and then slow withdrawal of medication should be attempted. If dogs require longer term or lifetime medication 6-12 monthly monitoring of biochemistry analysis should be carried out.

Medications help to reduce the anxiety or arousal that might be contributing to the problem. Medications that influence serotonin metabolism, such as the selective serotonin reuptake inhibitors and the tricyclic antidepressants have been used in the treatment of anxiety-related disorders. Fluoxetine (Reconcile®) and Clomipramine (Clomicalm®) are licensed for use in dogs for the treatment of separation anxiety.

Anxiolytic medication has also proved useful in some cases in combination with TCAs and SSRIs. The benzodiazepines such as alprazolam, diazepam many be used prior to departure to minimise or prevent panic attacks.

Trazodone has been reported to be useful in the treatment of anxiety in dogs primarily as an adjunctive treatment to other behavioural medications such as SSRI’s, TCA’s and benzodiazepines. It is a serotonin 2A antagonist-reuptake inhibitor (SARI).

The synthetic pheromone analogue Dog Appeasement Pheromone (Adaptil) has been shown help decrease anxiety.

Separation Anxiety in Cats

Separation anxiety is often missed in cats as felines may not show the same overt behaviours that are seen in dogs. This term is used to describe cats that are overly attached or dependent on people, especially family members. They become extremely anxious and show distress behaviours of vocalisation, destruction, house-soiling, inappetence, inactivity, depression, vomiting or diarrhoea in the total absence or partial separation from the owners.

Clinical Signs

Cats with this condition tend to follow the owners from room to room and begin to display signs of anxiety as soon as the owners prepare to leave. This can be as early as the alarm clock ringing in the morning. Some, but not all of these cats also exhibit excessive attention seeking behaviours and may seek physical contact with their owners. During these separations the cat may vocalise, eliminate, refuse to eat or become very quiet and withdrawn.

Differential Diagnoses

Concurrent or underlying medical problems should be treated.

As the separation anxiety complex involves many different signs a complete physical examination is necessary to rule out other causes for the signs exhibited. For example this should include other causes of elimination outside the litter box or any condition causing pain that may lead to vocalisation.

Treatment

The aim of management is to teach the cat to cope without human company. This process may be very slow and the owner needs to be patient as well as consistent.

The earlier steps are taken to reduce the cat’s anxiety the easier it should be to manage. The owners are encouraged to keep a diary so that progress can be monitored.

Environmental management, behaviour modification and medication are generally recommended.
**Environmental Management**

The cat should be provided with a regular and predictable routine. The cat should be fed and played with at a set time each day.

Enrich the cat’s environment by providing toys (that are changed daily), hiding places, and play opportunities. However, care should be taken not to provide too many choices as that may exacerbate the anxiety.

**Behaviour Modification**

The first step involves teaching the cat to be relaxed while the owner is present. When the cat is lying quietly, anywhere, anytime, it should always be rewarded with quiet, calm praise.

Only when the cat learns to stay relaxed rather than constantly follow the owner, will it be possible to teach the cat to accept even the shortest of separations. It can also be helpful to pair a particular scent or odour with the bed/ mat and being calm.

Physical or verbal punishment should not be used as it serves to further increase anxiety and impede learning of non-anxious behaviour.

**Medication**

Medication is often needed especially in severe cases. Medication is often best started early rather than allowing the anxiety to increase to a level where it may be difficult to manage.

Complete blood work should be done prior to medication to determine a baseline especially for liver and kidney parameters. The cat may require medication for prolonged periods (up to 6-12 months) or even for life. Owners should be informed of the possibility of life long medication at the outset of a management programme.

Medications that influence serotonin metabolism, such as the selective serotonin reuptake inhibitors and the tricyclic antidepressants have been used in the treatment of anxiety-related disorders. Only clomipramine (Clomicalm®) is registered for use in cats.

Anxiolytic medication (eg benzodiazepines) has also proved useful in some cases in combination with TCAs and SSRIs, especially if the cat exhibits panic attacks. They should be given prior to the potentially stressful event. However, long term use is not advocated.

The synthetic pheromone analogue Feliway® has been reported to be useful in decreasing anxiety in some cats.

**References**


Seizures and anxiety with a case of hypoadrenocorticism in a dog

Dr Sally Nixon

Presenting signs of hypoadrenocorticism

Hypoadrenocorticism (Addison’s disease) is a deficiency in production of adrenal hormones and it more commonly affects young female adult dogs. The deficiency is due to bilateral idiopathic atrophy of the cortical layers of the adrenal glands.

Commonly, the clinical signs are associated with mineralocorticoid deficiency and involve dehydration, weakness, polyuria and polydipsia, diarrhoea, emesis, and weight loss. Atypical Addison’s disease is a loss of the glucocorticoid producing layers of the adrenal glands with function maintained in the mineralocorticoid layer.

Atypical Addison’s disease usually progresses to the more common form of hypoadrenocorticism with later loss of mineralocorticoid production and electrolyte imbalances. Atypical Addison’s disease may only show signs associated with hypocortisolaemia such as moderate hypoglycaemia.

Glucose homeostasis in the brain

When there is a drop in the level of blood glucose, the fall in the level of glucose is detected by specialised glucose-sensing neurones in the ventromedial hypothalamus (VMH) in the brain. This will bring about a counter-regulatory hormone response. In a euglycaemic state, the “satiety centre” in the VMH inhibits the “feeding centre” in the lateral hypothalamus (LH), the area of the brain which controls hunger. As the blood glucose level drops, it is sensed by the glucose-sensing neurones in the VMH. This causes inhibition of the VMH. Suppression of VMH control releases the feeding centre in the LH and stimulates feeding and foraging behaviour in response to hunger. When an animal feeds, blood sugar rises and insulin is released. The VMH is again activated and suppresses the feeding centre in the LH.

Ergotropic sensitivity

The VMH also has an effect on adjacent ergotropic centres. At rest, there is inhibition of these centres. The hypoglycaemic state allows stimulation of the ergotropic response systems which release adrenalin, causing a rapid increase in blood sugar from hepatic glycogen stores.

The acute ergotropic response can also cause other adrenalin-related responses such as tachycardia, palpitations, increased muscle tone, sleep disturbances, sweating, and subjective anxiety.

Kindling of the amygdala

With hypoglycaemia inhibiting the VMH, there is release of limbic pathways to the temporal lobe. The amygdala, in the temporal lobe of the brain, can be activated by lowered blood glucose reactions and is likely to stimulate sensitivity by the ergotropic response systems with frequent episodes of hypoglycaemic stress. This sensitivity is called “kindling” and has been shown to cause temporal lobe seizures in some human patients.

The amygdala is most sensitive for kindling of abnormal responses. This means that, with repeated episodes of hypoglycaemia, the amygdala becomes more sensitive. A decreased threshold of irritability in response to minor stresses has been shown to be experienced by affected people when acute hypoglycaemia causes temporal lobe kindling.

The amygdala is most important in conditioned fear as well as emotional processing and learning about the emotional significance of the environment in general. The central
nucleus of the amygdala is essential for behavioural responses (especially fear) and for integrating autonomic responses during psychogenic stress.

The recurrence of hypoglycaemia over a long enough period of time allows kindling of the amygdala to occur and the ergotropic system to have a greater state of dominance. This leads to a variety of flight and fight responses that are inappropriate for the type of environmental stimuli and experiences to which the individual is reacting.

Hypoglycaemia has been reported in cases of compulsive disorders in dogs. Compulsive disorders are often seen with fear or anxiety when animals are in conflict and studies performed in juvenile rats exhibited that recurrent transient hypoglycaemia resulted in increased fear-related activity and stress reactivity.

Anxiety, mood changes, irritability and decreased ability to cope with emotional stress are all symptoms of hypoadrenocorticism in people. Hypoadrenocorticism is known to be a differential in cases of schizophrenic-type behaviours in young people.

**Seizures with hypoadrenocorticism**

Seizuring can occur in dogs as a result of transient hypoglycaemia due to low cortisol levels when suffering from hypoadrenocorticism. Transient hypoglycaemia can occur in 20% of cases of hypoadrenocorticism.

Humans with kindling of the ergotropic response system have experienced temporal lobe seizures. Experiments in animals have shown that seizures can occur due to increased stimulation of limbic system ergotropic neurons when their dopamine receptor response threshold has been lowered by repeated hypoglycaemic episodes. These neurones which have an abundance of dopamine receptors become unusually irritable to relatively minor stimuli and the result can resemble a psychomotor epileptic seizure.

In humans, temporal lobe epilepsy can be one of the least medically responsive forms of epilepsy.

**A case of hypoadrenocorticism with seizures and anxiety**

The case that prompted this discussion was a chronically anxious 3.5 year old Bichon Frise dog that presented for seizuring twice in a 24 hour period. Routine in-house biochemistry and haematology profiles showed mild elevations in the hepatic enzyme alanine aminotransferase (ALT), mild prerenal azotaemia, but no other abnormalities. Electrolytes were not tested and she was started on a diet of Hills L/d® liver diet. Another seizure occurred 8 days later in the morning prior to food being given and a fasted blood sample was taken and sent to an external laboratory for testing of full biochemical, haematological and electrolyte parameters as well as total thyroxin (T4) levels.

The results of the external test suggested the possibility of hypoadrenocorticism and an adrenocorticotropic releasing hormone (ACTH) stimulation test was advised. The external test did not give a reliable blood glucose level because no fluoride oxalate blood sample was submitted. Two more mild seizures occurred several hours postprandially in the 24 hours while awaiting the results of the ACTH stimulation test and the patient responded to administration of honey sublingually. This was advised over the telephone due to a lack of response to oral diazepam and the presumption that elevated insulin hours postprandially may have caused significant hypoglycaemia; however this was never tested or substantiated.

The seizures were difficult to control and blood testing revealed hypoadrenocorticism. Treatment using fludrocortisone and prednisolone at the recommended starting dose rates commenced and her owner reported that she had not seizured and also showed an improvement in exploratory behaviour and increased independence when telephoned 10 days later.
Seizure activity was controlled for 2 weeks with treatment (the longest inter-seizure interval since commencement of seizure activity) but 15 days following commencement of therapy for hypoadrenocorticism, she had a seizure worse than any she had suffered previously. She showed no response to sublingual glucose administration. Her owner opted for euthanasia.

Post-treatment electrolyte and biochemical testing had not been performed and hypoglycaemia prior to seizure activity had not been diagnosed and may be difficult to do so in many canine patients with hypoadrenocorticism. It is also not known whether she suffered increased stress prior to her final seizure activity. Increased stress or illness in hypoadrenocorticoid animals should be treated with an elevated dose of prednisolone. This case had many unknown variables but it is clear from research that conditions that can cause a moderate recurrent hypoglycaemia such as hypoadrenocorticism have the possibility of kindling ergotropic responses. Such kindling can lead to amygdala activation with subsequent anxiety and also temporal lobe seizuring that may be poorly responsive to medical therapy.

The owner of this dog had long complained of coprophagy in this dog which can be a comfort-seeking behaviour related to anxiety and her owner had mentioned that her dog was of an anxious disposition. Hypoadrenocorticism may be a differential diagnosis in the case of canine anxiety, especially if the signalment is suggestive.

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CASE STUDY – Urine marking and Urination in the house

Dr Fre Hurly

Statement of the problem
The presenting complaint was urine marking as well as inappropriate urination in the house.

Signalment
Boudecea, Domestic cat, sterilized female, black, 5 years old.

History
The owners obtained the kitten from a pet shop when it was about 7 weeks old. At the pet shop she lived on a concrete floor without a sandbox and no environmental enrichment. After adoption Boudecea often urinated outside the litter tray. Several times a week she would urinate on the beds, as well as the couch. She never urinated on the floor or carpet. According to the owners she got up and urinated, normally without trying to dig a hollow, but often trying to cover the urine afterwards. She also sprayed, and this started at a very young age. She sprayed daily, often several times per day. After having drawn a house plan, it became clear that she only sprayed against west facing walls or areas, these being the bedrooms and the bathrooms.

Boudecea has a food and water bowl in the kitchen, scratch posts in the lounge and main bedroom, and a closed litter tray in the second bathroom. At night she sleeps on either of the beds in the bedrooms. She likes sitting on the window sill in the lounge, as well as in the main bedroom. There are stray cats in the complex. They cannot enter the apartment, but Boudecea can view them through the window and hear the cat fights at night.

The owners have never punished the cat. They had tried a Feliway™ diffuser several years ago, and thought that it may have helped somewhat at the time.

Assessment
Boudecea is an indoor cat only which may play a role in her urination in the house. She has no access to a natural substrate to eliminate. She was brought up in a barren environment, without a litter tray during the critical period. The cat has thus not learnt what the appropriate substrate is to eliminate on, and uses any substrate. The fact that she urinates on soft surfaces (when not in the litter tray) may indicate a preference for soft and/or absorbent surfaces or an aversion to hard and/or non-absorbent surfaces.

She was most likely weaned at a very young age, and may therefore lack some imprinting, with no observational learning from the queen. She has always been the only cat, and has not been socialized with other cats. The stray cats are likely to upset her, causing anxiety and uncertainty about her environment, territory and resources. These two factors are examples of how the developmental period can influence behaviour.

The closed litter tray is only cleaned twice weekly. Closed litter trays tend to trap odours inside, which many cats find unpleasant. Owners tend to clean them less frequently because they do not see that they are dirty. Normal, non-clumping and unscented litter is used. The tray may be slightly difficult to access, as the tray is wedged between the bath and the wall.

She used to hide behind the bookshelf and in a bedroom cupboard when she was younger, but she does not go there now - the owners think that she is too big to fit into that space. This means that she has lost her ‘safe space’ or bolt hole. This may increase general anxiety.

The owners have a very busy lifestyle, are not often at home and there are no routines at all. The environment can therefore be unpredictable, which can exacerbate an underlying anxiety.
Boudceea appeared a little restless and anxious during my visit. She walked around, never actually settling. She only came to lie down in the lounge after an hour. She was friendly towards me, but did not interact with me in the beginning. She only rubbed against my legs towards the end of the visit. She does not readily lie on the owners’ laps or sit on them, and is easily startled. She seems to have an anxious disposition. These animals seem to react much more to stimuli that would cause no reaction or stress in other cats. Again, this may stem from being brought up in a barren environment, without any stimuli and no habituation to a ‘normal’ environment.

**Physical examination findings and laboratory results**

On clinical examination no abnormalities were found. The urine analysis was normal and results were within normal limits.

**Diagnosis**

The urination in the house most likely stems from the fact that Boudecea has not learnt what an acceptable substrate is that she should use, and she may also have developed a substrate preference.

The urine spraying is most likely due to a feeling of insecurity about her environment, territory and resources caused by visual access of stray cats, causing her stress/anxiety.

As both behaviours have been present for years, they may have become a habit.

**Treatment**

A multimodal approach is needed. This includes management of the problem, addressing environmental and basic needs, using behaviour modification techniques, synthetic pheromones and behaviour medication.

**Management**

Limiting access to the bedrooms will prevent house soiling in these areas. This is not an option the owners would like to enforce and will be considered as a last option only. As there is a strong possibility that the visibility of outside cats upsets her, it was recommended to block visual access. This can be done by closing the lower parts of the windows with cardboard for example. High perches that can be used as a viewing platform should be removed. The areas where the cat urinates and sprays can also be made aversive, for example, plastic can be pinned on the curtain, or even placing plastic on the area of the bed where she urinates. Aluminium foil has a similar effect. Aversive sprays and scents are usually not effective, and may in fact cause increased marking behaviour. Sticky paper can also be placed upside down by the sprayed areas.

Soiled areas must be cleaned with a biological product with enzymatic action (some washing powders have this), rinsed well and allowed to dry. Thereafter the area must be scrubbed with an alcohol containing product (such as surgical spirits) to dissolve any remaining fat globules. Severely soiled items must be removed.

**Needs and environment**

It was recommended to supply more open type litter trays. The litter trays must be as attractive as possible, easy to access, in a quiet place and cleaned daily. As Boudecea appears to prefer soft substrates, different substrates must be experimented with. Substrates could include soft sand as used in sand pits, shredded paper, wood shavings, natural garden soil, clumping litter, and the litter already used. The depth of the litter is trial and error so it was recommended to start with a depth of about 3 cm.

As cats are generally concerned about the availability of resources, these need to be made more available. This can be achieved by having more food and water bowls around the
house, placed in different locations. Placing a food bowl next to sprayed areas may decrease spraying in that area as cats usually do not eliminate close to their food. Other forms of marking must be encouraged – the use of a scratch post can be promoted by placing catnip on it or spraying it with synthetic pheromones. As she used to like to hide when she was small, a suitable area should be made available again, creating an area where she can feel safe.

**Behaviour modification**

Boudecea must be placed on the litter tray several times a day and be rewarded should she make use of it. If the owners catch her ‘in the act’ of spraying or urinating, they can try to interrupt the behaviour, being careful not to increase anxiety. A water spray bottle may be useful as the owner has used this successfully in the past to keep the cat off the counters. There is no place for punishment as this only increases anxiety about the safety of the environment.

As routines create a predictable environment, it was recommended to institute a set routine, so that the cat could expect certain things at certain times, which usually has a calming effect. To enhance the feeling of a safe environment, more positive interaction between the owners and the cat was advised. This could be done by stroking, playing with or brushing the cat.

**Pheromones**

The use of synthetic pheromones (Feliway) was advised (diffuser and spray). Detailed instructions on how to use these were given, including where to place them, how many to use and when they need to be on. It is hoped that this will induce facial rubbing in the marked areas. Both applications should be used for at least a month, but prolonged use may be necessary.

**Medicines**

The use of medication was discussed. These would be considered if there was no marked improvement within 4 weeks. It was explained that there are no registered medicines for the use in cats for urine spraying in South Africa, and that regular blood tests would be needed to screen liver and kidney function.

**Record system**

The owner was advised to keep a record of all noticed sprays and urination outside the litter trays to help create an objective view on whether and to what extent the treatment has been effective.

**Prognosis**

The prognosis is guarded. A positive sign is that the Feliway diffuser has made a difference in the past, and that she does at least use the litter tray intermittently. Poor prognostic indicators are that this behaviour has occurred throughout her life (5 years) so there may be a considerable element of habit and learnt behaviour, and the intensity and frequency are high. The owner was advised that there may only be a decrease in the frequency of marking and urinating in the house, a complete resolution may not be achieved. The behaviour may reoccur during stressful events in her life.

**Follow-up and Outcome**

The owner was contacted after four weeks. They installed three pheromone diffusers and provided three litter trays with different substrates. The most frequently used substrate was the play sand. On two occasions they saw that the cat was preparing to urinate on the bed. They interrupted her, picked her up and placed her in the litter tray. They placed the cat in the litter tray 4 times a day, and she started using the litter tray reliability within 6 days. There had been no urination in the house since. The urine marking had also decreased markedly. There were only two sprays in the last week. The cat appeared to be more relaxed and friendly. Follow up seven weeks after the initial assessment showed that there have been no
incidents of urination in the house at all and that there was one spray per week at the most. The owner was very pleased with the outcome and informed me that she needed no more assistance.

Discussion

Feline elimination problems (inappropriate elimination and urine spraying) are the most common feline behavioural disorders seen in practice. They frequently lead to euthanasia of healthy animals or for them to be relinquished to a shelter. Cats can use urine or faeces (rare) to mark. Both intact and sterilised male and female cats can spray. It is important to be able to distinguish between urine marking and urination in the house.

Scents form an important part of olfactory communication in cats. Scent can be deposited by rubbing, scratching, urine marking or middening and it identifies the significance of certain locations to the ‘sender’ and ‘receiver’ of the mark. Facial and flank marks on inanimate objects label those places as safe based upon the cat’s current experience. Claw and urine spray marks contain pheromone signals that indicate to other cats outside the social group that they are entering an area that is already occupied. By spraying, the cat deposits the urine at a height convenient for sniffing. Males mark their home range, particularly near pathways, crossings and boundaries. Sprayed urine is more oily and viscous than urine that is eliminated in a squatting manner, and may contain anal sac secretions.

For accurate diagnosis, the client must specify the nature of the problem, age of onset, the frequency, intensity and duration as well as the progression of the problem. The location(s) where sprays have been found must be described. Initial deposits close to doors and windows are suggestive that the perceived threat is coming from outside the home, whereas spraying in the centre of rooms or onto new furniture suggests that the disruption is coming from within the household. Drawing a house plan and indicating the original sprays and where sprays are now found might be very helpful.

For any house soiling problem a medical history must be obtained, especially any previous diseases relating to the urogenital tract.

Any changes in environment and/or owner routine can cause anxiety and stress to a cat. The social interaction between people and other animals in the household is important. The owner must try to describe the relationships between cats in the household and include signs of covert and overt tension. These signs may be very subtle and first-hand observation of the cats in their own environment may be necessary. In a multi-cat household, it must be ascertained whether any of the other cats are spraying. It is important to note whether the behaviour occurs in the absence and/or presence of the owner. The owner’s response to the behaviour plays an important role and includes any action that the owner has taken, how the cat responded, and whether the intervention was successful.

The availability and location of resources must be noted. It is helpful to know whether the litter box is used. Factors such as the number and location of litter boxes, the type of box, the type of cat litter, the cleaning regime and whether the owners have changed anything with regard to the litter box are important.

Urine marking is the predominant form of marking seen in the domestic cat. The motivation is often territorial behaviour, situations of conflict, competition with other cats, anxiety/stress or to advertise their sexual availability. Disruption of the home environment can also trigger this behaviour. The underlying motivation for urinating in the house may include aversion to the litter box or the preference for another substrate or location, but it can also be triggered by medical causes or anxiety. Table 1 indicates the differences between urine marking and inappropriate elimination.
Table 1: The differences between marking and inappropriate elimination in cats² 5 7 8 9

<table>
<thead>
<tr>
<th></th>
<th>Marking</th>
<th>Urination in the house</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Aim</strong></td>
<td>Communication</td>
<td>Void bladder/bowel</td>
</tr>
<tr>
<td><strong>Posture</strong></td>
<td>Normally stands, may squat</td>
<td>Squat</td>
</tr>
<tr>
<td></td>
<td>Tail vertical, quivers</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Treading with hind feet</td>
<td></td>
</tr>
<tr>
<td><strong>Volume</strong></td>
<td>Small volume</td>
<td>Normal volume (large)</td>
</tr>
<tr>
<td><strong>Frequency</strong></td>
<td>Higher than normal</td>
<td>Normal</td>
</tr>
<tr>
<td><strong>Digging of hollow to eliminate in</strong></td>
<td>No</td>
<td>Often</td>
</tr>
<tr>
<td><strong>Use of litter box</strong></td>
<td>Normally</td>
<td>Decreased or absent</td>
</tr>
<tr>
<td><strong>Area where urine is found</strong></td>
<td>Mostly vertical surfaces, noticeable and specific locations, socially significant areas, variable substrates</td>
<td>Mostly horizontal surfaces, substrate preference possible, quiet secluded areas</td>
</tr>
</tbody>
</table>

Any disease that influences urination or the ability to reach the litter box could present as a house soiling problem and must be ruled out. A medical problem may cause house soiling, but after resolution of the medical problem, the pattern may be sustained as learnt behaviour².

Urine marking in cats may be a sign of increased arousal, often associated with the presence of other cats inside or outside the home¹⁰. Cats can also mark in response to environmental or social changes or new odours in their home. Other causes include sexual status, social status, territorial competition or any anxiety evoking situations, often caused by the overcrowding of cats¹ ².

If resources are sparse, certain cats may perceive there to be a local overpopulation problem. The probability of spraying in multi-cat households appears to be directly proportional to the number of cats in the household where there is a hostile social environment and underlying tension between the feline housemates⁶. Aggressive behaviours include active threats (chasing, hissing, spitting or physical attacks) as well as passive threats (staring, threatening body language or spraying in front of other cats)³. The role of marking can be important in maintaining complex social hierarchies and may be more frequently exhibited by animals with less, not more, control over the environment⁵.

There are several causes for urinating in the house. Aversions may be associated with the litterbox itself or with occurrences when accessing or using the litterbox. Causes include litterbox cleanliness, litter type, the litterbox size and style, pain experienced when using the litterbox, pain experienced when getting into or out of the litterbox, and location of the litterbox (could be unpleasant or inconvenient). Preferences refer to characteristics of a chosen alternative elimination sites that are preferred by the cat. This can include location within the home, the texture and absorbency of the chosen surface, and the cleanliness of the chosen site.

This was an interesting case as both forms of house soiling had been present for such a long time, yet the cat responded well by fulfilling basic needs and using behaviour modification. One would have expected a poor outcome, and the use of medication was anticipated but proved unnecessary.
References
Fear and panic in birds- a case study

Dr Caroline Perrin

Fear: An unpleasant emotion caused by the presence or immense of danger

Anxiety: An unpleasant emotion caused by the presence of (possible) future danger

Panic: A period of intense fear or apprehension

Phobia: An extreme or irrational fear of or aversion to something

Fear is a normal physiological response which enables birds to detect and respond appropriately to danger and avoid harm[1]. Anxiety is a normal physiological response which enables birds to predict future danger and respond appropriately to avoid possible harm. However, in many birds, they show fear and anxiety responses to stimuli which are not truly harmful or dangerous. E.g. many birds are fearful of stimuli which most people would consider to be relatively benign such as new cage furniture or new people [2].

Fear and anxiety responses are physiologically expensive and require large amounts of energy. They involve activation of the hypothalamus-pituitary-adrenal axis, stimulation of the amygdala[3] and fear responses such as fight flight freeze and fiddle. Therefore initiating a fear response in a situation which is not truly dangerous or harmful is maladaptive.

In addition, fear and anxiety states are detrimental to the bird’s physical and mental health and have significant welfare implications[4]. It is important that we recognise birds that are fearful and offer appropriate treatment in a kind and humane way.

Case Study: Lola the fearful Galah (Cacatua roseicapilla)

Lola is a 6 year old female Rose breasted Cockatoo. She has a four year history of fear which started after someone came to her home for a 2 week period while her owners were away. She is fearful of many stimuli such as new people and when sufficiently frightened she will have an episode of panic. She will scream and flap her wings and has fallen off her perch and damaged her feathers on numerous occasions in the past. This has resulted in multiple visits to her veterinarian for treatment. She has caused significant damage to the left carpus and wing tip secondary to the falling and panic responses. During her veterinarian physical examination she showed an extreme fear response and would often scream and try to escape.

A treatment plan was instigated that included environmental management, behaviour modification and medication.

The aim of environmental management is to keep the bird in a calm emotional state compatible with learning new behaviours. It has a number of components.

1. Recognising and avoiding known triggers for the fear and panic responses
2. Recognising when Lola is frightened and removing her from these situations or stopping the fearful stimulus- this is the “oops” moment, when you realise that she is frightened when you weren’t expecting it.
3. Managing her through unavoidable fearful events- Lola was frightened of having her cage cleaned and her food and water changed. Unfortunately these events do need to occur, so we need to do these in a way that causes the least stress to Lola.
4. Keeping a diary- this will enable the client to track what things Lola is frightened of and the best management strategies for dealing with them. i.e. what works and what doesn’t
5. Avoiding punishment or anything aversive
The aim of behaviour modification is to learn new behaviours. Our first goal is to focus on the relationship that Lola has with her owners so that Lola feels completely safe and confident in her owner’s presence. The owner needs to be a source of good things such as treats and social contact and not be associated with anything fearful or punishment of any kind. This will be the foundation on which further behaviour modification such as counter conditioning and desensitisation to unavoidable triggers, target training and training to syringe medications can be built.

Lola has had painful wing and feather damage in the past. It is important that any pain is adequately managed as this will have an effect on her fear responses. In addition, Lola would benefit from psychotropic medication to reduce her fear and anxiety levels. Unfortunately there is limited pharmacokinetic and pharmacodynamic information on the use of these medications in Rose Breasted Cockatoos[5]. One source suggests that paroxetine is the best choice for phobic psitticines[2]. It can also be difficult to dose medicines to birds.

As a prey species, Rose Breasted Cockatoos may be more susceptible to fear and anxiety states in the captive environment. You need to take a careful history, make an accurate diagnosis and instigate a treatment plan which addresses the fear and helps the bird feel safe and secure. Such treatment plans can significantly improve the welfare of these birds.

**References**


Management of human-directed aggression in horses

Dr Katherine Macmillan

Despite there being intense media interest surrounding dog attacks, statistically horses are by far the most dangerous animal in Australia\(^1\). While most injuries and deaths caused by horses are the result of riding accidents, the risk of injury as a result of human-directed aggression is not insignificant.

Unfortunately most horse owners do not consider seeking advice from veterinary behaviourists to solve their horse aggression problems and the information they may gain from ‘Dr Google’ is cause for concern. Type ‘treating aggressive horses’ into your search engine and you will be confronted with a variety of websites that attribute aggressive behaviour in horses to being a ‘dominance’ problem\(^2\)\(^-\)\(^4\). The use of this loaded word inevitably leads to punishment being the recommended treatment.

A recent British study suggested horse owners are more likely to seek behavioural advice from books than online\(^5\). Even text books can offer questionable advice on the treatment of human-directed aggression with some promoting the deliberate induction of learned helplessness as a recommended treatment\(^6\). As the state of learned helplessness is suggestive of compromised welfare, this treatment strategy carries significant ethical concerns\(^7\).

Before determining the best treatment of an aggressive horse the reasons behind the behaviour should be investigated. Simply, a horse uses aggression to either defend itself or protect access to resources\(^8\). In reality, the motivation for aggression can be complex with many factors involved.

Although rare, pathological causes of aggression should be ruled out. Just under half of horses infected with rabies will develop the furious form of the disease\(^9\). Horses are prone to a wide range of viruses that cause encephalomyelitis with hyperaesthesia a common sign\(^10\). Granulosa cell tumours of the ovary, the most common tumour of the reproductive tract of the horse, can cause mares to develop aggressive stallion-like behaviour\(^11\).

Pain is frequently a major contributing factor to behavioural problems in horses\(^12\). Whether from underlying pathology (osteoarthritis, dentition disorders, etc.) or from the use of training equipment designed to inflict discomfort, pain is an everyday part of life for many horses.

Frustration can also lower the threshold for aggression. McGreevy and McLean claim that most cases of aggression can be treated by retraining the basic stop and go responses\(^13\). While this approach is debatable, it does highlight the risk that communication failures during training can damage the human-horse bond.

Management factors have a significant impact on behavioural problems in horses. Increased aggression has been associated with horses kept in confined areas, deprived of social contact and fed high concentrate diets\(^14,15\).

Genetics also play an important role in aggression. Studies have suggested that hot-blooded horses (Arabians and Thoroughbreds) are significantly more ‘reactive’ and thus more likely to become aggressive than cold-blooded draught horses\(^16\).

To prevent the development of aggression, horses should be bred or purchased with their designated purpose in mind. If not required for competition, reactive breeds of horse should be avoided. Attention should also be paid to the early experiences of the horse. Studies show that early and consistent handling of horses reduces their fearful reactions to people\(^17,18\). While there is controversy over the benefits of intensively handling neonates, there exists a window of opportunity at weaning for a successful handling program\(^18\).
The environment of the horse should be investigated and efforts made to make the horse more comfortable. If necessary consider changing social groupings, housing and feeding strategies.

A stronger human-horse bond can also minimise owner-directed aggression. The replacement of punitive training techniques with positive reinforcement training needs to be considered\textsuperscript{19}.

Desensitisation and counterconditioning programs can also be implemented if it can be identified exactly what stimulus a horse is fearful of\textsuperscript{20}. Response substitution can also be considered for problems such as resource guarding.

Fluoxetine has been used in horses at a dose rate of 0.25-5.0 mg/kg SID with some success and could also be considered in the treatment of horses with human-directed aggression\textsuperscript{20}.

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Vision in Animals

Dr Cameron Whittaker and Dr Kelly Caruso

In order to discuss vision loss in animals we must first discuss vision. Clients will usually ask, “How well does my animal see?” What they are really asking is “How well does my animal see compared to me?” This question has several answers. The act of “seeing” is a complex process that depends on light being efficiently transmitted through the different parts of the eye (cornea, aqueous, pupil, lens, vitreous) and then be properly focused on the retina. At a microscopic level, vision is perceived when a photon of light passes through the anterior and posterior segments of the eye and is then absorbed by a photoreceptor (of which there are 2 types - rods and cones) in the retina. The photoreceptors convert this photon of light energy into electrical energy by a process called phototransduction. This electrical impulse passes through an intricate array of circuitry and processing in the retina and will subsequently pass along the optic nerve to the visual cortex of the brain. All parts of this pathway need to be functional or the animal will encounter visual disturbances and/or blindness.

There are typically 5 ways for animals (including ourselves) to differentiate between objects (i.e. distinguishing between a predator versus normal surroundings) and survive. These include luminance (or brightness), motion, texture, binocular disparity (depth), and color. The sum total of these mechanisms suggests that mammals and humans do not perceive the world in the same way.

Sensitivity to light

Most domestic mammals have evolved to adapt visually under a wide range of lighting conditions, so they may take advantage of several ecological niches. Cats are the most efficiently adapted for nocturnal (night time) vision. They can detect light at a threshold 7 times lower than humans. They also have a specialized area within the fundus (back of the eye) called the tapetum lucidum, which reflects light 130 times more than the human fundus. Other adaptations include a vertical slit pupil, a large cornea which allows more light to enter the eye, and a retina rich in light sensitive rod photoreceptors.

Dogs have also adapted to improve vision in dim light. Dogs, like cats, also have the tapetum lucidum. It is believed that the tapetum reflects the light back through the retina a second time, so the photoreceptors have at least 2 chances of capturing each quantum of light. However this causes light scattering, which will reduce the ability of the retina to precisely resolve the details of an image. The dorsal location of the tapetum may enhance the view of a darker ground, whilst the ventral and usually darker pigmented nontapetal region may reduce light scattering from the brighter sky. The rhodopsin pigment of dogs and cats is also tuned to a different wavelength allowing these species to function well in dim light. Clinically we do not seem to see any difference in vision between animals that have a tapetum and animals that do not have a tapetum.

Sensitivity to Motion

Perception of movement is a critical aspect of vision, especially for an animal trying to outrun a predator or catch prey. Rod photoreceptors, which dominate the retinas of our domestic animals, are important for detecting motion and shapes, especially in dim light. A study done on the visual performance of police dogs the most sensitive dogs could recognize an object up to 900 meters away, but could only recognize the same object, when stationary, at 585 meters or less. Humans have a fovea, which is better equipped for detecting motion in in bright light and in direct view, but our animals, which do not have a fovea, seem to detect motion better peripherally, in dim light, and when the object is moving at a certain speed. This may explain why dogs and cats ignore static objects, but once in motion, elicit a chase response. Although not technically related to motion detection, the sensitivity to flickering lights is the point at which a rapid flicker fuses into a constant light. Dogs can detect flicker at 70 to more than 80 times / second (70-80 Hz), which means that a television program which is updated at 60 times / sec (60 Hz) may appear as a rapid flicker to dogs, when people see a fluid story line.
**Field of View**
This is the area that can be seen by an eye when it is fixed on one point. This will vary greatly among breeds and species. Visual fields vary depending on the height of the eyes above the ground and the location of the eyes within the skull. The position of the eyes in the skull contributes to binocular vision, and also contributes to blind spots. In essence the position of the eyes in the skull is directly related to the niche as a predator or as prey that an animal may have. Predators for example need to have good binocular vision in order to focus well, whereas prey animals need better peripheral / 360 degree vision in order to locate threat and respond accordingly – all adaptive mechanisms to help an animal view its environment and survive. For example, a horse can see an object with binocular capability until 1 metre, then needs to turn its head to use one eye for observation. This is because the eyes are positioned laterally, allowing some binocular vision, but a very small blind spot. Therefore, it is really difficult to sneak up on a horse.

**Visual Acuity**
Visual acuity is the ability to see the details of an object separately and in focus. This requires the eye to have clear optical media (cornea, aqueous, lens, vitreous) and have some accommodative (ability to focus) mechanism. Altering the curvature of the lens or moving the lens anteriorly allows dogs and cats to focus on objects at different distances. The most familiar indicator for visual acuity is the **Snellen fraction**. Fractions such as 20/20, 20/40, etc. are used to correlate what a patient sees. This means that the test subject needs to be 20 feet away from a test image that the average person with normal vision could see at 20 and 40 feet away respectively. Therefore, the bigger the bottom number, the poorer the vision.

The Snellen fraction tests the area of greatest visual acuity in people called the fovea. We can and do a similar test in animals called “refraction” (also done on babies and people that cannot speak) to determine vision. Remember that animals do not have a fovea, nor as many cone photoreceptors, therefore their visual acuity is limited compared to people. As a result of cats and dogs having evolved to have better dim light vision than humans, a large number of rods converge onto single ganglion cells, which also reduces acuity. Although most animals are what we call emmetropic (are able to perfectly focus an image on the retina), there have been studies to show some breed predispositions to myopia (near sightedness) in German Shepherds and Rottweilers. It seems as though most domestic animals have few visual problems such as near and far sightedness, but that their visual acuity (fine detail) is not as good as people. This is a trade-off for improved night vision. Visual acuity in dogs has been estimated at 20/75 and the cat 20/100. This has more to do with the architecture of the retina than it does with the refractive state of the eye.

**Colour Vision**
There is a large volume of work on colour vision but it is certainly not conclusive, and in fact is often contradictory. Most of the work done on colour vision in animals has been performed in dogs, with significantly less work on cats, horses and other species. Recent studies however provide more clarity. Even so we still have to make assumptions based on the evidence we have.

Fundamental to the perception of colour is the cone photoreceptor. The presence of cones in domestic mammals suggests the potential for colour vision, although the number and types of cones are smaller than humans. Humans have three types of cones (red, green and blue), and dogs two types of cones (blue and red). Dogs do not use green cones and confuse green and red (like a red-green color blind person = deuteranopia). This suggests that dogs are unable to differentiate between colours in the middle to longer wavelengths of light – in humans this would appear to be green, yellow-green, yellow, orange, or red.

It is not known if the dog’s blue and red cones perceive colors in the same way as those of humans, but it is suggested that dogs are likely to perceive as blue wavelengths of light which to humans would appear violet and as blue / violet. Furthermore dogs would perceive as yellow the colours which to humans would be greenish-yellow, yellow, and red.
The cat has the capacity for trichromacy (like people) with 3 cones, but behavioral studies suggest they will only detect color differences if they differ greatly – in effect a pale copy of human trichromacy. Like dogs, horses are also dichromats. Horses differ from dogs though in the colours which they can and cannot perceive. In horses orange and blue colours appear as shades of gray, compared to dogs where red and green appear as shades of gray. Color vision is probably of limited consequence to domestic mammals.

So let’s ask the question now: How well does my animal see compared to me? There are a few answers as you now know - if you ask how well does my animal see at nighttime? Well, then better than you, but not as discerning in the day with less ability for color vision. They will have better motion detection peripherally than you and their field of view has fewer blind spots. Does this answer vision in animals? As you can see vision is an integrated process with a complicated answer. Our understanding of animal vision continues to evolve.

**Vision loss in Animals**

Now that you know how and what an animal sees and how it perceives its environment, we can start to evaluate all the reasons why an animal can lose vision acutely or over a longer period of time.

Any change in the otherwise clear ocular structures can lead to visual disturbances and/or blindness. For example, what if the cornea becomes diffusely opaque and there is no longer vision? Has this happened quickly or over time? These should be questions asked during the history taking. Vision loss may have occurred over time, but the owner does not know this because they have moved house, and the animal that has been compensating, no longer knows its environment and is now bumping into things.

In order for there to be good functional vision the cornea, aqueous, lens, and vitreous need to be clear, the retina healthy and attached, the optic nerve functional, and the brain able to interpret the information collected by the eye and shuttled via the optic nerve. Let’s start with the front of the eye and move to the back discussing each structure with a list of possibilities for poor vision and blindness.

The cornea should be clear and avascular. A defect in the cornea, such as a corneal ulcer will not cause blindness, but may cause so much pain that the animal is acutely squinting and now bumping into things, seemingly blind. The ulcer may be deep and have a significant amount of corneal oedema causing the cornea to be opaque, and lack a menace response. Remember it is difficult to squint one eye without the other following suit. A Pug with a gradual corneal pigment change will likely have a gradual decrease in vision, possibly become blind if the entire cornea is affected. These dogs can be treated medically and even have a surgical removal of the pigment to help improve vision. A simple fluorescein stain to determine if there is an ulcer in need of therapy, or a Schirmer tear test to rule out dry eye as a reason for pigment changes, will be helpful tests. A cornea with an aging endothelium may also cause gradual changes in vision, especially if severe. These dogs are not usually blind, but can be uncomfortable and squint if there is ulceration associated, but the visual status is usually directly related to the amount of cornea involved.

Anterior uveitis causes the aqueous to become turbid. It occurs when the anterior uvea (iris and ciliary body) become inflamed. The uvea is an immunologically competent tissue that behaves as an accessory lymph node. Depending on the severity of the uveitis and the underlying cause, blindness may be a presenting sign, especially if there is secondary glaucoma or a developing cataract. Uveitis can range in severity and have many etiologies. The immune system may have an aberrant response, there may be an underlying systemic disease such as neoplasia or infection, or there may have been a trauma. Typical clinical signs are usually photophobia and blepharospasm, pain, epiphora, aqueous flare, corneal edema, and meiosis. Using a focal light source in a dark room will help assist in diagnosing aqueous flare.

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The lens is a transparent, avascular, biconvex body with an anterior surface that is less curved than the posterior surface. The centers of the surfaces are called the *poles* and the rounded circumference the *equator*. The zonules, which tether the lens in place, attach at the equator. The lens consists of the capsule, anterior epithelium and lens fibers. It is divided into two general regions, the cortex and the nucleus. The lens is avascular and its metabolic needs are therefore met by the aqueous humor. If the aqueous humor is abnormal, for example with uveitis, then the lens is likely to develop a cataract. A cataract can be small or incipient, immature, or complete leading to blindness. Cataracts have many causes and can be congenital, age related, genetic, or related to systemic disease. Diabetes mellitus will cause cataracts to develop quickly in a significant number of dogs leading to blindness. These cases are surgical in nature, as there is no drop or oral supplement that will dissolve a cataract. The lens will continue to grow throughout life, like a tree, continuing to build concentric rings, which are lens fibres, tightly packed around the nucleus. This will not cause blindness, which is a good clue when trying to differentiate the two.

The vitreous must also maintain its transparency to allow vision. Vitreal hemorrhage, opacifications (floaters), and asteroid hyalosis can make a retinal exam difficult and may cause some visual deficits or behavioral changes but do not typically lead to blindness.

The retina is like the “film in a camera”. The retina is the structure responsible for converting light into electrical signals that are eventually perceived as a visual image. Once light hits the rods and cones (photoreceptor layer) the photopigments (rhodopsin) undergo a chemical change which after a complicated cascade of events leads to hyperpolarization of a photoreceptor; that is, a neuronal signal. This signal is then processed by the retina and transmitted by the optic nerve via the optic chiasm, optic tracts, lateral geniculate body, and optic radiations to the visual cortex. This is then our perception of light.

The retina is the most metabolically active tissue in the body. In most species there is a dual blood supply. The outer retina supplied by the choroid and the inner retina by the retinal vessels. The retinal vessels are easily seen ophthalmoscopically, and the choroidal vessels sometimes seen depending on the amount of pigment the animal has within the retina and choroid. Interruption of either blood supply can quickly lead to ischemia and irreversible loss of function, which equates to blindness. Conditions that can lead to rapid and irreversible retinal damage are retinal detachments (many etiologies), glaucoma, hypertensive retinopathy, and infectious chorioretinitis. The etiology of retinal changes may be difficult to determine, but are often linked to the systemic status of the animal.

Blindness may be acute and associated with no retinal changes in cases such as sudden acquired retinal degeneration (SARD), optic neuritis, and central disease. In cases of blindness where there are no retinal changes, an electroretinogram (ERG) is needed to differentiate retinal versus optic nerve or brain disease. For example, in a SARDS case the ERG would be absent but normal in a case of optic neuritis or central visual disease. It is not uncommon for the ophthalmologist to work closely with the neurologist on these cases.

There are many retinopathies. Arbitrarily we can divide them into inherited retinopathies, which typically manifest with night blindness at some stage and can eventually lead to complete blindness, acquired retinopathies — usually secondary to systemic diseases, retinopathies due to specific diseases such as SARDS, or glaucoma, or uveodermatologic syndrome and retinopathies from miscellaneous causes such as nutritional deficiencies like taurine, storage diseases, and toxicities.

The most common inherited retinopathy seen clinically is progressive rod cone degeneration (prcd), which is an autosomal recessive disease typically seen in Labrador Retrievers, Cocker Spaniels, Cattle dogs and Poodles. These are often breed specific, age related diseases with varied mechanisms of pathogenesis. Historically all inherited retinopathies have been given the collective name of retinal atrophy, most of which are progressive (PRA).
References:


**Behaviour assessment in shelters**

Dr Gaille Perry

**Introduction**

Animal shelters in Australia vary widely in their criteria for adopting out relinquished dogs - the reason for this is not a lack of willingness to assess, but rather the philosophical approach taken by management. Some shelters believe it is their responsibility to every animal to find it a home. Others consider that the needs of the prospective owners (and the organisation’s liability!) should also be taken into consideration and that only behaviourally "normal" animals should be rehomed.

Of course shelters can only select for rehoming from the animals they receive and there are much data that the population entering them is far from “average.” Several studies have found that dogs adopted from shelters exhibited a higher level of separation anxiety than those obtained from other sources, but it is unclear whether the dogs were already displaying this condition (and perhaps it was part of the reason the dog was relinquished) or whether the behaviour developed due to the time spent in the shelter.

Studies into the human-animal bond have shown that, if the owner bond to the dog is strong, they will be more prepared to keep and work with their dog rather than relinquish it. This bond is 2 way – it can be strong on 1 side and weak on the other (e.g. dog bonded strongly to the owner but the owner not bonded strongly to the dog). Dogs which have not developed a strong bond with their original owner may have difficulty bonding to a new owner and the bond the potential new owner wants may not be possible to achieve with that dog.

Many studies have identified that behaviour problems are the most common reason owners give for surrender of dogs to shelters and pounds. These may simply be an activity mismatch between owner and dog but can also involve fear, anxiety and aggression.

Behaviour assessment is a very emotive issue with the public and other shelter staff. For this reason, and of course to give every animal the opportunity to be appropriately managed, we need to consider all relevant information. It is generally accepted worldwide that the actual assessment tool gives only a part of the answer – we should also use any information collected on entry (owner surrender information, reports of impounding staff) and from staff caring for the animal between entry and assessment.

**Surrendering Owner Surveys**

It is generally agreed that, when dogs are surrendered, asking the relinquishing owner about the dog is useful and their answers should form part of the assessment tool which is used to determine the dog's suitability for rehoming.

Many studies have identified that behaviour problems are the most common reason owners give for surrender of dogs to shelters and pounds. Segurson, Serpell and Hart (2005) investigated this and found that owners relinquishing dogs are more likely to report

- owner directed aggression
- stranger-directed aggression
- dog-directed aggression or fear
- stranger-directed fear
- nonsocial fear
- separation-related behaviours
There is always a concern that relinquishing owners may not give an accurate description of their dog's behaviour in case it reduces their likelihood of rehoming - the same authors found that owners who think prospective buyers will be given the information they supply to the shelter are less likely to report owner-directed aggression and stranger-directed fear.

Marder, Van Driel and Engel (2005), however, found consistency in pre- and post-adoption data for

- aggression to adults
- behaviour when alone
- barking
- house soiling

Data from the RSPCA (Queensland) shelters showed that the most common reason nominated by relinquishing owners was a home move - this is an easy option to report and blame free for the dog but may conceal the real reason.

Flannigan and Dodman (2001) reported a higher level of separation anxiety in dogs adopted from shelters than those obtained from other sources, but it is unclear whether the dogs were already displaying this condition (and perhaps it was part of the reason the dog was relinquished) or whether the behaviour developed due to the time spent in the shelter.

Owners should be given a form to complete but the most accurate information will be collected if a staff member goes over the information with them and clarifies anything requiring it.

Impounding Staff Information

Whether staff members were required to catch a dog in a public place or to collect it from a finder, they can provide valuable information. If it was in a public place, information on the ease of catching and transporting the dog will be relevant. If the dog was collected from a finder, they can also supply relevant information.

Kennel Behaviour

Facilities vary in the management of dogs awaiting assessment – as they have not been assessed volunteers are not generally allowed to interact with them and staff may be limited by time and available facilities but can still provide useful additional information on general behaviour and reactivity.

Assessment Tools

There are a number of assessment tools currently in use around the world – few have been validated. The most common is to set up an assessment where we observe the behaviour of the dog when confronted with different stimuli. The aim is to determine the dog’s probable response to common situations it may encounter in a home so usually includes assessing the dog’s behaviour in the following

- leash manners
- behaviour in assessment area
- sociability
- response to cues (sit, down, stay, come, shake)
• handling
• toys/play (ball, squeaky, rope)
• arousing behaviour by assessor (run and freeze)
• food test (wet food and pig’s ear) using fake hand
• toddler (sometimes baby) doll
• stranger (usually the scribe in a coat and hat)
• alone time

Although behaviour assessment includes a bank of separate tests, most of them are to provide the tester with a suite of information to assist in successful rehoming. Tests can, however, give us a picture of the dog’s general personality. When faced with what could be a threat does he run away, bark, lunge, cower? Does he recover quickly once he sees there is no danger? Easily aroused and slow to settle dogs will require more skilled owners – even if they are generally friendly!

*When exposed to a novel or startling stimulus, the dog that is highly aroused (whether excited or fearful) may respond impulsively, reflexively and defensively*


The elements most likely to contribute to outright failure are

• serious resource guarding
• aggression to people
• aggression to dogs
• separation related distress

Separation distress is difficult to include, given the facilities at many shelters and the fact that we cannot fully replicate the departure procedure which triggers the behaviour in a home. Blackwell, Casey and Bradshaw (2003) produced a test which they validated by adopting owner survey but it requires three separate interactions between the tester and the dog – this does not fit within the timeframe for testing allocated by most shelters.

What differs between testing procedures is the degree of each of these which is deemed unacceptable and this depends on the rehoming process used. If an interview process with follow up assistance is employed, dogs with greater needs may be able to be successfully matched with an owner who is able to cater to these needs. Blackwell, Casey and Bradshaw (2003) produced an information sheet on settling a dog into its new home and found that, where owners followed their advice, returns were reduced.

Unfortunately the bottom line is that we can never replicate the environment that dogs will encounter in their new homes. Nor can we predict the effect of a family the dog is yet to meet. A good test, however, does not simply pass or fail the dog - it assists us to provide a behavioural profile which indicates the predicted needs of the dog in its new home.

**Cat behaviour assessments**

There has been very little research into this topic, probably because the demographics of cats and dogs in shelters are so different. Stray cats received are very seldom micro chipped or otherwise identified and, although most have obviously been owned, very few owners attempt to find their cats.
If there is limited space to house sale cats, many potentially rehomable cats may be euthanased and it is important to ensure that those which are retained will be suitable for adoption. Cats are usually selected for adoption on appearance and age (there is much less demand for cats once they have passed the "cute" kitten stage). While they must be able to be handled, there is usually no formal testing to determine temperament. Whatever procedure is used is often done in the first 24-48 hours after their arrival at the shelter/pound when most cats are still very stressed.

Most adopters already have a preconceived idea of their ideal cat and this can vary widely – some are looking for a calm, cuddly indoor cat while others do not want a cat that follows them about talking to them! The absence of a temperament test has meant that, while shelters can give prospective owners useful information on the activity levels and personality of dogs, they cannot do so for cats.

If it is determined that no formal testing is feasible, it is important to informally assess the cat for friendliness – this can be done by speaking to the cat when its unit is being cleaned, watching for bunting and rubbing, purring and a generally relaxed attitude. While it is ideal that cats can be picked up and held, unless this has been trained while they are kittens, most cats are not comfortable to be restrained.

**Adoptions**

Shelters should employ knowledgeable staff to match up prospective owners with a suitable dog, and to explain the input required to maximise the chance of a successful rehoming. Unfortunately this is not always the case and staff are often inadequately trained for this important role or supported in their decisions (Casey, 2006).

A Helpline to provide "after sales service" will also assist the new owner in those vital first few weeks when returns are most likely. This can be provided by staff members who have the necessary skills or outsourced to local veterinarians and trainers. However people experiencing difficulties do not often ask for help, even if they have been specifically invited to do so.

The only way to determine whether the process is successful is to follow animals adopted from the facility. It is generally agreed that this should be soon after adoption (within the first couple of weeks) but we can only determine long term success if we follow up later (at 6 months +). This sounds good in theory but requires a staff member dedicated to the task. Unfortunately this is not usually possible. An alternative more easily achieved but probably less successful in generating answers could be an automatically generated email.
References


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Animal Welfare and Behavioural Medicine

Dr Gaille Perry

This paper will examine the relationship between animal welfare and behavioural medicine – are they mutually exclusive, mutually beneficial or mutually dependent?

The Veterinarian in Private Practice

Unfortunately veterinary behavioural medicine is not yet a mainstream topic in the veterinary science syllabus of Australian Universities – each university provides a different course based on the availability of a suitably qualified lecturer and available space in an already crowded syllabus so the amount of information imparted can also vary from year to year and is dependent on this. The university’s definition of suitably qualified may include a veterinary qualification and further qualifications in behavioural medicine or other postgraduate qualifications e.g. a PhD in an aspect of animal behaviour which may or may not include the behaviour of a range of animals. Consequently Australian veterinarians graduate with widely differing knowledge, expertise and interest in behavioural medicine. As current knowledge in the field is expanding rapidly, unless they complete further study and/or maintain an active interest, what knowledge they do have will rapidly become out-dated.

To obtain an accurate diagnosis of any behavioural problem, for instance an anxiety disorder, a comprehensive history must be taken, a complete physical examination performed and sufficient time allowed to explain the behavioural modification program essential for these cases. A minimum of 2.5 to 3 hours must be available for this.

There are currently few medications registered in Australia for use in behavioural medicine – these are often prescribed, but usually in a normal consultation with no follow-up or behaviour modification program recommended. This can result in an ineffective drug regime which can last for years without any improvement, or owners withdrawing the medication at any stage or worse still, owners stopping medication without having allowed sufficient time for it to have an effect.

If a nurse at the practice has expertise in training, the client may be referred to them for a training program but few nurses have the required knowledge to develop and oversee a behaviour modification program.

Clients may also be referred inappropriately to a trainer with no qualifications in behaviour and often a punishment based training philosophy.

Finally, despite the owner discussing of behavioural issues during a consultation, they may not be explored or any advice given – in a study at the School of Veterinary Medicine and Science, University of Nottingham, 17 consultations with 6 veterinarians at two practices were monitored. Fifty eight behaviour issues were identified by owners and of these 10 were discussed but none fully explored. It is probable that the same issue exists here in Australia.

When the animal suffers from an anxiety disorder, any of these scenarios can result in poor welfare.

The Non-veterinary Practitioner

While, in theory, only a qualified, registered veterinary surgeon can diagnose and prescribe for animals, in reality there are many lay people working in this area – some can provide a valuable adjunct to the services offered by the profession, while others do not. At best they may do no harm but in fact delay the time taken to seek and try their advised treatment regime delays the owner’s seeking veterinary advice or perhaps no such advice will be sought at all – many people have a fear of mainstream medicine and prefer to put their faith in lay practitioners.
This is particularly so for behavioural medicine as owners often do not realise that they can seek help from their veterinary practice. Terry Theakstone (2011) found that his clients did not ask about behavioural issues until all practice members began to actively promote the services the practice offered - this involved veterinarian and lay staff training.

Behaviour is a topic about which everyone has an opinion and is also an expert! And there are many treatments available without prescription which are purported, with or without evidence, to affect the animal’s behaviour. So the advice by lay people to use these products could be described as “behavioural medicine”. Rescue remedy in one of its many forms, Bach flower remedies and other herbal products are often recommended for anxious animals with no scientific basis.

In many cases, inappropriate advice may be offered on management, and training advised to resolve anxiety based issues. This can include attendance at training classes, which can exacerbate the behaviour in dogs whose anxiety relates to other people and/or dogs, noises or unfamiliar places. When at home advice is provided, this can entail a lengthy process of several consultations and punishment may be recommended as a primary training tool to control the animal’s behaviour e.g. throw chains and verbal reprimands for dogs and spray bottles for cats. This certainly has a negative impact on the animal’s welfare, as, during the trial, the animal is not presented to a veterinarian for diagnosis and appropriate treatment. The client may also feel that, given the money they have now spent, they cannot refer to a veterinary behaviourist – some training organisations charge fees equivalent to or above that of a veterinary behaviourist.

Other trainers provide an initial consultation where they take a complete behavioural history, observe the owner and animal, then refer if they do not believe that management and training alone will suffice. They also refer the animal to their veterinarian if they have not seen it recently to ensure that a physical or medical condition is not responsible for the behaviour seen by the owner. Their input can be very valuable – they can provide a report to both veterinarian and veterinary behaviourist which assist in accurate diagnosis, and have already established a rapport with the client should their input be required for ongoing support and training.

The Veterinary Behaviourist

While some clients are referred to veterinary behaviourists soon after the recognition that their pet is not “normal”, the majority are not. Often the presenting condition has been present for a long time but never discussed with their veterinarian as, either the owner considered the behaviour as normal, or they recognise the issue but they are unaware that professional help is available. In a 2004 study of 70 cases diagnosed with separation anxiety at the Sydney Animal Behaviour Service, less than half were presented for diagnosis and treatment within 6 months of the development of obvious signs of anxiety. A survey conducted by a Delta Australia student at a Sydney pet shop in 2005 determined that dogs belonging to 17 of the 25 people questioned were concerned by noises but none of the owners had sought professional help. Those who do seek help often go to dog training organisations, particularly if the signs include barking and destructive behaviour.

There also appears to be some resistance to consultation with a “veterinary psychiatrist” – in the words of one client, her husband had said “I can’t believe that you are taking our dog to a dog shrink!” Often, unfortunately, it is the result of an extreme event, like substantial damage to property or the dog itself, or escape of the dog, that results in a consultation.

So it can be argued that, at the time of an initial consultation for an animal which is then diagnosed with an anxiety disorder, the welfare of the animal is definitely compromised.

Once a diagnosis is established, a behaviour modification and management program, often with the addition of medication, is required. This program is developed by the veterinary behaviourist in consultation with the owner – every program requires a significant commitment from the owner and it is important to fit this into their life as seamlessly as possible.
By the time that owners seek help for their anxious animals, medication is often required – this requires a veterinary diagnosis and prescription. Should medication be advised, a discussion must take place on the mode of action of the drug and its possible side effects. This is particularly important if drugs are used off label, as many drugs used in behavioural medicine are. The reasons for the use of the medication are explained and the owner made aware of the probable length of the treatment regime and the importance of regular contact with the referring veterinary behaviourist.

Management strategies in the short term may isolate the animal from the triggers to its anxiety and then longer term to gradually re-introduce them at a level not stressful to the animal. This also needs to be monitored and, for many animals, the least stressful option may be to maintain the isolation e.g. to never take the dog to the dog park. During this often long program the possibility of unacceptable levels of stress may be high if the owner does not understand their role, or if they try to progress the program too fast. For that reason success is optimised if the program is undertaken under the direction of a trainer who reports regularly to the veterinary behaviourist.

In cases of extreme anxiety which is non-responsive to the recommended protocol, the veterinary behaviourist is faced with a dilemma – many owners wish to keep the animal in a state of unacceptable anxiety and it is difficult to recommend euthanasia to a dedicated owner, so the result of the program can still be an animal exhibiting unacceptable anxiety. Veterinary behaviourists must discuss this frankly with the owner, just as a veterinarian treating a dog with an untreatable medical condition causing distress to the animal must do. While the owner pays the bill, we are the advocates for the animal, and, while we must be sympathetic for the owner’s distress (most of us also own animals and have been faced with euthanasia decisions ourselves) we must promote the best interests of the animal at all times. And euthanasia is not the worst option for a very anxious animal for whom treatment over a lengthy period has been unsuccessful.

Conclusion

The practice of veterinary behavioural medicine is as much a part of the role of the veterinary practice as is internal medicine, surgery, advice on health maintenance. An effective service can be provided by a combination of veterinarians and lay staff with appropriate interest and expertise. This can include arrangements with appropriately qualified external staff but the responsibility remains with the veterinarian, with whom the ultimate responsibility for the welfare of the animal lies.

References

Equine Welfare
Emeritus Professor Katherine A. Houpt

In order to assess equine welfare we should compare the behaviour of the free ranging horse with that of the stabled one. The free ranging horse spends sixty percent of its time grazing, lives in a band with several other horses and rarely moves at speed. On one hand, the stabled horse is assured of food and water and is protected from the elements and from predators. On the other hand, he cannot graze for all or most of the day, he is separated from other horses, and he is made to work.

Environment

The first aspect we considered was whether horses like to see other horses. We examined that by putting horses in a paddock where they could choose to see or to not see other horses by walking around a partition. They spent half their time in a position where they could see other horses. If there were no other horses in sight the solitary horse moved more and ate less.1 Recently it has been shown that provision of a mirror helps to reduce weaving in stalled horse—another example of the importance of the visual environment to horses.2,3

Next we asked whether horse liked to have a lighted stall. The horses could turn on a light for one minute by putting their head into a manger, thus breaking a beam. The horse did turn the lights on for a few minutes each hour during the entire day, but turned them on most in early morning. They will work for light, but not very hard. Similarly, they will work for heat in the winter. Horses would obtain two hours of heat each day by putting their heads in a manager to turn on heat lamps for one minute.

Another feature of stalls is the bedding or lack thereof. We gave the horses a choice between a stall with bedding and one without and measured how long they spent in each stall. Horses preferred wood shaving to a bare concrete floor. This preference is especially pronounced when the horses lay down. None lay down on the concrete.4 When they actually can feel the substrate they prefer a soft surface. In fact they would prefer 24 cubic feet of shaving to 8 cubic feet. Resiliency is important to the horse. There was no preference for straw over wood shavings as bedding in our study, but recently it has been shown that horses sleep longer on straw than on wood shavings.

The Europeans have developed enriched environments in which the horses can live as a group while sharing resources, but there have been problems with aggression over food. An elaborate electronic system that allows only one horse at a time to access hay and, in a different place, grain seems to work very well, although it is costly to construct and each horse must be trained for a few days to operate the feeders. The construction of ‘paradise paddocks’ which consist of a circular trail with various resources, such as hay, a rolling area, salt, and water at different locations have been used to improve equine health and welfare. They do increase the time the horse spends in motion.

Exercise

Stall confinement may be a welfare problem. To examine this we confined horses is a straight stall for 23 hr/day and allowed the horses to work for release by pushing a panel with their muzzle. We compared how hard a horse would work for release into a large paddock with the work it would do for food or for release with another horse. We gradually increased the “price” the horse had to pay (the number of presses it had to make) for each commodity. The mean number of presses the horses would make for food was 190, but they would press only 45 times to be released into a large paddock and only 52 times to be released into a small paddock with another horse. This indicates that horses are not very motivated to be released from a stall.
When given a choice between exercising on a treadmill and returning to their stalls, nine out of ten horses chose to go back to their stalls. Apparently forced exercise is not preferred by horses. In contrast, when given a choice between returning to their stalls and release into a paddock, all the horses chose to enter the paddock. After 15 minutes they were asked to make the decision to go out or return to their stalls. If they were released into a paddock alone, they preferred to return to their stalls after 15 min of release, but if they were released with other horses they chose to remain outside for another 15 minutes. The horses also showed compensatory behaviour; if they were confined in their stalls for two days they choose to spend 45 minutes in the paddock, but only if they were released with other horses. The solitary horses still chose to remain outside for only 15 minutes.

Do horses prefer to be ridden? Apparently not. When horses could choose one side of a Y maze to be ridden for a short time and the other side to be ridden for a long time, they refused to choose, apparently because being mounted was the result of whichever choice they made.

Some time ago there was public concern about the mares kept for estrogen production. In order to collect urine using a harness and rubber collection bag, pregnant mares were confined in tie stalls for six months and released from their stalls only every 14 days (the median time). Pregnant mares kept in tie stalls for two weeks without turn out showed compensatory behaviour. When turned out after two weeks they were active for twice as long as horses turned out daily. The long-term confinement neither increased cortisol nor changed the ACTH response. The horses did develop edema, but no stereotypic behaviour developed during the six-month experiment.

In addition to management, there are several other areas of concern in equine welfare. One subject that is obvious to the public is carriage horses. This is a small but highly visible population. The welfare concerns are heat stress in the summer or in warmer climates, lameness that may not be noted by inexperienced drivers, overuse, motor vehicle-horse collisions, and inadequate stabling. In an urban area such as New York City the horses may be kept indoors, in high rise building in tie stalls that can only be reached by elevator. There are regulations limiting hours of use of each horse and restricting carriages to areas where they are in less danger of an accident, but these regulations were not enforced and now there are no longer carriage horses in NYC, which is a shame.

**Performance horses**

Racehorses have another set of welfare problems. Most obvious are the breakdowns such as the tragic case of Barbaro. Improving track surfaces and outlawing the use of pain killing drugs in racehorses that may reduce the frequency of such accidents. The fate of the unsuccessful racehorses is also of concern.

Furosemide is given to many racehorses to prevent exercise-induced pulmonary hemorrhage. It is a diuretic that acts by inhibiting sodium and chloride reabsorption in the loop of Henley. As a result, a large volume of iso-osmotic urine, rather than a small volume of concentrated urine, is produced as water is drawn by the sodium ions into the urine. The loss of water and sodium and chloride ions from the plasma produces a hypovolemia. The hypovolemia lowers blood pressure (and is the reason diuretics are used to reduce blood pressure clinically). If blood pressure is lower, rupture of blood vessels in the lungs of the horse is less likely. The diuretic is probably beneficial to the horse, but the actual therapeutic efficacy of furosemide is questionable. What is not questionable is the effect of furosemide on performance. Two studies have shown that horses treated with furosemide before racing ran faster and were more likely to win. The reason for the enhanced performance is probably the lower weight due to the loss of 6 kg of urine. Administering furosemide is akin to reducing the handicap on the horse. Behaviourally furosemide stimulates thirst because of the blood volume and salt appetite loss salt because of the sodium loss in the urine.

Stereotypic behaviour may be another sign of compromised welfare. Thoroughbreds, but not standardbreds, exhibit a high prevalence of stereotypic behaviour such as cribbing, stall walking, and weaving. Thoroughbreds are the breed most likely to exhibit crib biting. Affected horses spend 20 % of their time cribbing and may suffer gastrointestinal problems, in
particular epiploic foramen entrapment. But, if cribbing helps a horse to cope with its poor environment, should we prevent the behaviour? There are many surgeries to prevent cribbing, but removing a large segment of the strap muscles combined with accessory neurectomy is the most popular. There are also a variety of collars and muzzles to prevent the behaviour from simple straps around the neck to shock collars.

We asked the horses how important it was to them to be able to crib. They wore cribbing collars except during the test when they could gain access to a cribbing surface by pushing a panel with their noses. They were willing to press the panel thirty five times for each opportunity to crib ten times. They were highly motivated to crib.

Horses use their tails for communication as well as for protection from insects, but there are several welfare issues involving tails of show horse. Arabians horses are judged on their high spirits so a tail held low is penalized. Ginger is placed in the anus to encourage the horses to hold their tails up. Only recently has a blood test been developed that is sensitive enough to detect ginger given via that route. Other tail issues are the tail sets of gaited horses that involve cutting the muscles of the tail and then keeping the tail in a harness. Finally, draft horses and hackney ponies have docked tails, although the latter's breed association no longer requires it for showing.

In the case of Western pleasure horses there is a different tail issue because they are judged on their calmness. A horse with a high or lashing tail would be penalized. Tails were immobilized permanently or temporarily. Fortunately, this can be detected using electromyography.9 Tranquilizers are also used to keep these horses calm. Blood tests and drug detection laboratories can be used to apprehend trainers who do this, but the laboratories have to be prepared for new compounds.

The use of performance enhancing drugs in show horses is an increasingly serious problem. Even children's mounts will be given various “uppers' and "downers" to reduce any nervousness or to speed the pony around the jumps. Western pleasure horses were frequently tranquilized so that they would appear calmer and walk with their heads down. One of the drugs used was fluphenazine, which lasts for weeks, but could not be detected in the blood after a few days. Fortunately, better analytical methods were developed to detect the drug were discovered. Unfortunately, even crueler methods are now used to produce a low head carriage such as tying the horse’s head up for hours before a competition.

The only performance enhancing technique forbidden by federal law in the US is soring- applying caustic compounds to a horse’s abraded pastern. Two years ago the Department of Agriculture inspected the national Tennessee walker show and so many horse were found to be sored that the show was cancelled. Unfortunately, show jumpers may also be “sored’ so that they will pick up their forelimbs when jumping. The caustic materials are injected subcutaneously and therefore, are more difficult to detect.

Training methods used on performance horse can be cruel. For example, running a horse toward a solid wall to train the sliding stop by reining horses. Striking horses on the knees as they jump to encourage them to jump higher is another example.

**Discipline or use to which the horse is put**

Dressage is a very popular equine activity, but may be the least welfare friendly use of horses. First they must perform for many years. Race horses usually have short careers, but dressage horses perform well into their twenties. Secondly they have the highest rate of stereotypic behaviour- even within one breed of horses -than those used for jumping or riding lessons. One of the stresses is neck flexion. Only recently was the Rollkur bridle that induces extreme flexion banned by the International Equine Federation. The decision was based, in part, on an experiment in which horses could chose between being ridden in an ordinary bridle and Rollkur bridle. The mouths of the horses may bleed, presumably from tension placed by the rider on the horse’s mouth. The movements of dressage are beautiful and occur in the natural repertoire of a stallion; however, the stallion performs those
movements only infrequently and then for a short time. The stress on the horse of the constant repetition of these movements may be the reason for their high rate of stereotypic behaviour.

Reining horses have other welfare problems. For example, the harsh bits used on the reining horse can cause the horse's tongue to be severed. This very popular sport seems to be extreme with shuffling lowered-head walks interspersed with fast gallops ending with abrupt, sliding stops. There are lots of tack issues. For example, the American Quarter Horse Association has banned chambons, metal cavessons, and draw reins in their shows.

The welfare problems of endurance competitions involve dehydration, electrolyte imbalance and exhaustion and, to a lesser extent, musculoskeletal problems suffered by horses not in proper condition. The veterinary checks required in most competitions helps to identify and treat the horses.

There seem to be examples of abuse or poor welfare in almost every equine competitive endeavor.

Slaughter

Equine slaughter was very controversial in the USA. The main welfare issue was the heat stress during transport of the horses for many hours in the heat and the injuries sustained when strange horses were mixed.\textsuperscript{10,11} Now that horses can't be slaughtered in the United States the issue of the unwanted horse has arisen. It is difficult to collect valid estimates of the number of horses involved, but the numbers of horses taken to Mexico and Canada has increased dramatically. Horse ‘rescue’ facilities have been established all over the US, but these are expensive to maintain. Sometimes the horses are not properly cared for which results in another welfare issue.

Conclusion

In summary, equine welfare can be compromised in many situations. The ideal environment for the horse is pasture with a dozen or fewer compatible herd mates. Dietary changes to help confined horse to graze include more and varied roughage and as little grain as possible. It will take ingenuity and probably monetary investment to optimize the stall environment.

References


Behaviour – A South African Perspective

Dr Fre Hurly

Introduction

South Africa can be considered a Third World Country although it has many traits of a First World Country. It is a multi-ethnic nation with a huge diversity of culture and socio-economic status. South Africa is ranked as upper-middle income yet research shows one quarter of the population is unemployed, in other words, it is a mixed economy with a high rate of poverty. Many South African families literally live from hand to mouth, hardly able to provide for their family’s basic needs.

There is a considerable difference in how the various cultures and social-economic classes view the role of animals in their lives. Take wildlife for example. Some people will pay a high price to view the animals in their natural environment, to take photographs and observe their behaviour. Others view the same animals as a source of income, receiving revenue for wildlife safaris or for hunting expeditions. Another group sees wildlife as a means to sustain life. It is a source of meat, skin and hides and animal parts used for traditional healing and rituals. This does not necessarily differ from the way pets are viewed. Again there is the divide where a pet is pampered, receives only the best food and medical care and is part of the family. However, due to financial restraints, well loved pets may receive less advanced care. In other areas these animals are solely used to serve a function such as vermin control, to guard the property or as hunting animals. Many pets do not receive proper care, not only due to financial constraints, but due to the lack of education on how to care for and treat a pet, and that the owner is responsible for the pet. An unfortunate comment by the South African President, Mr Jacob Zuma, on pet ownership does not help to encourage responsible pet ownership.

Veterinary science in South Africa is advanced. There is one veterinary training facility in South Africa and it maintains a very high standard. South African veterinarians are held in high regard across the world and many foreign students complete their internship at the veterinary faculty each year. At present there are 2522 registered veterinarians in South Africa and 909 registered veterinary facilities. Most larger towns and cities have at least one veterinary facility, in rural areas veterinary assistance may be insufficient.

The interest in behaviour in the general population is increasing, mainly due to the media (internet and television shows). There needs to be a paradigm shift in both the veterinarians as well as the pet owners that mental health is just as important as physical health, and that it is often the change in behaviour signs that triggers a visit to the veterinarian.

Behaviour in South Africa

At present there are 121 registered veterinary specialists in South Africa. There are, however, no veterinary specialists in behaviour. A Master’s degree in Veterinary Behaviour Medicine or Veterinary Ethology is currently not offered in South Africa, making it difficult to specialise in this field. At present there are only four registered veterinary facilities that offer behaviour consultations exclusively.

There are many non-veterinary behaviourists in South Africa. Many of them have completed further studies in the field and have practical experience. However, since there is no regulatory body to regulate and control non-veterinary animal behaviourists, there are several self acclaimed behaviourists who have no scientific knowledge on animal behaviour. Unprofessional conduct and unethical approaches, may put the ‘behaviour profession’ in a poor light, especially if these individuals usually have a low success rate, creating the perception that behaviour problems cannot be treated. Unfortunately, these cases are the ones that could be reported on by the media.
There are two organisations to which veterinary and non-veterinary behaviourists can belong. They are the South African Board for Companion Animal Professionals and the Animal Behaviour Consultants of South Africa. Both these organisations stipulate minimum requirements before accrediting members. Pet owners frequently visit these websites to find a behaviourist who can assist them with their pet. There are two main institutions that offer certificate courses in animal behaviour. In general, non-veterinary behaviourists are of the opinion that veterinarians lack knowledge in behaviour.

**Behaviour – the client**

A survey was undertaken amongst pet owners who make use of veterinary services. 81% of dog owners knew that behaviour problems in dogs could be treated, while only 61% of cat owners were aware of treatment options for behaviour related problems in cats. A high proportion of owners indicated that they would seek advice or assistance from a veterinarian or veterinary behaviourist (70%), or alternatively ask the receptionist for advice (dog owners 8%, cat owners 17%). The survey indicates that the pet owner perceives the veterinary practice as the first reference point for advice on behaviour related problems. Only 10.5% of pet owners felt that their usual veterinarian does not need to have knowledge on animal behaviour, as long as they could refer them to somebody who could assist.

The survey showed however that many pet owners (78%) were not prepared to spend more than R 500 (Aus $ 51) on a private behaviour consultation. More than 80% of pet owners indicated that they would be willing to spend money on behaviour toys or behaviour medication, should this be needed to treat the pet. It is clear that although most clients would like to address their pets' behavioural problems, many are not prepared to pay a premium for professional advice. Pet owners need to be educated about their pets' behaviour, and that treatment can improve the pets' behaviour thus strengthening the human-animal bond.

**Behaviour – the veterinarian**

A similar survey was distributed amongst veterinarians. Although all the veterinarians who took part in the survey indicated that they were frequently asked behaviour related questions by their clients, only 29% of the participants actually offered behaviour consultations, most of these taking less than an hour (92%). Most practitioners (81%) charge the usual consultation fee for behaviour consultations. Of the veterinarians who indicated that they do not do behaviour consultations, 44% felt that they did not have enough knowledge to deal with behaviour cases while 46% were of the opinion that behaviour cases took too much time and were not economically viable.

As the average pet owner in South Africa indicated that they were not prepared to spend more than R 500 to correct their pets' behaviour, it creates the impression amongst veterinarians that behaviour cases are not worth the time and effort. However, the advantage of offering behaviour consultations in the practice should not be underestimated.

The benefits of offering behaviour consultations in the practice are well researched and include both ideological and materialistic reasons. The human-animal bond is as important as the animal’s physical health. Including behaviour as part of the veterinary service offered will better the lives of pets and owners alike. Fewer pets will be rejected, abandoned or destroyed, thereby decreasing a significant cause of early client / patient loss to the practice. By saving the pet’s life, improving the bond between owner and pet, the owner’s commitment to, and level of pet care can be greatly enhanced. Retaining a client and pet with regular care, for its entire life, creates a strong customer base.Treating a well behaved pet is not only beneficial to the owner and veterinarian, but also to the pet itself as it can receive a more thorough clinical examination and procedures are easier to perform.

**Discussion**

As a note worthy percentage of pet owners choose the veterinary practice to seek help for their pet, it is interesting that few veterinarians use this opportunity to expand their veterinary
It is surprising that animal behaviour does not form a larger component of the veterinary curriculum at University level since most clients expect their usual veterinarian to help them with their pet’s behavioural issues. It is understandable that a veterinarian may not get the same satisfaction (and adrenalin surge) when treating a behaviour case compared to correcting a gastric torsion or treating a poisoned animal. If it is kept in consideration that a high percentage of healthy pets are euthanased due to behavioural reasons, the veterinarian should realise that treating a behaviour problem can also be a live-saving event.

It is generally much easier to convince the client that they need to spend R 4000 to repair their pet’s fractured leg but more difficult to motivate spending the same amount for a medical workup consisting of blood tests and other diagnostic tests. Veterinarians in South Africa would be hard pressed to convince a client that a behaviour consultation and treatment plan is worth that kind of money. Most clients would fail to see that the professional time spent in these three scenarios is similar.

It is therefore important that the veterinarian needs to change their mindset and understand that many behaviour related problems can be resolved, or at least achieve such a decrease in the unwanted behaviour that it is acceptable to the owner. Only once the veterinarian is convinced that there can be success, can they positively encourage the client to treat the pet.

For behaviour to become part of every - day private practice, some areas need to be addressed. These include:

- An increase in the level of education in animal behaviour for under-graduate veterinary students to equip our future colleagues with scientific knowledge and skills to confidently approach and treat behaviour cases.
- Increasing the continued professional development opportunities for veterinarians in private practice to obtain further knowledge relating to veterinary behaviour.
- Revising the current minimum requirements for complementary veterinary facilities to make them applicable to behaviour veterinary facilities. The South African Veterinary Council is currently looking into this.
- Veterinarians need to be aware that although behaviour cases may not be straightforward, and many need a multimodal approach, a large percentage of behaviour cases have a favourable outcome.
- The pet owner needs to be educated about their pet’s behaviour. This includes preventative measures as well as the treatment options available should a behaviour problem develop.

**Conclusion**

The survey suggests that Veterinary Behavioural Medicine is an under-valued aspect of veterinary science in the South African context. However, several interventions are in place to create an awareness of the role that animal behaviour plays in the veterinary practice. Three years ago the Animal Behaviour Interaction Group of the South African Veterinary Association (ABIG) was re-kindled, and the membership is slowly increasing. ABIG has hosted two mini-congresses which were attended by a large group of private practitioners as well as exhibitors. There is now also a behaviour column in the Vetnews, the monthly newsletter of the South African Veterinary Association. ABIG successfully hosted the 2010 International Veterinary Behaviour Meeting in Cape Town. They also try to ensure presentations at local congresses, in order to expose veterinarians to behaviour. Behaviour will be part of the scientific program of the World Small Animal Veterinary Congress hosted by South Africa in 2014.
References


Racehorse Welfare Index

Glen McTaggart
Animal Law and Animal Welfare

Jackson Walkden- Brown
Domestic violence and pet abuse – behavioural changes in animals from violent homes

Dr Catherine Tiplady, Dr Deborah Walsh, Dr Clive Phillips

‘Once the nervousness started, it never stopped – the dogs never became normal again’ (survey 14)

‘The cats just went away and hid. The Russian Blue still doesn’t like men to this day. If a man comes over, the cat goes out’ (survey 23)

‘The pets were weeing themselves and cringing, the heeler would run out the house and down the street and I don’t think (dog’s name) ever regained his courage that he had before that relationship’ (survey 13)

‘The Malamute would try and sit on me and get between me and my partner if I was getting yelled at. It was like her way of saying ‘it’s ok, I’m here’. It was the only time she tried to sit on me. I fully believe she thought it shouldn’t be happening.’ (survey 17)

‘When he had me by the throat, pinned in a corner of the kitchen (dog’s name) jumped up and put her paws between us and he said he’d kill the dog if she does anything’ (survey 13)

This paper and the accompanying presentation will outline the involvement of companion animals in domestic violence and discuss ways which animal behaviour may be affected by living in an abusive household. Descriptions of human interpersonal violence and animal abuse will be included.

Whilst both men and women in heterosexual or same-sex relationships can be the victims of domestic violence, in Australia, women comprise the vast majority of victims/survivors with male partners as the abusers (Australian Bureau of Statistics, 1996). Violence against women is an international problem that affects all socio-economic groups and has been described by the World Health Organisation as the most pervasive yet under-recognised human rights violations in the world (Ellsberg and Heise, 2005). A survey of more than 6000 Australian women found that one in three women had experienced violence from a male partner (Mouzos and Makkai, 2004). As over 60% of Australians live with pets (Australian Companion Animal Council, 2006), it is easy to appreciate that many animals are potentially affected by living in violent homes.

The link between domestic violence and animal abuse has long been recognised by those working in the women’s advocacy sector during the 1970’s women’s movement (eg Adams, 1994) however until the late 1990’s it has received scant attention in the scientific literature. Early researchers such as psychologist Frank Ascione (1998) established that pets are often abused in violent homes and that women often delay leaving their partners due to concerns that the pets will be harmed. Research by the authors of this paper has confirmed that animal abuse and threats are commonly used as tactics to ‘coercively control’ a victimised woman into remaining within a violent relationship (Tiplady, Walsh and Phillips, 2012).

Animal abuse may be verbal, physical, sexual or emotional - even those animals which have not been ‘directly’ abused are still affected by living with violence in their human family (Flynn, 2000), similar to the way children are affected by witnessing the assaults of their mother in violent homes (Fantuzzo, DePaola and Lambert, 1991). Women’s reports of how animal behaviour has been affected whilst living with and since leaving a violent relationship is providing valuable information on how animals are impacted by violence.

This presentation will focus on the behavioural changes reported in animals during and after leaving violent relationships. Specific cases will be discussed and time allowed for the audience to comment and ask questions. By understanding why these changed behaviours manifest, veterinarians and animal carers can better collaborate with owners to better support and rehabilitate the animal victims of domestic violence.
Acknowledgments:
The authors would like to thank DVConnect, Queensland for their assistance in recruiting women for our research. DVConnect provide 24 hour support, counselling and accommodation to women and children needing to leave a violent situation. The DVConnect ‘Pets in Crisis’ service works with the Queensland RSPCA and Animal Welfare League to provide foster care for pets from violent homes for 28 days at a cost of $1 a day per pet.

DVConnect Crisis Line Queensland: 1800 811 811
Pets in Crisis Queensland: 3426 9999

References:


Animals and Animal Law

Tracy-Lynne Geysen

According to the Australian Companion Animal Council, Australia has one of the highest incidences of pet ownership of the world – with an estimated 33 million pets living in approximately eight million households. This suggests that for most the family pet is considered a ‘member of the family’. It is undoubtable that many of you (being Australian and New Zealand Veterinary Scientists) will understand the importance and wellbeing of the ‘family pet’ to your clients. As a partner of the Brisbane based and Australia’s first animal law firm, and a pet owner and lover, I certainly know the importance of animal welfare to our clients and more generally, the public.

What is Animal Law?

The term ‘animal law’ refers to the regulation of, and human behaviour towards, animals. More specifically, it includes all animals—companion animals, animals raised for food, animals used in research, education and entertainment, and wildlife. The concept of ‘animal law’ often invokes debates as to whether animals actually need protection. This raises questions and doubts such as the legal standing of animals: are animals conscious, sentient beings, aware of what is happening around them? Do they feel pain the same way as humans? Are certain animals more conscious than others? Why do we cuddle some animals but eat and hunt others? These are the types of questions we must ask ourselves in deciding whether or not laws affecting animals are adequate. It is however likely that we all agree that no animal should suffer unnecessarily.

Why do animals need lawyers?

It was stated by Former President of the Australian Law Reform Commission, Professor David Wiesbrot AM, that animal protection may be ‘the next generation social justice movement’.

As there is now legislation surrounding animal law, it is evident that it is important for animals to have lawyers. Under law in Australia and many jurisdictions animals are afforded a status similar to inanimate objects, whereby they are the subject of absolute property. As a result of the constitutional limitations, regulation of animals is largely dealt with separately by each of the States and Territories. Furthermore, the primary purpose of animal welfare legislation in each state and territory is to establish penalties for animal cruelty offences.

Companion animals

I am sure many of you own companion animals, forming part of the family, which afford you an instrumental and non-instrumental value. In the eyes of the law, animals are legally classified as personal property. Therefore, companion animals are possessions of humans and are legally, simply marketable commodities.

Whilst the legal nature of companion animals restricts their protection, each State and Territory has assumed responsibility for animal welfare regulation. In Queensland, the Animal Care and Protection Act 2001 (Qld) provides a prohibition on cruelty towards animals and a duty of care owed by persons in charge of animals. The cruelty offences in the Queensland Act apply to animals generally and therefore include companion animals in a domestic setting.

The legislative definition of cruelty is non-exhaustive, and comprises acts such as beating, abusing, terrifying, tormenting or worrying animals, or generally causing unnecessary, unreasonable or unjustified pain. It must be noted that the vast majority of prosecutions for animal cruelty offences are for acts inflicted upon companion animals.
Adding to the general cruelty prohibition, are a range of offences relating to surgical practices, unless performed by a veterinary surgeon for a therapeutic purpose. As I am sure many of you are well aware, this includes tail docking, ear cropping, declawing and devocalisation.

I stress the importance of these further prohibitions on pet owners, as whilst it may be argued that these acts performed by someone other than a veterinary surgeon would fall within the broad definition of cruelty, the way cruelty offences are qualified, with the use of the words unjustified, unnecessary or unreasonable, may mean the legal position is not clear cut.

Further, in all Australian jurisdictions, manifest cruelty such as dog fighting is obviously prohibited. In addition to the range of animal cruelty offences, the Queensland Act provides a somewhat unique duty on persons in charge of animals. This is a duty of care which requires reasonable steps to be taken to ensure animals have access to appropriate food and water, accommodation and the opportunity to display normal patterns of behaviour. Again close to home, is the duty on persons in charge of animals to ensure animals suffering from disease or injury are appropriately treated.

It has been said that this duty in Queensland provides additional protection for animals as it imposes a positive legal obligation to attend to animals, rather than simply ensuring they are protected from harm.

**Animals in Agriculture**

Animals with economic value, such as livestock are provided less protection in practice than animals kept as pets. This is a reflection of the pressure placed upon animal industries to increase production and efficiency.

The agricultural industry is regulated by a set of guidelines called the ‘Code of Practice’ (COP). This unjustly rules out any possibility of a conviction of animal cruelty. However, it is an animal rights lawyer's role to uphold the Animal Care and Protection Act 2001 (Qld) which seeks to maintain a 'reasonable balance' between the welfare of animals and the interests of the person who is financially dependent upon animals. Whilst the Queensland Act does not provide a definition of 'stock', 'livestock' or 'farm animals', the associated regulation refers to cattle, horses, poultry, buffalo, donkeys, emus, rabbits, horses, pigs, camels, deer, ostriches, goats and sheep.

An increasingly common question within the community, especially in recent times, is who is responsible for farm animal welfare? The Commonwealth Government has used its powers to legislate in relation to live exports, whilst leaving the primary responsibility for enacting and enforcing agricultural animals to the States and Territories. Sadly, whilst the welfare of farm animals has increasingly become a matter of community concern, none of Australia’s States or Territories, save for Victoria, have passed specific Acts to regulate their treatment. Instead, the general anti-cruelty offences and duty of care are intended to apply to animals in agriculture.

Whilst the duty of care obligation in the Act applies to animal owners, managers, property staff, transport drivers and lessees, in my experience there is a great reluctance amongst the judiciary to impose penalties upon offenders in the agricultural industry.

The case of the *RSPCA v Kenneth Paulger* 2006 demonstrates this reluctance. In that case, Magistrate Taylor noted the offender’s attitudes towards animal husbandry were 'largely formulated over half a century ago at a time when accepted practices in the rural industry were much more robust than those which are accepted by the community today'. However, the offender’s act of euthanising a cow by striking it several times on the head with a hammer was held not to be an act of wanton cruelty.
Animals used in research and education

Australia’s approach to managing animals used for scientific research and education is one of enforced self-regulation. In Australia, there are two basic levels of regulation. Firstly, each State and Territory in their general Animal Protection Act regulates matters such as animal research licensing. Secondly, each State and Territory has adopted the national code of practice, the Australian Code of Practice for the Care and Use of Animals for Scientific Purposes. As I am sure you are aware, the National Health and Medical Research Council is the main funding body for medical research involving the use of animals and is partly responsible for the development of the applicable Scientific Code.

Linking back to the two forms of regulation, in Queensland, the Animal Care and Protection Act 1991 provides an animal is used for scientific purposes if it is used to acquire, demonstrate or develop knowledge or a technique, or further, used in connection with any of those activities.

Under the Act, there is a requirement for registration for use of animals for scientific purposes. The Act expressly provides that the use of animals for scientific purposes must comply with the Scientific Code. It must also be noted that without approval, it is unlawful to conduct a skin irritancy test, a LD50 Test, or to use animals for testing cosmetic products.

Without delving too deeply into the Scientific Code, I do want to shed light on the fundamental 3Rs that should inform the use of animals in research. These are replacement of animals with other methods, reduction in the number of animals used and refinement of the techniques used to reduce the adverse impact on animals. These principles emphasise the responsibilities of those involved in the care and use of animals for scientific purposes.

Animals in Entertainment and Wildlife

The general scheme of legislation is to protect native wildlife by regulating the circumstances in which they may be taken, killed, possessed, sold and otherwise dealt with. The Queensland Animal Care and Protection Act 1991 does not define a ‘wild animal’. This therefore means that so long as the animal satisfies the statutory definition, the Act and its protections will apply. As a consequence, the general prohibition against cruelty applies to wild animals as well as companion animals. Further, the Queensland Act provides it is an offence to kill, injure or harm a protected animal without authorisation.

In addition to these two anti-cruelty provisions, the statutory duty of care obligations will also be applicable in an institution such as a zoo or animal sanctuary.

Whilst this duty of care is often supplemented by nature conservation legislation, there are a number of exceptions which are applicable to welfare protection of wild animals. Firstly, animal welfare legislation in Queensland applies subject to nature conservation legislation. This indirectly provides that cruelty and other offences under the Act do not apply to acts or omissions in accordance to nature conservation legislation.

Secondly, the animal welfare legislation may contain defences or exemptions to cruelty or duty of care offences where the wild animal is a ‘pest’ or ‘feral’ animal, or for hunting. Some protection is afforded to these legally classified animals however, to ensure they are treated in a way that does not cause unnecessary suffering.

Thirdly, and most prevalent, animal welfare legislation allows for codes of practices regulating the treatment of wild animals. Compliance with these codes, like those seen in the agriculture and scientific industry, provides a defence or exemption to cruelty and duty of care offences.

Another hurdle faced by legal practitioners is standing limitations. There are limited authorities addressing standing in cases seeking to enforce animal welfare legislation in favour of wild animals in Australia. Exemplifying this obstacle, is the case of Animal
Liberation v Department of Environment and Conservation, in which the NSW Supreme Court held that Animal Liberation did not have standing to seek an injunction restraining the aerial shooting of goats and pigs in nature reserves.

Captive animals

Zoos and circuses are settings where traditionally wild animals are removed from their natural habitat or born in captivity, experiencing ‘quasi-domestication’. In Queensland, like most Australian jurisdictions, there is no specific exhibited animal legislation. In 2008, the Queensland Government acknowledged that the current legislative framework does not extend to all animals nor does it address the full range of ways that animals can be exhibited. They further acknowledged that the legislation does not reflect recent advances in scientific knowledge, industry expectations or societal values. Since then, the Queensland and federal Government have sought to bring a degree of consistency to regulation in this area of the law.

While many argue that zoos can be seen as an existing midway on a conservation-exploitation spectrum, animal circuses exploit wild animals solely for the purposes of entertainment. Whilst animal circuses in Australia are increasingly becoming an out-dated legacy, there still remains a small number of family business exploiting wild animals. Whereas circuses involving ‘prohibited animals’ are currently banned in the ACT, other jurisdictions, including Queensland, allow the use of wild animals in circuses, subject to compliance with codes of practices and licensing restrictions.

Finishing on a positive note, in my experience, local councils are increasingly banning circuses which exploit wild animals for entertainment.

With thanks to Ryan Brenson – paralegal Couper Geysen – Family and Animal Law and QUT student and Alex Ganis – QUT.
DUTY and ALTRUISM - The Animal Domain

Professor John Pearn

One of the enduring debates in veterinary medicine, indeed in the broader society, is whether animals can act in a truly altruistic way. The question which underpins this debate touches all who own an animal, who work with animals commercially, or who think deeply about the human-animal nexus in our personal daily lives.

Ethicists employ three specific definitions to ascribe the relationship of a voluntary act in the context of service to others – whether such relationship is that of human-human, human-animal, animal-human or animal-animal. The three words are “duty”, “supererogation” and “altruism”.

“Duty” is a contract – formal, informal or implied - between one being and another. Duty is not necessarily regarded as a virtue but a failure to discharge it usually generates blame or contempt. “Supererogation” is defined as “voluntarily going beyond the call of duty”. “Altruism” is defined as supererogation which is associated with a risk of harm, or worse. Harm can be physical as in injury or death; or may be damage to one’s reputation or to psychological wellbeing. Either might be, and often is, the cost of performing an altruistic act.

Imparting these qualities to animals is the phenomenon of anthropomorphism. It is the imparting not only of human intellectual traits to animals, but the attribution of moral, ethical and behavioural qualities – both good and bad – upon individual animals. The phenomenon is as old as recorded history. Since the 1930s, biologists have acknowledged that animal behaviour, like that of humans, could be both fixed, instinctual or automatic on the one hand yet be adaptable and modified by experience on the other. This theme was afforded scientific underpinning following the demonstration that 98.4% of human DNA was shared with that of the chimpanzee, *Pan troglodytes*; and 90% with that of mice. One sees a parallelism in the way humankind strives to record in permanent form the cultural record of extreme examples of duty, courage and loyalty. For humans, The Victoria Cross is afforded primacy in the British Commonwealth Order of Precedence of all bestowed decorations. For animals, its parallel is the Dickin Medal, the world’s highest award for animal courage. It was instituted by Mrs Maria Dickin (1870-1951) in 1942. To date, at least 61 Dickin Medals have been awarded by the (U.K.) People’s Dispensary for Sick Animals.

Humans bestow ethical and moral qualities upon animals in two separate and distinct ways. The first is a two-way of reflexive dynamic in which humans attribute a virtue to an entire animal species. The strength, vigilance and soaring freedom of raptors, especially eagles and falcons, is one example. The perceived loyalty and endurance of certain breeds of dogs, Newfoundlands for example, are another. Having made such an attribution to a whole breed or species, as a reverse process humans then use the metaphor of the generic animal virtue (so bestowed) to identify individual humans with the attributed virtue.

The second dynamic by which humans impart anthropomorphic virtues upon animals is the process where individual animals are selected for their perceived courage or service beyond the call of duty. When ethicists and philosophers speak of such terms as “courage” and “bravery”, they define and are using the three domains of service to others, described above – that of duty, supererogation and altruism.

Every pet owner knows that companion animals are dutiful. Most would agree that many companion animals go beyond simple dutiful interaction. We impart supererogation as an anthropomorphic bestowal of a higher virtue upon animals, for acts of loyalty or endurance beyond that normally seen or imposed. An Australian example is the Purple Cross which was awarded to the Pikeman’s Dog, “Wee Jock”, posthumously at a ceremony at the Ballaarat (sic) Fine Art Gallery on the 30 November 1997. The Pikeman’s Dog was a terrier who showed great devotion at the Eureka Stockade on 3 December 1854. Among the 30 miners who were killed in that engagement, was one defending the stockade with a pike. Known as the “Pikeman”, and his dog as the “Pikeman’s Dog”, the slain miner lay unclaimed on the scene of death for many hours. His terrier, “Wee Jock”, guarded his body throughout

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the hours it lay unclaimed at that tragic scene and later accompanied it on the death cart as the bodies were transferred to the local cemetery.

The highest virtue in the service relationship of one being to another is that of altruism. Recent personal research has revealed that in Australia in the last decade at least ten people have given their lives in attempts to save an animal from drowning. Giving one’s life that another might live, in the full knowledge of the potential of death resulting from such an act of altruism, is afforded the highest level of esteem, even veneration, in most societies including our own. Many social animals, some genera of bees and ants for example, sacrifice their lives for the good of the colony; but it is inconceivable that they do so with free will in the face of a perceived, interpreted risk.

Many do not believe that altruism, as defined above, can be bestowed upon animals as a virtue. Courage however is required in many circumstances to perform what would be regarded as duty, and certainly in acts of supererogation. Courage may or may not be necessary in the performance of duty; but is certainly seen in acts of both supererogation and altruism. Whether animals display true altruism is contentious, but all would agree that individual animals undoubted manifest courage. The concept of bravery, observed in the acts of individual animals, is the realised or manifest form of extreme courage.

Humans and animals have co-evolved since their domestication in Neolithic times. Our destinies are enjoined both individually and socially. The bonds are such that kings and countries adopt the symbols of animal virtue on their flags, crests and armorial bearings. The ecosystems which we jointly inhabit with animals are fragile. The human virtues of duty, supererogation and altruism will be needed for the preservation of the ecosystems of a future world confronted by such threats as climate change, habitat loss and species extinction. One manifestation of respect for the animal kingdom is the comforting acknowledgement that the concepts of duty and courage coexist in the conjoined world of living things.
Dog Attacks

Susan Hazel
Welfare Aspects of Noise Sensitivities and Phobias

Dr Kersti Seksel

Introduction

Veterinarians working in companion animal practice now recognise that fear and anxiety are the underlying reasons for many behaviour problems. The actual prevalence of anxiety-related conditions is unknown but it is estimated that about 20% of dogs have an anxiety disorder and they are probably the most common class of behavioural disorders in pets. It is probably the same for cats but no published research is available. In referral practice anxiety disorders make up well over 90% of veterinary patients presented. Therefore the welfare of these pets is severely compromised.

Anxiety Fear and Phobia - is there a difference?

Although the terms anxiety and fear are often used interchangeably they are not the same. Fear is related to the specific behaviours of escape and avoidance, whereas anxiety is the result of threats that are perceived to be uncontrollable or unavoidable. However, the anxiety can be real or perceived but it is always real from the perception of the pet. Both fear and anxiety may be adaptive in some circumstances whereas phobias are always maladaptive.

Fear is a physiological, behavioural and emotional reaction to a potentially injurious stimuli. Experiencing fear is a survival mechanism, it is an adaptive response, and usually occurs in response to a specific stimulus. Fear is often connected to pain or a traumatic event. For example, if a dog falls down a set of stairs he or she may develop a fear of stairs. Fear should be distinguished from anxiety which typically occurs without any external threat. Anxiety may also be an adaptive response to a specific threat in some circumstances. However, where fear is usually of acute onset and transient in duration anxiety is a more chronic state of non-specific apprehension. Anxiety is defined as the anticipation of future danger or misfortune. In many cases there may not always appear to be any obvious cause. The threat may be real or imagined and may be normal or abnormal depending on the context.

When it is out of context and occurs at a constant and elevated level or interferes with normal functioning then it is problematic to the animal and is a welfare consideration.

Although panic attacks are not experienced by every animal that suffers from anxiety, they are relatively common. Panic attacks usually come without warning, and although the fear is generally irrational, the perceived danger is very real.

A phobia is defined as an irrational, intense, persistent fear of certain situations, activities, things, or people. The fear (or panic) response is out of proportion to the stimulus and is maladaptive. Animals with phobias do not habituate to the stimulus even after very many harmless contacts and the response does not decrease with time.

Common phobias in animals involve noises and places. Phobic responses have physiological, behavioural and emotional responses similar to fear, but they are extremely exaggerated.

Noise Phobia

This is a common problem in dogs it and is most commonly exhibited in response to sounds like thunderstorms and fireworks. However, it may generalise to other sounds like cars backfiring, gunshots or even sausages sizzling!
Unfortunately many noise phobias in cats are not recognised by owners and therefore often left untreated despite the distress the cat may be experiencing. This is an enormous welfare issue.

Phobias can develop from a single exposure (one event learning) or from continued exposure to the fearful stimulus.

**Clinical Signs**

The fear provoking stimulus (sound) may lead to the dog or cat to exhibit a variety of behaviours that are indicative of stress.

The stress response is seen as a co-ordinated reaction to threatening stimuli. Stress responses are modulated through altered cholecystokinin, opioid and dopaminergic mechanisms.

The signs generally include:

- avoidance behaviours
- increased vigilance
- increased arousal
- cortisol release from the adrenals
- activation of the ANS (sympathetic division)

Physiological measurements of stress include: increased catecholamine levels and resultant brady or tachycardias (parasympathetic and sympathetic autonomic nervous system), increased corticosteroid levels resulting from stimulation of pituitary-adrenal axis, decreased neutrophil/lymphocyte ratios and altered response to adrenocorticotropic hormone (ACTH) stimulation test.

Production and release of substance P may also be responsible for some behavioural effects such as salivation and GI distress.

Signs may range from panting and pacing to hiding, trying to escape, seeking attention, getting extremely agitated, behaving destructively etc. The behavioural signs are only seen when the fear provoking stimulus occurs.

**Management**

The key to treating noise phobias involves three key areas: environmental management, behaviour modification and medication.

The first step is to take a thorough behavioural history. This is best done using a questionnaire. This allows the identification of possible stimuli that evoke the fearful response. For some noises like gunshots, fireworks or a car backfiring the stimulus might be quite obvious. However, for thunderstorms, it may be the darkening of the sky, rain, a drop in the barometric pressure, or high winds, all of which may occur prior to the storm.

A thorough physical examination is also essential to rule out any concurrent medical issues that might be contributing to the problem.

**Environmental Management**

Although ideally the fear provoking stimulus should be avoided this is not easy or even possible in many cases. However, every attempt should be made to minimise the pet’s exposure to noises that concern the pet. This may involve keeping the dog or cat inside at these times.
The visual stimuli of fireworks and storms can be minimised by confining the dog or cat to a brightly lit room with light proof shutters or shades. Sometimes, increasing the distance from the stimulus or finding some relatively sound-proofed room might also help with the process.

If the pet feels most comfortable hiding under the bed or lying with the owner then this should be allowed.

In some cases providing a specific place to which the dog or can retreat when frightened is useful. Dogs and cats tend to prefer enclosed spaces such as shower stalls or cupboards. A specific rug that the dog or cat can lie on that is impregnated with a particular scent may help to provide a visual as well as scent cue for relaxation. The resting area should help to comfort and provide security for the pet.

Playing with dog or providing another distraction has been reported to be effective in some cases.

**Behaviour Modification**

Behaviour Modification involves a relaxation program to help the dog or cat cope with the fear evoking stimuli. Rewarding relaxed behaviour at all times is essential. This should involve the owner whispering “good dog” or “good cat” whenever the pet is lying quietly and is relaxed.

The more formal process of relaxing on cue involves the “sit/stay/look” relaxation program needs to be explained to owners so that they understand that it is not just another version of obedience training. It is intended to teach the dog, to relax on cue. Whether the dog sits correctly is irrelevant, it is about the dog displaying relaxed body postures. In fact if the dog lies down during these exercises the dog is rewarded.

Ignoring the pet when it is anxious should be avoided as it may actually increase the pet’s anxiety. Active reassurance, for example with pats, appears to decrease the pet’s anxiety in many cases.

If the pet will eat at these times then offering a favourite treat may mean that over time the pet associates the noise it now fears with the treat it most desires.

Desensitisation and counterconditioning have been recommended. Finding a means of reproducing and controlling the stimulus may need to be done but this is one of the most difficult aspects of the retraining program. A tape, CD recording or video might work for thunderstorms and there are many different CDs available currently. However, many pets are afraid of other components of a storm that are difficult to recreate. Therefore it may be possible to modify some, but not all aspects of the phobic response.

Recordings may be useful for desensitising pets to other noises such as the sound of fireworks or cars backfiring but only in the early stages in the development of noise reactivity.

It can be a slow process to desensitise the pet and any exposure to the fear provoking stimuli during this process can lead to the process being less effective. The recording should be played at a low enough level first so that it does not evoke the fearful response and the pet should be rewarded quietly yet profusely for relaxed (non-fearful) behaviour. Retraining should focus on the use of rewards and training the pet to lie quietly in a favourite resting area to receive these rewards. The rewards are intended to teach the dog to associate low levels of the stimulus as positive experiences.

Very, very gradually, the volume is increased so that the pet learns to tolerate the ‘noise’.

Punishment (even raising your voice) should be avoided as it is not effective in changing behaviour for the better in anxious pets. It serves to further increase the anxiety as well as impede learning of non-anxious behaviour and should be avoided.
Medication

Medication may be situational or long term. In some cases pets may only need to be on medication when fireworks are anticipated such as New Year’s Eve or only throughout the thunderstorm season.

Complete blood work including a biochemistry panel and urinalysis should be done prior to any long medication to determine a baseline especially for liver and kidney parameters. Many pets may require medication for a prolonged period (usually a minimum of six–twelve months) and then slow withdrawal of medication can be attempted. If pets require longer term or lifetime medication six-twelve monthly monitoring of biochemistry analysis should be carried out.

Medication is often needed especially in severe cases where there has been extensive damage to the pet and/or its environment. Medications that influence serotonin metabolism, such as the selective serotonin reuptake inhibitors- SSRIs (eg fluoxetine) and the tricyclic antidepressants -TCAs (eg clomipramine), have been used in the treatment of anxiety-related disorders. Additional anxiolytic medication such as benzodiazepines (eg diazepam. alprazolam) has also proved useful in some cases in combination with TCAs and SSRIs, especially if the pet has panic attacks. Trazodone has also been helpful in reducing anxiety in combination with SSRIs.

Acetylpromazine (ACP) is contraindicated for noise phobias as it can lead to pets becoming more noise sensitive and unpredictable.

The synthetic pheromone analogues DAP® and Feliway® have also proven useful in many cases of anxiety. The diffuser should be plugged into the room where the dog or cat spends most of its time. The dog should have easy access to the diffuser as many dogs will choose to lie next to the diffuser. The use of the DAP collar and /or the DAP or Feliway spray can also be useful.

Conclusion

Noise phobias are distressing for the pet and the owner. Unfortunately not all owners recognise the distress that the pet may feel if the signs are covert- eg salivation, hiding. This is especially true if the owner is not present at the time of the anxiety provoking stimulus- eg noise. But this is even more so for cats – out of sight- out of mind! Veterinarians should be educating owners about the prevalence of noise phobias and the distress they can cause.

References and further reading:


Implementing a preventative behavioural medicine program within the shelter environment.

Dr Heather Chee

The role of a behavioural veterinarian within a shelter environment involves not only the assessment of behavioural welfare of shelter animals, but also preventing the development of behavioural issues. This is achieved through early intervention and by providing them with a foundation for appropriate behaviour in their new homes.

A study was undertaken to assess the primary reasons an animal is surrendered or returned to a shelter. These reasons included aggressiveness, fear of humans and/or other animals, house soiling, lack of training and destructiveness. This information was evaluated to form the basis of a preventative program for dogs.

Aims:
The aims of the preventative program were fourfold:
1. Improve the welfare of animals within the shelter
2. Increase the adoptability of animals, thus shortening their time within the shelter.
3. Educate adopters to improve the animal/human bond post-adoption
4. Provide animals with coping strategies to secure long-term success within their new homes

1. Improve the welfare of animals within the shelter

Maintaining standards of animal welfare within the constraints of the shelter environment, specifically with regards to space, time and resources, is difficult. The limitations of the shelter environment can prevent an animal from exhibiting natural behaviours. Over time, this may lead to the development of compulsive behaviours such as circling, pacing, wall bouncing, rhythmic barking and hypersalivation, similar to other captive animals secondary to frustration or conflict. Dogs identified as displaying these behaviours are checked medically, and started on medication where appropriate. In our experience, many compulsive disorders in shelter dogs occur secondary to barrier frustration so these dogs are moved to quieter kennels, with limited visual access to other dogs.

All dogs are assigned to a behavioural modification and environmental program. This is designed to identify and provide environmental stimuli to optimise psychological and physiological wellbeing.

a) Ingestive enrichment
   Dogs are fed in a Kong toy or Kong Wobbler, ice blocks, treats in a cardboard box, or scatter fed for environmental enrichment.

b) Social enrichment
   This involves working with a behavioural trainer for 20-30 minutes sessions daily, in addition to exposure to a shelter staff member or volunteer. The behavioural modification program focuses on calming behaviours such as teaching the dog to settle on cue and to ‘sit, look, stay’ on cue, in addition to reinforcing basic manners training. Positive interactions with humans have been demonstrated to be effective in decreasing stress, thus improving the welfare of animals within the shelter. Staff members and volunteers provide an adjunct through calm positive human interactions, such as grooming, massage or sitting quietly with the dog in order to
reinforce non-aroused behaviour. A single session of human contact has been found to decrease cortisol levels in shelter dogs for the following seven days.  

Ensuring freedom from fear and distress is a welfare concern with animals that come to the shelter from hoarder, puppy mill or other problematic environments. The rapid transition between environments and the procedures involved in seizure often elicit a marked fear and stress response by the animal.

The benzodiazepine alprazolam was trialled in a dog hoarder case in order to minimise the anxiety associated with this. Benzodiazepines potentiate the effects of GABA and are often used in the treatment of anxiety disorders and may induce retrograde amnesia. The outcome of using benzodiazepines preventatively was positive, with fear responses of two thirds of the dogs markedly decreased by day three of the trial. Dogs adapted more rapidly to the shelter environment, were more likely to seek human interaction and showed an increased tolerance for stressful procedures such as veterinary examinations and grooming. Dogs that showed improvement and responded to therapy were weaned off the anxiolytic over a ten day period. These findings have now been extrapolated for use in the veterinary hospital post stressful procedures.

All puppies requiring hospitalization in the veterinary hospital have an Adaptil™ collar placed for the duration of their stay to aid in their transition to the new environment. Adaptil™ is believed to be a synthetic analogue of Dog Appeasing Pheromone which calms and reassures offspring and is used for the prevention, control and management of fear and/or stress related behaviours.

2. Increase the adoptability of animals, thus shortening their time within the shelter.

Adoptability has been positively associated with training. Level One of the Open Paw shelter program has been implemented in order to facilitate this. This program utilises classical and operant conditioning to teach the dog to approach and sit at the front of kennel. The training is reinforced through the dog’s daily activities such as when exiting the kennel, prior to lead placement, and prior to being fed. In our experience, this not only increases adoptability, but reduces the development and incidence of barrier aggression in the shelter. After a 3 month period of the program, the majority of dogs that previously actively avoided humans passing the kennel approached immediately and sat on cue. The few who did not respond had generalised fear or anxiety and did not respond with manners training alone and were provided a more intensive management program. Future goals involve staff and volunteers within the shelter participating in daily training sessions with all animals to teach the basic manners of sit, stay, four paws on the floor (ie. no jumping) and walking on a harness or flat collar and lead.

3. Educate adopters to improve the animal/human bond post-adoption

We have placed a greater emphasis on recording a dog’s strengths and weaknesses as observed during their stay in the shelter, in order to create an open dialogue with potential owners with regard to behavioural issues that the dog may be predisposed. Post adoption, owners are supported with regular follow up calls and behavioural consultations if required.

Manners training will be conferred to potential adopters during an exit interview so that a basic consensual language already exists between the owner and new pet. This eases the transition for the pet into the new home and creates a foundation upon which further training may be built.

4. Provide animals with coping strategies to secure long-term success within their new homes.
The existing foster carer and volunteer program will be extended to actively seek members of the “Canine Community” including veterinary students and Delta Australia® trainers/trainees. The induction of these carers will include participation in an in-house Puppy Pre-School® program for all puppies within the shelter. The socialisation program will not only educate volunteers and carers in learning theory and canine communication, but will provide positive exposure of shelter puppies that are otherwise reared in a relatively barren environment. Additional benefits include increased community awareness of positive reinforcement as opposed to punishment as a training technique and establishment of a minimum standard in behavioural knowledge for all volunteers and carers. Volunteers and foster carers who have undertaken further behavioural training will also be utilised in behavioural rehabilitation of animals in order to maximise the potential for adoptability of animals previously considered unsuitable. Future goals include the use of an audiovisual room in order to simulate a home environment eg. radio, lounge, television to habituate puppies raised in the shelter to everyday sights and sounds.

Implementing a preventative behavioural medicine program within the shelter environment has wide ranging and long term benefits. It not only improves animal welfare, but has the potential to increase adoptability, decrease the length of stay, prevent deterioration within the shelter and prevent re-surrender due to behavioural issues. It also fosters education within the community so that owners are more likely to identify and seek help with behavioural problems early rather than resorting to surrender once the issue is long-standing.

References

What do we know, and what should we know, about the emotional variation of dogs confined to backyards?

Dr Robert Holmes

Abstract
On the basis of their behaviour, it is assumed that the confinement of dogs to backyards has emotional consequences for them. Their behaviour is considered within the context of Panksepp's 7 emotional systems. Interpretations are made as a result of dealing with behaviour problems. The valency (positive or negative) of these emotional states on the well-being of the animals is considered. Ways of reducing the negative and enhancing the positive are suggested. It is concluded that an understanding of the relevance of these emotional experiences will improve the well-being of dogs in these environments, as well as other parties affected by their behaviour.

Introduction
For the purposes of this paper I will assume, as did Charles Darwin 141 years ago, that dogs experience the same basic emotions as people. The scientific basis for this assumption has been evaluated and found to be compelling by Panksepp. In recent years, brain imaging has allowed activity in specific areas of the brain to be associated with emotional states, as recently described by Denton et al.

For humans, 3 levels of consciousness (experiential states) are recognised, namely:

1. Primary process (or prototype) consciousness that is composed of raw sensory/perceptual feelings as well as internal emotional/motivational experiences;
2. Secondary forms of consciousness that are called awareness (thoughts about experiences);
3. Tertiary consciousness that is considered to be awareness of awareness.

It would appear therefore to be quite reasonable and defensible to assume that, as dogs have the same basic brain structure as people and other mammals, they share the same basic emotional states (or affects) that arise from activity in those common brain circuits.

Meanings
For the purposes of this paper I will use:
- emotions to be synonymous with feelings;
- emotionally driven responses to mean physiological and behavioural changes resulting from activity in emotional circuits in the brain;
- a backyard to be a barricaded area of a residential property that is outside the dwelling and opposite the street entrance.

Panksepp’s 7 emotional systems
In his book Affective Neuroscience: the foundations of human and animal emotions, Panksepp proposed that at least 7 primary process (or prototype) emotional systems (circuits) exist. He named the circuits, purposefully in capitals to avoid attributing excessive meaning to them, as: SEEKING; RAGE; FEAR; LUST; CARE; PANIC; and PLAY. These produce emotionally driven responses that will be considered in the context of the species and environments under discussion.

SEEKING
Its function is to search, investigate and make sense of the environment in order to obtain food, water, appropriate temperature, sex or social contact. There is a feeling of anticipation or expectation. Examples are roaming and predatory attack.

Clearly these activities, and hence the associated feelings, are thwarted by effective confinement to the small area of a typical backyard, dwelling or other enclosure. However
there may be opportunities for some predation on prey species such as birds, rats and skinks.

Whilst many people intuitively feel that dogs get bored in small backyards, there does not appear to have been a systematic study of the existence or consequences of the frustration of SEEKING. The possibility exists that dogs experience a state of boredom when confined for long periods in barren backyards with little novelty, variation in stimulation, or opportunity for interactions that provide reasonably achievable challenges. Such circumstances could hypothetically lead to frustration of a genetically inherited requirement for unpredictable and challenging environments. But how common is frustration in the backyard dog, and is boredom a major contributing factor? We just don't know.

Anecdotally, some clients report their dogs as showing agitation and increased reactivity that is consistent with frustration, when they don’t take their dogs out for their daily walks and free-running (off-leash) exercise. Common observation of dogs pulling their owners along on a leashed walk, and dogs “shooting the breeze” with their noses outside a moving vehicle, strongly support the emotional satisfaction in activation of SEEKING. This argument can be logically extended to the use of a slow-release food device (e.g. the hollow rubber cone device called the “Kong”) as an enrichment aid. Providing at least some dogs with a good, i.e. 180 degrees, view of a busy street scene has kept them calmly occupied for extended periods. This phenomenon has apparently been successfully utilised as environmental enrichment for dogs, but is most conveniently done from the front yard that has a street boundary (Holmes5). Dogs will even climb on high vantage points (think surf lifesavers chairs and then an equivalent) to see activity on the other side of barriers. This monitoring of their external environment may well be another expression of SEEKING.

In summary, activation of SEEKING is a positive emotion, but is limited during confinement. Leashed walking and, in particular, free-running exercise provides acceptable expression for dogs. Allowing readily accessible and comfortable positions in which to view changes outside the property would appear to emotionally positive.

RAGE
The purpose of this system is to vigorously deal with compromise (irritation, restraint or frustration). The associated feelings are of anger, aggression and frustration, which may be considered mild rage.

A common example is the barrier destruction shown by dogs during thunderstorms in their attempts to gain access to the house interior. That is not to say that they are necessarily calm once they have gained access to the house. Sometimes dogs confined to the house will cause damage in their attempt to get out. I know of one dog that broke a window to get into the house, and another to jump out of the second storey down into the backyard. It survived. The desire to get into the house or to escape from it would appear to be activated by the FEAR system that will be described later.

Dogs in back and front yards commonly bark with or without rushing at or lunging at dogs, people or other animals seen or heard in the vicinity of, approaching or entering the area. This can be considered as defence of area, and hence categorised according to physical circumstances as territorial aggression. The present model used by many of us to explain this aggression is that it is a result of anxiety. The aggression is an attempt to control the perceived possibility of a threat to the highly valued resources contained within the area. As will be mentioned under FEAR, anxiety may be considered a mild form of fear. This anxiety-associated barking in backyards could therefore be an example of simultaneous or sequential activation of circuits of the 2 systems, RAGE and FEAR.

In summary, the RAGE circuit appears to be commonly activated in many backyard dogs. I suggest that by itself it should be regarded as reducing the well-being of dogs and hence be emotionally negative. However, the possibility exists that it has environmentally enriching value through activation of SEEKING.
FEAR
The function of the FEAR system is to perceive and anticipate pain or danger. Alarm, insecurity or anxiety are the associated feelings. Anxiety may be just mild fear. Examples are fight, flight or freezing.

As mentioned under RAGE, some thunder phobic dogs attempt to get into the house. Other responses include:
- escaping from the property and taking flight up to several kilometres;
- getting under the house and seeking a den;
- lying immobile and shivering in the backyard.
All these responses can be considered to be a consequence of activation of the FEAR system.

There is an interesting relationship between thunder and separation-associated behaviour problems (SABPs), namely that 40% of thunder phobic dogs also showed SABPs but only 8% of dogs with a SABP were also thunder phobic (Overall et al.⁶). One suggestion is that if a dog is thunder phobic then it has a reasonable (40%) chance of developing an SABP. Consideration of SABPs appears later under PANIC.

The occurrence of what is currently considered to be anxiety was also previously mentioned in the context of RAGE. Both species are considered to be territorial. Territory can simply be defined as “any defended area”.
Any activation of this system, certainly in a chronic manner, would be expected to have a negative impact on the welfare of both species.

LUST
Reproduction is the function of this system that is associated with feelings of sexual arousal and orgasm. It is the circuitry behind mating and associated behaviour. The seeking of a sexual partner, pre-copulatory behaviour and copulation are clear examples. The occurrence of intra-gender aggression (fights between sexually active female dogs, and fights between sexually active males of both species) appear to be likely candidates for conjoint activation of RAGE and LUST systems. The motivation to roam in order to possibly find a sexual partner would appear to be the result of simultaneous activation of both SEEKING and LUST.

In the context of Australian backyards, LUST would be a consideration with entire (non-desexed) males, and with females about the time of oestrus (“heat”). The possible undesirable consequences for the animal’s state of well-being are frustration of the expression of LUST and SEEKING by confinement resulting in RAGE, and the activation of RAGE and LUST when there is conflict between animals over access to a sexual partner.

If we accept (purely for the purposes of this paper you understand) that sexual arousal and orgasm are pleasurable states, and moreover improve an animal’s well-being, then activation of LUST alone would be beneficial. At the risk of stating the obvious, sexual activity however has consequences.

In summary therefore, LUST is irrelevant to the desexed, and the sum of its consequences to the sexually active in this context is unknown.

CARE
Its purpose is nurturance (usually maternal) and protection of others (usually of same group and hence genetically related). The feelings are those of caring. Maternal behaviour is an obvious example, but altruism may also be an emotionally driven response of this system.

The giving of maternal care is clearly limited and not an issue specifically relevant to this context. However, grooming between cohabitants would appear to be pleasurable for at least the groomer, and neutral at worst for the groomed. It would appear to be an expression of amicability between cohabitants, and as such a sign of at least temporary positive well-being.
The same can reasonably be interpreted for the grooming by the human carer of a confined dog or cat that freely cooperates with and facilitates grooming.

Regular cooperative and recipient-facilitated grooming may well be pleasurable to the recipient. As such it can be an element of a daily program of environmental enrichment. I am unsure which, if any, of Panksepp's 7 emotional systems are activated in a groomed animal. The provision of an amicable cohabitant for a confined dog is likely to activate the CARE system in the groomer, and enhance the well-being of the groomed.

Activation of the CARE system should therefore be encouraged in the contexts under discussion to produce at least temporary states of increased well-being.

PANIC

The use of this single word as the identifier of this system has caused difficulty for some. Mellor, for instance, preferred the word BONDING instead of PANIC.

The function of this system is the maintenance of the social support system. The feelings are of loneliness, separation distress and grief. Examples of associated behaviours are vocalisation, attempts to rejoin, and anorexia.

Subjectively, this appears to me the most significant welfare issue for dogs confined to backyards. Such confinement may well be the greatest cause of suffering as measured by severity and frequency of occurrence. It is largely unrecognised by the public. Surveys have indicated that 50% of dogs will experience it in their lifetime (Bradshaw et al.), and that 14% of dogs going into veterinary practices at any one time show at least one sign (Landsberg et al.).

Separation-associated behaviour problems (SABPs) of dogs, such as vocalisation, destructiveness, escaping, pacing, and unusual elimination, have typically been attributed to and often described as “separation anxiety” or “separation distress”. Implicit in that usage is an assumption that such behaviour is driven by the emotional state of anxiety as a result of lack of access to at least one person or other animal. It can be argued that the lack of success of vocalisation, attempts to follow an absent carer, or otherwise gain access to a carer or interior of the house, may lead to frustration that intensifies the emotional arousal. This could be contributing to states variously described as distress, panic or hysteria shown by some dogs in their frenzied vocalisation or attempts to breach barriers. SABPs are consistent with activation of FEAR and PANIC circuits.

But why, as a member of a very highly social species, does not every dog show a SABP when left alone? The reasons, I suspect, include the variable of temperament. A simple categorisation can be made using the dimensions of extraversion/introversion, and stable/unstable first used by Pavlov (Lindsay). Are the reported cases of SABPs just those of dogs that protest when they do not have perceived access to a particular animal, member of a particular species, or a specific environment? What of the others? Are some of them introverts, who are just not expressive, and have others developed learned helplessness or depression? In other words, are there dogs that are suffering in silence? We just don’t know.

There are a number of interventions available for attempted treatment of SABPs. As a single intervention for SABPs, allowing an outside dog access to some, or all, of the house interior during the absence of people, has been notably successful in some but not all cases. It would appear that access to the house interior, and in particular to the carer's bed, reduces arousal of at least some dogs in the absence of the carer. Given the freedom to move at will between the interior of the house and the backyard, common observation is that almost all dogs “vote with their feet”. Whilst their carers are at work during the day, the dogs spend the greater part, if not all the time, of the day inside the house. Given the opportunity, that time will usually be spent on the carer's bed.

Contrary to popular and intuitive belief, providing an unfamiliar canine companion rarely solves the problem. Even the presence of a familiar dog can fail to prevent an SABP. There
are instances of one of a pair of littermates that have never been apart showing separation distress whilst the other is not apparently doing so. The affected dog is an example of the many dogs that develop stronger attachments to humans than to members of their species. Quite simply, they just want to be with us. Another anomaly about their behaviour is that such dogs have a tendency to be promiscuous, in that they are calmer in the presence of any human, not necessarily their carer. They are, to put it bluntly in the vernacular, “tarts”. For some affected dogs, the view of the street provides sufficient interaction with people to prevent them dogs becoming distressed. Bringing them from the backyard and allowing them a view of human activity from the frontyard has been a successful intervention in a few cases. This is consistent with the occurrence of some dogs escaping from backyards whilst left without human company, only to go around and sit at the front of the house.

All this has lead me to strongly support the generalisation that the backyard is no place to keep a dog.

Observations of numerous dogs kept in backyards can be summarised as such confinement resulting in a significant risk of activation of the PANIC system, and hence risk of serious welfare impairment.

PLAY
Although the definition and function of play behaviour have been the cause of considerable debate, according to Panksepp the purpose of the PLAY system is to learn life skills by exploration, discovery and experience. It is associated with feelings of happiness and joy. Rough-and-tumble, as well as chasing, are considered play behaviour in the appropriate context of an absence of serious intention.

Given the reinforcing nature of an opportunity to play, and our intuitive or anthropomorphic interpretation of its enjoyment by dogs, there is considerable scope to increase their well-being whilst confined.

The assumption that the presence of another dog will increase play was questioned by studies of pairs of juvenile Labradors kept in backyards. Rather than play, these pairs as well as the single dogs studied, spent almost all their time monitoring the human activity inside the house (Kobelt et al.11). Activation occurred when people went out into the backyard, suggesting the dogs were dependent on human presence in order to play in the backyard. Activation of play is also commonly seen when dogs are released into free-running exercise areas associated with the presence of other dogs with which to play.

In summary it appears that considerable potential exists for activation of the PLAY system to improve the welfare of confined dogs. However, the duration and quality of play would appear to require human involvement, either in the play or a change in environment that stimulates play activity.

Conclusion
It is reasonable to accept that dogs have the same basic emotions as people. Observations of their emotionally driven responses give us reasonable cause to suspect that many dogs are experiencing negative emotional states when confined to backyards for prolonged periods. These consequences can be detrimental to their welfare. However, human management and activities can have beneficial emotional effects.

For dogs, consideration of Panksepp’s 7 systems suggests that SEEKING, CARE and PLAY can readily be utilised by carers to increase the welfare of dogs confined to backyards. RAGE, FEAR and PANIC require carer awareness and action in order to reduce the chances of activation.

It would be valuable to know whether the positive emotional states can compensate for the negative in order to produce “a life worth living” as proposed by Yeats,12 and in order extend animal welfare assessment as suggested by Green & Mellor.13
If we wish dogs of differing temperaments to have, on balance, positive welfare states in confinement we need to:
- identify the expressions of the primary emotional states;
- work out the variables affecting the expressions of those states;
- identify the frequency of occurrence of those states;
- investigate the interactions of the emotional states;
- attempt to create an index of the sum of the emotional states relevant to the daily well-being.

Meanwhile, it can be argued that the backyard is no place to keep a dog, but it appears to be a good idea to allow them to have voluntary access to a secure outside enclosure from within the house.

References
Training and enrichment of carnivores

Louise Ginman

Handling or treating a difficult dog or cat during a veterinary examination can be a challenge for veterinarians and nurses alike. Imagine then vaccinating a lion or applying a topical treatment to a Wild Dog. The care of exotic carnivore species presents many challenges for zoo keeping staff when implementing animal husbandry and management since many of the carnivore species can only be handled via protected contact. The primary focus of carnivore staff is to provide high levels of animal husbandry and management in terms of behavioural, health and reproductive requirements.¹ In order to achieve this high level care, the carnivore team has developed a comprehensive training and enrichment program. For animals living a life in captivity, enrichment plays an important role in maintaining wellbeing, providing variety, physical and mental stimulation. The carnivore unit developed a monthly enrichment schedule that is regularly assessed and updated and forms the minimum daily enrichment that each species receives.

Since the carnivore unit is husbandry and animal management focussed, there is often little time in the average working day to undertake formal or planned training. This has led to the carnivore team needing to incorporate training and conditioning into the normal daily routines of animals or where a more formal program is required, one or two keepers set aside as little as 10 minutes per day to train a particular behaviour.¹

Why train captive carnivores?

The primary reasons for initiating training programs to manage carnivores are:

- For ease of animal husbandry – e.g. large and small carnivores can be trained to walk into transport crates for ease of moving animals to different locations both within the Zoo and externally. Training is also used to facilitate moving an individual within an exhibit or holding area, for regular weighing and to visually check individuals at close range etc.

- For routine preventative health – topical flea and tick treatments can be applied to the skin, oral treatments easily administered and a range of other treatments that would normally require some form of physical restraint can be administered in a protected contact environment.

- To eliminate the need to use a dart gun. Aversive administration or treatment methods increase stress levels of the animals, damages the veterinarian’s relationship and makes repeat administration difficult. Training to accept hand or pole injections removes the negative associations with veterinary staff.

- To reduce the number of anaesthetics. Training allows a whole range of treatment options to be given without the need for the animal to be immobilized.

- To build better relationships. Allowing animals to co operate in their care builds rapport and trust relationships and makes future treatment easier.

- To provide mental and physical stimulation. Training is a potential source of enrichment for captive carnivores.

How training is accomplished

When a new carnivore is born or is relocated from another Zoo, carnivore staff begin building a rapport spending time with the animal, while allowing it to become familiar with its environment and routine. During this process, hand feeding begins and is a vital part of any training program as it allows rewards to be given to an individual, desensitizes the animal to close proximity of people and continues to build a trust relationship with staff. Where an animal is born in the carnivore unit, the process begins with socialisation of the animal to people from as young as 10 – 12 days of age.
The primary training methods used for training carnivores at Taronga Zoo involves a combination of classical conditioning, desensitization, operant conditioning - positive reinforcement, negative punishment (time outs) - successive approximations and also capturing behavior eg rewarding yawning to train a mouth open open behavior. All food rewards are delivered straight from the species' usual feed buckets. For bridging or marking behaviours, clickers are often used and are positioned around work areas of the species that are being trained so they are on hand. A verbal bridge is also used frequently for training essential behaviours. Having a verbal bridge ensures that training takes places even if the keeper has forgotten to take a clicker with them to the exhibit.

Some training achievements

**Weighing** - is trained by asking the animal to step on and hold position on a weigh board which may be as simple as a piece of plyboard or a specially designed ‘bedboard’.

**Topical treatments** – In Sydney, Australia, paralysis ticks are of major concern. Frontline® must be administered fortnightly via three methods - applying directly from the vial, application from a syringe or from a dog urinary catheter.

**Pole or Hand Injections** - To limit the stress on dangerous animals during vaccinations or anaesthetics, pole or hand injections have been trained to replace the need to use a dart gun. Pole injections are the intermediate step when training for hand injections. Sumatran Tigers, Snow Leopards, Lions, Sun Bears and Kodiak Bears were all trained to accept pole or hand injections.

**Teeth Cleaning** – The Sun Bears suffer from dental calculi and previously required regular anaesthetics for dental scaling/ polishing. A teeth brushing program was initiated to eliminate the need to clean teeth under anaesthetic. Open mouth behaviours require a good trust relationship between animal and keeper as it places the animal in a vulnerable position.

**Nail Clipping Behaviour** – aging animals tends to be less inclined to dig which led a Kodiak Bears front claws overgrowing. Initially when the bear required an anaesthetic for an unrelated reason – the claws were opportunistically trimmed. Since this was an ongoing problem a training program was put in place so that keepers could trim her claws when needed.

**Ultrasound presentation** – A Sun Bear has been trained to present her abdomen for ultrasound. This behaviour is a less invasive method of determining pregnancy and has alleviated the need for a general anaesthetic.

**Enrichment**

Zoos define it as:

The process of providing stimulating environments in order for animals to demonstrate their species-typical behaviour, allowing them to exercise control or choice over their environment, and to enhance their well-being.¹

**Types of enrichment**

There are many ways to enrich an animal’s environment. Sources of enrichment include:

- Exhibit design /furniture – creating complex exhibits and routinely changing the environment
- Training – mental and physical stimulation
- Olfactory or scent based - herbs, spices, essential oils, other species scent or faeces
- Auditory – prey sounds or music/voices
- Food based – scatters, smears, hidden items, varied presentation, multiple, random feeds

⁠
Manipulation objects – treat balls, plastic tubs, PVC pipes,
Novel objects – toys, bedding

Developing a program

The goal of an enrichment program is to increase behavioural diversity, increase the range or frequency of wild behaviour patterns and use of the environment². In order to develop a program that will meet these goals it is important that staff have a high level of knowledge of the species’ natural behaviour but also of the ability of the animals – problem solving, sensory, strength etc. A good program will use a combination of enrichment types and provide variety.²

Before including any item into a program it is important to evaluate the risks or safety aspects of the item for example does the item have the ability to cause injury through ingestion, entanglement, could it fall on an animal? Is it toxic or safe to be chewed and ingested? Could it damage an exhibit eg scratch glass? Does it present an escape risk? Will it promote aggression - guarded resource, anxiety or frustration?

Originally a weekly schedule was formulated and used but it quickly became apparent that the weekly schedule was unable to provide the variety and stimulation hoped. The animals had habituated to the novel items when presented weekly and over time failed to interact with items given. The carnivore unit then developed a monthly enrichment program for each species of carnivore currently cared for. The program is regularly monitored, reviewed and updated and is incorporated into daily animal husbandry routines so that keepers can deliver the program without adding unmanageable increases to work routines.

Conclusion

Incorporating the training and enrichment of carnivores at Taronga Zoo into daily husbandry routines has these programs to be achieved when time, staff and resources are limited. As a ‘non-training,’ husbandry based unit no specialised training equipment is used, with the exception of a clicker for a few select species.¹ The essential training behaviours are undertaken as part of the species daily husbandry routine and in many cases involves desensitisation and classical conditioning techniques.¹ The monthly enrichment program has enhanced the lives of the carnivores further by providing species appropriate challenges, foraging methods and food presentation, activities and exhibit furniture (logs, ponds, vegetation, climbing structures and substrates etc) that all assist to increase an individual’s behavioural welfare while confined in captivity.

References

Management of Repetitive Behaviours in a Mandrill (*Mandrillus sphinx*)

Dr Jacqui Ley

Introduction

“L” was 5 year old male, adolescent 25kg Mandrill (*Mandrillus sphinx*) who was displaying self-injurious repetitive behaviours. These included biting at his right hind leg, dragging his right hind foot, hair pulling, penis manipulation, kicking and spinning. He also followed his sire in the exhibit in a stereotypic manner. His problem behaviours were first noticed in 2009. In 2011 he also began to show biting at the mesh and rubbing his chest along the mesh of the off exhibit enclosure. Examination by the facility vets revealed no illnesses or physical abnormalities that could explain the behaviour. A training program was implemented with his keepers and “L” was started on 20mg fluoxetine once a day.

Diagnosis

“L” was diagnosed with an anxiety disorder that manifested as Compulsive Disorder. Referred or neuropathic pain could not be ruled out given that many of the behaviours were directed towards one leg.

Treatment

Environmental management specifically targeted to “L” was started. It was not possible to make too many changes to the enclosure and feeding regimes because of the need to manage other mandrills in the group. Behaviour modification was also initiated with keepers rewarding “L” for calm and quiet behaviours. The dose of fluoxetine was increased to 30mg SID and Gabapentin started at 250mg BID.

The keepers were asked to keep a mood diary for “L” to help track his anxiety levels. This involved the feeding keeper assessing “L’s” levels of agitation and designating him as having a green, orange or red day. A green day means that “L” was showing low levels of arousal and his behaviour was age appropriate and predictable he was not showing undesirable behaviour. On an orange day he was more reactive and his behaviour was more variable and predictable - he showed precursors to and low levels of his undesirable behaviour. Red days occurred when “L” was highly aroused, reactive, self-protective and unpredictable - he showed high levels of his undesirable behaviour.

At Follow up: “L” initially showed good responses to the new medication program, behaviour modification and environmental enrichment regimes. His mood diary showed a decrease in red days and an increase in orange and green days. Red days were also able to be linked to events in the Mandrill group such as the dominant male being removed for an anaesthetic.

At the second follow up, “L’s” behaviour had begun to deteriorate. His medication was changed from Fluoxetine to Mirtazapine 15mg each evening. At follow up 3 months later his behaviour had improved as shown by his mood diary. Permission for surgical castration was given and after the operation “L” maintained his behavioural improvement for some time. However the keepers were unable to continue the training regime and were unable to maintain previous stabilisation of “L’s” behaviour. Due to this and the resources required, the decision was made to euthanize “L” as his welfare could not be maintained. It was also considered that the zoo had a responsibility to maintain the welfare of all the animals in the Mandrill group and managing “L” was disrupting the other animals.
Discussion

Abnormal Repetitive Behaviours (ARB) can be difficult to treat. The neuropathology is thought to involve the frontal cortex and/or the basal ganglia as part of the cortico-striatal-thalamic-cortical loop (Stahl 2008). The Supervisory Attentional System (SAS) in the frontal cortex selects the goal of the animal and inhibits other goal directed behaviour. It also halts the selected behaviour once the goal is achieved (Mason and Rushen 2006). The Contention Selecting System (CSS) located in the basal ganglia selects the discrete behaviours needed and inhibits behaviours that are not needed. Problems with the SAS lead to repetition of goal directed behaviours; this is Obsessive Compulsive Disorder (OCD). Inappropriate activity of the CSS leads to stereotypies - the repetition of discrete behaviour (Mason and Rushen 2006). Dopamine is involved in the development and maintenance of abnormal repetitive behaviours. It is part of the reward system of the brain and is released when the behaviour is performed and when precursor behaviours are performed. Dopamine is released by many chemicals - these may be naturally occurring endorphins or one of the many drugs of addiction (Stahl 2008).

While fluoxetine can be helpful, human psychiatric literature suggests that paroxetine and escitalopram may be more effective for managing ARB (Stahl 2008). Mirtazapine can also be effective on its own. It was chosen here as it is also useful for helping to control signs and reduce negative effects from drug withdrawal when changing from medications with long washouts such as Fluoxetine.

This case also demonstrates the usefulness of a mood diary for monitoring the effectiveness of treatment. It allowed a large group of people with different views to agree on the behaviour of the animal. It also provided concrete data that could be used to assess treatment and management programs and helped the keeper team to accept management’s decision to euthanize.

References

Oral stereotypic behaviour in an adult horse

Dr Sally Nixon

Description of cribbing behaviour

Cribbing (or crib-biting) occurs when a horse seizes a fixed object with its incisor teeth, pulls back, flexes its ventral neck muscles and grunts with the passage of air into the oesophagus. The air is not swallowed. The air simply causes a transient dilation of the oesophagus when it moves in due to negative pressure produced with the contraction of the ventral neck muscles. The noise that is produced is caused by the rush of air through the cricopharynx. The air is then expelled through the pharynx rostrally.

Oral stereotypies of horses

Crib-biting is an oral stereotypy in horses. A stereotypy is defined as *stylised, repetitive, apparently functionless motor responses or sequences*. This means that the behaviour is not associated with specific routines, such as feeding, whereby it may be considered to be a learned anticipatory behaviour.

Windsucking and woodchewing are other repetitive behaviours in horses. Windsucking is the same action as crib-biting, with the same characteristic neck posture and grunt, but without the need to hold onto an object. Woodchewing is not invariant enough to be considered a stereotypy and it is possible that woodchewing serves a purpose to increase the fibre content of the diet or for the acquisition of micronutrients and/or trace elements if fibre is available. It may be a precursor to crib-biting in some animals.

Predisposing factors

1. Crib-biting is more common in thoroughbreds, affecting 2.5-5% of this breed.
2. Horses that crib-bite are genetically predisposed.
3. Stall confined horses on limited forage (<6.8kg), offered <10 gallons of water per day and who are on bedding other than straw are at risk of becoming crib-biters.
4. Having minimal visual or tactile contact with other horses can increase the probability that a horse will become a crib-biter.
5. Cribbing is not a learned behaviour.
6. If the environment and genetics predispose to crib-biting, a horse will be a crib-biter.
7. The temperament of horses who crib-bite tend to be less reactive with a virtual calmness and lower nervousness; however, crib-biters commonly have higher cortisol levels than normal horses and are particularly susceptible to stress.

Physiologic risk factors

Stress has been shown to trigger oral activity and crib-biting may alleviate stress to some degree. Horses on high concentrate diets are more likely to crib-bite. The behaviour is considered to originate from specific dietary problems in young horses with one study showing the median age of crib-biting to develop at 20 weeks. Cribbing may be associated with emotional anxiety with abrupt weaning or creep feeding that does not meet behavioural needs of non-nutritive suckling. Cribbing may begin with a thwarted motivation to suckle.

Gastric ulceration is a risk factor for horses to become crib-biters. Links between emotional distress and gastric ulceration have been proposed in foals and gastric ulceration in food restricted horses is also known to be common. Crib-biting increases saliva production so gastrointestinal irritation could be a motivational cause for the development of cribbing. The increased flow of alkaline saliva may sufficiently soothe the irritated stomach lining of young horses.
horses prone to ulceration by providing some degree of buffering effect on gastric acidity. This is supported by the evidence that crib-biting declined in foals fed antacids to improve the health of their inflamed stomach lining, as evaluated endoscopically.

The dietary risk factors for crib-biting such as high concentrate diets, decreased time chewing and increased time between feeding, could increase gastric acidity. This can lead to the need to produce the increase in saliva that occurs with cribbing because the insufficient grazing will lead to an insufficient volume and quality of saliva produced to buffer the stomach contents. Crib-biters also improve their oro-caecal transit time through crib-biting if they are otherwise prevented from eating so cribbing is considered important for normal gut function.

Cribbing in food restricted horses tends to peak at the times of day when food intake would peak, suggesting that crib-biting replaces a behavioural need to graze. If a crib-biting horse is restricted from cribbing at the same time that it has restricted access to feed, there will be an increase in plasma cortisol and a decrease in oro-caecal motility. Such observations indicate that normal gut function and stress reduction are reliant on either ad libitum feeding or the opportunity to crib-bite. If given access to one or the other, there is no increase in plasma cortisol nor is there a reduction in oro-caecal motility.

Continuation following establishment

Crib-biting horses who are then put out to pasture and given the opportunity to forage and graze continuously will still crib-bite if the possibility arises. It is believed that cribbing may be a self-rewarding behaviour with dopamine activating the basal ganglia motor systems to reinforce crib-biting. The release of dopamine may be dependent on NMDA receptors since antagonism at this level reduces cribbing rate. There may be an increase of dopamine in the mesoaccumbens pathway and this may cause a change in motivation from its soothing effect on the gastrointestinal tract to a self-rewarding effect. Endogenous opiates are involved but crib-biting does not cause their release, in fact, endorphin levels are higher in crib-biting horses when cribbing is prevented. Stress causes a release of endorphins which then leads to excessive dopaminergic activity in the striatum.

Crib-biting horses had significantly higher mean ghrelin concentrations than normal horses. Ghrelin is a growth-hormone releasing peptide released from the gastric mucosa and targets the brain to promote food intake and adiposity. It is suggested that the mesolimbic reward circuitry is targeted by peripheral ghrelin to influence physiological mechanisms related to feeding. More studies are required to learn the significance of ghrelin in crib-biting horses and the effect of cribbing on self-reinforcing pathways.

Long-term risks with cribbing

Horses that crib-bite tend to have very well developed neck muscles secondary to the behaviour. Other sequelae to crib-biting are: abnormal wear of the upper incisors, weight loss and various types of colic. Crib-biting horses may be at risk of epiploic foramen entrapment. Weight loss tends to occur because they rest less and there is a catabolic effect of the increased plasma cortisol. They also spend time crib-biting instead of eating. In rare cases, emaciation can occur due to the motivation to crib-bite overriding the motivation to eat.

Treatments for cribbing

Tight collars which act to inhibit cribbing are a common treatment for crib-biting and windsucking. They act by causing discomfort with the flexion of the neck muscles. Even if a horse manages to perform a form of cribbing, the collar prevents the intake of air, an effect many owners are most keen to restrict due to fear of secondary colic. Using a “cribbing collar” as well as other such devices, including electric shock collars or pronged collars inhibit a highly motivated behaviour. It has been shown that there is a rebound increase in the crib-biting or windsucking for a short time after removal of the collar, suggesting that such devices
increase the motivation for the behaviour while causing inhibition\(^1\) and this may be causing frustration and stress to the horse.

Surgical options to make the distension of the proximal oesophagus difficult and therefore the behaviour less gratifying have been used despite welfare concerns\(^1\). Surgery has been used in rare cases where colic or emaciation are occurring\(^2\), however, underlying causes for the behaviour should also be addressed and the long-term welfare of an animal so seriously affected should be considered.

**Prevention is the best option**

Prevention is more likely to be successful than any treatment to correct the behaviour once it has developed, due to the tendency for crib-biting to become seemingly self-rewarding. Once fixed, it is very difficult to eliminate\(^6\). Identifying risk factors and providing an environment that aims to attend to normal equine behaviours and digestion is most important. Allowing continuous feeding of a high fibre, low carbohydrate diet\(^1\) with access to other horses for physical contact is most important. Grazing extensively with maximised time at pasture\(^1\) is the best option at allowing a horse to exhibit normal feeding behaviour as the horse will selectively graze different types of feed. Contact with other horses would preferably be as a social group\(^2\). Weaning should be gradual and least stressful, allowing for non-nutritive suckling to gradually decline.

It is important to try to prevent cribbing through recognition of risk factors and management of intensive systems in such a way as to enable the expression of normal equine behaviours.

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Fat cats
Emeritus Professor Katherine Albro Houpt

Obesity in cats has been defined as 25-30% over the cat's ideal body weight. A study of 2000 cats from 31 veterinary hospitals in eastern United States found that 20% of the cats were overweight and 5% were obese. A large and more recent study based on body conditions score indicated that more than half of the cats were above optimal body condition. Still more recent figures indicating that 35% of the feline population is obese have been noted. Overweight or obese cats are more likely to develop health problems. These health problems include lameness, diabetes mellitus, and non-allergic skin conditions. In addition the ability to perform a thorough and adequate physical examination on an obese cat can be hindered due to the cat's size. Overall welfare is decreased if the cat is obese. Factors that have been associated with feline obesity are living in an apartment, being a single cat, male, mixed breed neutered or inactive, and being fed specialty or prescription diet.

Assisting owners in reducing their cat's weight involves a multidimensional approach. This approach includes increasing exercise and social/psychological enrichment, feeding a smaller amount of food, and, in some cases, feeding a particular type of food.

Because cats are obligate carnivores and their natural diet consists of eating many rodents per day, one might hypothesize that a high-protein, low-carbohydrate diet would reduce food demanding behaviour more than a high fiber diet and would allow for a greater weight loss than a high-fiber diet. This hypothesis is supported by studies in humans and cats (indicating that weight loss is greater or sustained longer when a high protein diet is consumed, probably because protein is more satiating).

Our study had two primary and two secondary objectives. Our first primary objective was to determine if weight loss was greater with a high protein diets than with a high-fiber diet or a maintenance diet. Because owners have difficulty in reducing their cats' food intake, the second primary objective was to quantify how a cat's behaviour changes when its food intake is reduced. Secondary objectives were to determine which of these diets the owners believed made the cats feel more satiated and whether the composition of the diet modifies the cat's pre- and post feeding behaviour.

Fifty-four cats were enrolled in a double blind, placebo-controlled study. Each cat was assigned to one of three dietary treatment groups, Group LMN (high fiber), Group PQR (low carbohydrate) and Group STU (maintenance diet) respectively. The codes were not revealed to either the researchers or the owners until all the data were collected and entered into a statistical program.

Inclusion criteria: The cats had to be at least 25% over their ideal body weight.

The length of time each cat was required to be on the study was 10 weeks. The first two weeks of the study was simply the time allotted for the owners to switch their cats gradually from their regular diet to the test diet. The owners did not have to limit their cat's food intake during these two weeks; therefore, no weigh-in was required after these initial two weeks. For the remaining eight weeks, each owner was instructed to feed a specific amount of food to his or her cat over a 24-hour period. To encourage compliance and avoid any errors, each client was given a measuring cup with a line indicating the specified amount of food for their cat.

An estimation of the cat's ideal body weight was made. If the owners knew the weight of the cat at one year of age, that weight was used as the ideal target weight. If the weight at one year of age was not known, two measurements were made to estimate the ideal body weight. The measurement included the length from the cranial aspect of the scapula to the base of the tail and from the dorsal aspect of the scapula to the dorsal aspect of the paw. All
cats were weighed on the same scale throughout the study. Prior to starting the study, each client was required to complete a survey asking questions about various behaviours that their cat displayed when he or she was hungry and when he or she was satiated. They were then required to answer a similar survey four and eight weeks after the cat began eating the assigned diet.

**Behavioural outcomes**

At baseline - before experimental diets were fed - the cats showed the following pre-feeding behaviours: meowing, trying to engage the owner’s attention following the owner, staring at the owner, and pacing. Following a meal the cats groomed, rested, slept, licked their lips and used the litter box. There is no evidence that the time the cat started begging for dinner changed significantly across the three diets from baseline to either week 4 or week 8. They began to beg a median of 16 min before a meal at baseline (before caloric restriction), after 4 week of treatment and after 8 weeks of treatment.

After 4 weeks of treatment the owners noted that begging in general increased, particularly following, meowing, and pacing. The cats also were significantly more affectionate. After a meal the cats were significantly more likely to sit in the owner’s lap, purr, rest, sleep, and go to the litter box. Cats being fed LMN, the high fiber diet, used the litter box more often than those on the PQR, low carbohydrate diet. The cats on the STU (control) diet did not differ from either the LMN or the PQR.

**Weight loss:** All cats lost weight during the first 4 weeks of the study. There were significant weight losses for each diet between baseline and week 4. There was no significant difference among the different diets. After being on the study for 8 weeks, there was a difference in percent weight loss among the treatment groups. Cats being fed the high fiber diet (LMN) lost more weight than those being fed the low carbohydrate diet (PQR). Cats being fed the control diet (STU) were not significantly different from the cats being fed LMN or PQR. The cats on the low carbohydrate (PQR) diet tended to gain weight after the initial weight loss at week 4. This trend was not seen with the high fiber (LMN) or the control (STU).

The cats lost most weight on the high fiber diet. This finding was contrary to our hypothesis. In an earlier study, a high protein diet was not associated with greater weight loss, but caused greater loss of fat with consequent sparing of lean body mass. The present study did demonstrate that when owners comply with feeding instructions their cats lose weight.

The behavioural responses to food restrictions were similar across diets. Cats were most apt to increase vocalization before meals, follow their owners and attempt to engage the owner’s attention. There was no change in the types of behaviours exhibited by the cats-only a change in the frequency. It is surprising that the cats did not start to demand food earlier. The cats became more affectionate which owners should view as a positive side effect of restricting their cats’ food intake. Many owners are anthropomorphic and, therefore, are afraid to reduce the cat’s food intake because they think the animal will become vindictive. It should be easier to convince owners to put their cats on a reducing diet, if they know the cat will not “punish” them for it. There are differences between owners of overweight and owners of normal weight cats. A larger percentage of the former watch their cats eat and rate food rather than play or petting as the cat's favorite treat.

The cats fed the high fiber (14 % crude fiber) diet achieved the greatest weight loss. The cats were fed twice as much of the high fiber diet by volume, yet lost the most weight. The high fiber diet probably dilutes the nutrients and delays absorption and it may delay gastric emptying. The cellulose is indigestible, but the cats displayed no increase in hunger signs in comparison to the cats fed a lower volume, but isocaloric diet. The satiety may be a result of simple gastrointestinal fill. The only gastrointestinal appetite stimulant is the peptide ghrelin that is released when the stomach is empty. The high fiber diet would delay gastric emptying and, therefore, delay release of the peptide and, thus, delay hunger. Cellulose, the fiber component of the LMN diet, is not digested by cats. Cats do not compensate for dilution of their diet with cellulose or kaolin. They can compensate for caloric dilution with water by increasing their volume of intake. The cats in this study had no opportunity to compensate for dilution by eating a greater volume, but may not have done so even if food was available.
This is important because most owners of over-weight cats feed dry food ad libitum.  When weight loss occurs on a low calorie diet the cats lose weight and most of that weight is fat rather than lean tissue. A high-protein diet may promote an increased lean tissue mass in cats so that the lost weight is more likely to be fat rather than lean body mass. Cats fed a high protein diet ad libitum expended more energy, but also ate more than cats on a moderate protein diet.

References


Serotonin re-uptake inhibitors for behaviour management

Dr Sally Gardiner

Many behavioural disorders in animals (and humans) are related to abnormal neurological function, underpinned by a disturbance in the intricate balance of neurotransmitters within the CNS. A strategic approach to correcting the disturbed balance is to pharmacologically target specific neurotransmitters identified as playing a role in behaviour, such as serotonin.

In the CNS, serotonin is involved with regulation of moods, appetite, sleep, memory and learning, multiple sensory pathways and emotional behaviours such as aggression and depression.¹,² In humans, serotonin deficiency or dysfunction has been implicated in disturbances in mood, anxiety, satiety, cognition, aggression and sexual drive.³ Clinically, this may manifest as conditions such as depression, anxiety and panic disorders, compulsive and aggressive disorders. In animals, it has likewise been suggested that abnormalities in central serotonin function may underlie disorders of anxiety, panic, compulsion, and aggression.⁴

At least 14 subtypes of serotonin receptors with differing activities have been identified. 5-HT₁A is the major serotonin receptor subtype involved with mood and behaviour and is the focus for many behavioural medications.⁵ Many behavioural problems in pets can be managed successfully using these pharmacological agent(s) in combination with behavioural modification.

Selective serotonin reuptake inhibitors (SSRIs) are a class of antidepressants which are selective for serotonin reuptake inhibition, with little affinity for other neurotransmitter receptor sites.⁵,⁶ In the absence of medications, when serotonin has completed its neurotransmission, the reuptake molecule, SERT (specific 5-HT transporter) carries it from the synaptic cleft back into the axon terminal for reuse. SSRIs bind to the receptor of the reuptake molecule and prevent reuptake of serotonin, allowing it to remain for a prolonged period within the synapse, increasing the amount available to bind with the post-synaptic receptors, prolonging signal transmission along the nerve cells.²,⁶

When SSRI therapy is initially commenced, in response to an increased level of serotonin being detected by autoreceptors on the pre-synaptic membrane, a thermostatic effect within the CNS occurs, seeking to keep serotonin at pre-medication levels, which is perceived by the animal’s body as being ‘normal’ levels.²,⁵ The animal’s body reduces both the production and release (turnover) of serotonin, as well as downregulating of the expression of serotonin receptors in pre-and post-synaptic membranes and reducing the ‘firing rate’ of these receptors.¹,⁵,⁷ The result of this phenomenon is that a delay in the onset of a positive response to SSRIs and a paradoxical worsening in the condition can result when therapy is first commenced.

In the longer term, SSRIs augment serotonin levels in the animal, utilising the same second messenger systems, transcription and translation pathways the body uses to develop cellular memory.⁵,⁸ Second messengers such as cAMP mediate this process by altering neuronal metabolism and receptor protein transcription via various protein kinase enzymes. With prolonged dosing, SSRIs induce synaptic plasticity: the transcription of post-synaptic serotonin receptor proteins with an altered conformation, improving the efficiency of serotonin stimulation and signal transduction.⁵,⁸ This can translate clinically into an animal with permanently reduced level of anxiety.
References:


5 Overall KL. Pharmacological Treatment in Behavioural Medicine: The Importance of Neurochemistry, Molecular Biology and Mechanistic Hypotheses. The Veterinary Journal 2001;162:9-23


8 Duman RS. Novel Therapeutic Approaches beyond the Serotonin Receptor. Biological Psychiatry 1998; 44: 324-335
Pheromones for Behaviour Management

Dr Finola McConaghy

Pheromones and pheromonatherapy

Pheromones have been described by Mills et al\(^1\) in a very recently published comprehensive review of stress and pheromonatherapy:

“In animals with a limbic brain, the term ‘pheromone’ refers to chemical signals which are normally used in intraspecific communication, which are typically detected through the VNO (vomero-nasal organ) and which appear to have an intrinsic effect on the emotional processing of the receiver”.

There are a number of types of pheromones: alarm pheromones which can induce anxiety/fear states, sexual pheromones which encourage sexual behaviour, and other types of pheromones that alter the emotional state/level of motivation.

When pheromones are used in a clinical context to manage animal behaviour, this is called ‘phermonatherapy’. Principally pheromones are used to alter the emotional state of the animal, usually by assisting in reducing a state of anxiety, but they can also be used to reduce unwanted behaviours that are not necessarily emotionally based, such as cat scratching. Pheromones can also assist with interspecies communication, such as using cat pheromones to assist the cat to cope with the introduction of a new dog.

Phermonatherapy does not result in changes in specific behaviours but works at a higher level by altering the emotional or motivational state of the animal. Thus pheromones should be used in the context of the overall situation, as part of a strategy to manipulate the animal’s environment to assist in managing whatever disorder is being treated. Pheromones can assist in changing the emotional state, resulting in a new behavioural pattern in response to the situation. This new pattern is frequently maintained when the pheromone is no longer present; in this way short term phermonatherapy can result in long term improvements in the animal’s behaviour.

Chemicals involved in pheromonatherapy

The semiochemicals involved in pheromonatherapy are volatile, organic molecules based on fatty acids. These fatty acids are produced by specialised glands in the skin, generally in small quantities, but are concentrated for clinical use to increase the potential efficacy. Pheromones are produced in dogs by specialised glands in the ears, foot pads, genitalia, anal sacs and intermammary sulcus. In cats these regions are the cheek and perioral regions, foot pads, tail base and intermammary sulcus.

Pheromones of clinical interest are those produced by the intermammary region of the dog and facial region of the cat. After giving birth, bitches and queens produce pheromones, known as appeasines, from the intermammary sulcus. Appeasing pheromones have a reassuring effect on the young and impart a feeling of safety and confidence while exploring the environment where the mother has deposited the pheromones. Dog appeasing pheromone is the active ingredient in the Ceva product Adaptil®.

There are 5 fractions of pheromones produced by the facial areas of the cat, known as F1-F5. The functions of F1 and 5 are unknown, F2 is involved with sexual behaviour, F3 in scratching, urine marking and signalling a ‘safe’ area and F4 in marking and socialisation. The F3 fraction is the active ingredient in the Ceva product Feliway®.
The appeasing pheromones in Adaptil and Feliway signal ‘safe’ environment to dogs and cats. These pheromones can help calm animals by signalling that the environment is safe, or the situation less threatening. Interestingly, and of relevance to vets, the pheromones produced by foot pads, which are used to mark territory, can create alarm signals. It is important in veterinary practices to carefully remove these, as, if they are left on examination tables, these may generate an alarm signal to the next animal placed on the table. Pheromones work very differently to drugs, and are recommended to be used as part of an overall strategy including behaviour modification and potentially pharmacotherapy.

**Uses for Feliway**

Feliway is used as an aid in the management of urine spraying and chronic interstitial cystitis, to assist with handling, for transport, to reduce scratching and hospital stress, and to help prevent roaming. There have been clinical trials for all of these indications, except for scratching, however there is significant anecdotal evidence for this indication.

A meta-analysis of the efficacy of treatment of feline urine spraying was recently conducted\(^2\). Ten of 24 studies were found to be suitable for meta-analysis; four of these trials involved evaluation of Feliway and six evaluated the drugs clomipramine or fluoxetine.

The first analysis compared Feliway with the drug treatments, and reviewed the number of cats that ceased spraying, or reduced spraying by at least 90%. A second analysis of the Feliway studies was conducted, assessing the number of cats that reduced urine spraying from baseline levels.

There was a significant (p=0.001) effect of Feliway, clomipramine and fluoxetine with all three treatments resulting in a 90%-100% reduction in urine spraying. Analysis by intervention type indicated that fluoxetine, clomipramine and the pheromone were all effective in reducing urine spraying more effectively than a placebo. A meta-analysis provides the strongest level of scientific evidence that psychoactive drugs and pheromonatherapy are effective in the management of urine spraying in cats.

There are a number of ways of delivering Feliway and the appropriate method should be used depending on the indication:

<table>
<thead>
<tr>
<th>Indication</th>
<th>Method of delivery</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urine spraying</td>
<td>Diffuser</td>
</tr>
<tr>
<td>Vertical scratching</td>
<td>Spray</td>
</tr>
<tr>
<td>In-clinic handling</td>
<td>Diffuser</td>
</tr>
<tr>
<td>Hospital cage</td>
<td>Spray (use 10–20 minutes before cat enters the cage)</td>
</tr>
<tr>
<td>Domestic disruption</td>
<td>Diffuser</td>
</tr>
<tr>
<td>Transport</td>
<td>Spray (use 10–20 minutes before cat enters the carrier)</td>
</tr>
<tr>
<td>Stress-related illness</td>
<td>Diffuser</td>
</tr>
</tbody>
</table>

**Uses for Adaptil**

Adaptil is used in dogs as an aid in the management of separation-anxiety, anxiety related to transport and noise phobia, to reduce hospital and kennel related stress, and to assist settling a puppy or adult dog into a new home. There have been clinical trials for all these indications, and case studies of the use of Adaptil to manage a range of other anxiety disorders.

In 2010 the efficacy of DAP in reducing the signs of stress in hospitalised dogs was published\(^3\). Signs of separation anxiety are frequently shown by hospitalised dogs. In this study 24 dogs treated with DAP diffuser were compared with a placebo control group of 19 dogs. Behaviours studied included destructiveness (scratching/digging/chewing), vocalisation (whining/barking/howling), elimination (urination/defecation), vigilance, excessive licking, anorexia, gastrointestinal problems (vomit/diarrhoea), hyper-salivation, trembling and pacing.
These signs were monitored for eight hours, initially at 30 minutes after the owner departed, and again on the fourth day of hospitalisation. The responses were scored and analysed statistically.

The most common signs of separation-anxiety noted were pacing, anorexia and vigilance. In comparing baseline and final assessments, there were increases in elimination, excessive licking, gastrointestinal problems and hyper-salivation in the placebo group. In the DAP group there were overall improvements in all separation-related behaviours except for gastrointestinal problems. There were statistically significant reductions in the DAP-treated dogs in elimination ($p=0.038$), excessive licking ($p=0.005$) and pacing ($p=0.017$). These results indicate that DAP can assist in reducing the signs of separation anxiety in dogs induced by the veterinary hospital environment. The authors of this study suggested that DAP may assist in recovery as anxiety could have an adverse effect on recovery.

As with Feliway, the appropriate delivery method of Adaptil should be used depending on the indication:

<table>
<thead>
<tr>
<th>Indication</th>
<th>Method of delivery</th>
</tr>
</thead>
<tbody>
<tr>
<td>Settling into a new home</td>
<td>Diffuser</td>
</tr>
<tr>
<td>Kennel-related problems</td>
<td>Collar</td>
</tr>
<tr>
<td>Puppy classes</td>
<td>Diffuser</td>
</tr>
<tr>
<td>Reducing stress in the veterinary clinic</td>
<td>Diffuser</td>
</tr>
<tr>
<td>Fear of fireworks or other noises</td>
<td>Diffuser in the home, spray on to a bandana when out</td>
</tr>
<tr>
<td>Aversion to novel stimuli in the home</td>
<td>Diffuser</td>
</tr>
<tr>
<td>Behaviours associated with distress during the owner’s absence</td>
<td>Diffuser</td>
</tr>
<tr>
<td>Behaviour problems in the car</td>
<td>Collar, or spray on to a bandana</td>
</tr>
<tr>
<td>Anxiety while outside</td>
<td>Collar</td>
</tr>
</tbody>
</table>

**Conclusion**

Pheromonotherapy has been shown to be effective and safe as an aid in the management of a number of behavioural disorders. Pheromones can be used to signal safety so that the animal perceives the environment as non-threatening.

It is essential that pheromones are prescribed for the appropriate indication, and that the most suitable delivery method is used. Pheromones do not provide a ‘quick fix’ and should be used as part of an overall management strategy which may also include drugs and other behavioural management techniques. The response to pheromone therapy should be monitored and if improvement is noted the pheromone treatment should be used for at least a month. If no improvement is noted, additional strategies should be implemented as pheromones can also compliment the efficacy of drugs.

**References**


Compounding Pharmacies and what they can offer!

Brett Davidson

Why use compounding?

Have you ever encountered a situation, for example a patient requiring Amlodipine, but the commercial strength was just not right? A compounding pharmacy can step in and assist by preparing fixed exact dose capsules (and getting your client that 0.625mg of Amlodipine, rather than attempting 1/8th of a tablet) or making other strengths and dose forms available.

Compounding pharmacy, and Bova Compounding specifically, are specialists in providing efficacious treatments in the liquid dosage forms where only solid capsules and tablets are available, for example:

1. Trilostane liquid
2. Cyclosporin liquid
3. Cisapride liquid
4. Itraconazole liquid
5. Patented formulations of Pimobendan solution

Compounding pharmacies can also improve the potential options for those hard to treat patients by: altering a fixed dose oral dosage form to a transdermal; changing the flavour from a human specific flavour to one your clients will actually like taking; by providing a chewable tablet flavoured to suit; or alternatively providing you with unavailable injections or chewable treats.

Discontinued treatments

If you are struggling to find a treatment now the large, overseas commercial company has decided it is not cost effective to produce, Bova compounding can assist by preparing these valuable treatments on-demand. Recent examples of discontinued medication that Bova Compounding has been able to prepare include: TRIZ EDTA ear drops; MALACETIC ACID ear drops; DENOSYL (S-AMe); RECONCILE (fluoxetine); PREDDY GRANULES (prednisolone); PROPAN-B (propantheline bromide) Inj.

Common Misconceptions

1) You have no insurance if you prescribe a compounded treatment

Compounded medications are no different from commercial treatments when it comes to the issue of product liability. If ever there were a situation where you supplied a compounded treatment that was found to be faulty, Australia has a comprehensive system of legal consumer and business protection that impose strict liability on the producer: compounding or commercial company. In addition, Bova compounding holds a comprehensive insurance policy with Guild Insurance to cover those situations (The very same insurer who provides much of the indemnity insurance for veterinarians.)

2) A compounded treatment requires a patient name

In NSW, a pharmacist requires a prescription to supply a medication which is scheduled on the Standard Uniform Schedule of Medicines and Poisons. This applies irrespective of whether the treatment is compounded or commercial. Where a prescription is issued for an animal, or a collection of animals that may occupy for example a farm, all that is necessary is identification of the owner of the animals for whom the medication is going to be used for.

At Bova Compounding, we like to individualise your patient’s treatments. So you will often see the labels of treatments containing the animal’s name. However, where there are a
number of animals under treatment, you will see a prefix like HERD used, and the client’s name. Internally, whilst not a strict requirement, we do like to try and get a list (HERD LIST) which helps us to track our medications in the event of a recall.

3) Compounded treatments can NEVER be ordered for in-clinic use.

The AGVET code provides the exemption for compounding. In the AGVET code there is no such exclusion.

Similarly, in NSW, where the supply is affected, Veterinarians are permitted to request medications for their own use where there is an identifiable emergency reason.

4) Compounded treatments are not tested nor proven to work

Bova Compounding has an extensive Quality Assurance programme that involves testing including: potency testing; stability testing; beyond use dating analysis. It is not possible to test every single compounded treatment. However, formulations are always developed using an evidence based approach, and consideration is given to the effect of inclusion or exclusion of all ingredients including flavours and sweeteners.
Use of Compounded Medications in Veterinary Practice

Australian Vets in Industry SIG of the Australian Veterinary Association (AVA)

There has been a rapid increase in the use of compounded medications in veterinary practice in recent times. Compounded medications are required for veterinary practice as not all therapeutic chemicals are available as registered products. Unlike registered veterinary medicines, compounded medications have not been through the rigorous assessment process conducted by the Australian Pesticides & Veterinary Medicines Authority (APVMA) of product quality, efficacy and safety. As a result compounded products may carry a greater risk when used to treat animals.

Veterinarians using compounded medications in veterinary practice should comply with all the relevant legal requirements for the preparation and use of compounded medicines. Unfortunately many veterinarians are often not aware of the relevant legislation which involves national, state and territory control of use and drugs and poisons legislation including the Agvet Code 1994, Pharmacy Board of Australia guidelines and Poisons and Pharmacy Acts in each State and Territory.

Compounded medications prepared by veterinarians or pharmacists acting under the instruction of a veterinarian, are exempt of registration by the APVMA (Agricultural and Veterinary Chemicals Code Act 1995 Section 5(4)). Compounded medications should be manufactured by a pharmacist on the basis of a prescription or instruction, correctly labelled by the pharmacy and supplied to the owner. Compounded medicines must be labelled with all the details required on the prescription according to the legislation in the relevant state.

In NSW the name and address of the patient or (if the treatment is for an animal) the species of animal and the name and address of the animal's owner is required (Poisons and Therapeutic Goods Regulation 2008). The pharmacy label which is prepared for a compounded medicine must not be removed or obscured and the product must not be re-labelled. In NSW it is illegal for a veterinarian to over-label a medicine dispensed by a pharmacy with their label, whether the medicine is compounded or not. Compounded medicines may only be prepared in a sufficient quantity for the particular animal(s) being treated. As a result a veterinarian cannot have compounded medicines sitting on their shelf for supply to future patients.

Compounded medications are intended for “immediate usage” according to the Pharmaceutical Society of Australia (PSA). These medicines are assigned an expiry date of 28 days from the date of manufacture, unless there is reliable evidence that this expiry date can be increased. It is illegal for veterinarians to supply or use any product that has past the expiry date in most jurisdictions. Veterinarians may compound medicines for animals under their care, or supply to the animal’s owner but must not on-sell compounded medicines to other veterinarians.

Veterinarians should advise owners that a compounded medicine is being used. The veterinarian is responsible for the correct instructions being provided to the compounding pharmacist. The veterinarian is responsible for liability for lack of efficacy, safety and adverse reactions, provided the medication was prepared correctly. The pharmacist is only responsible for preparing the medication as per the details supplied on the prescription.

In the US there have been cases where compounded medications have been inaccurately prepared and adverse events have occurred. There was a case in Florida in 2009 where 21 polo ponies died following administration of a compounded vitamin injection which contained a toxic level of selenium.
In October 2012 in the US a fungal contaminated steroid injection prepared by a compounding pharmacy was widely distributed and 11 people died and 119 became ill due to fungal meningitis.

Registered medications are assessed by the APVMA. Trials of efficacy, safety and stability are required for registration. In addition the manufacturing site must comply with Good Manufacturing Practice (GMP), a quality control/quality assurance programme which ensures high quality manufacturing and is assessed by an external reviewer. The pharmaceutical company is responsible for the quality, efficacy, safety and stability of registered products, according to the registered label claim.

Any changes in formulation of a registered product must be approved by the APVMA as this can result in a change in the bioavailability of the product. Changing from a tablet to a liquid will result in a change in the absorption of the product and alter the bioavailability. The US regulatory guidelines state that: “Two products are considered to be bioequivalent when they are equally bioavailable; that is, equal in the rate and extent to which the active ingredient(s) or therapeutic ingredient(s) is (are) absorbed and become(s) available at the site(s) of drug action.” (CVM 2006). This must be demonstrated for registered products but is not required for compounded medications. It cannot be assumed that a compounded medication will be bioequivalent to a registered product.

Transdermal products need to be absorbed through the skin which is designed to act as a barrier. The only way to ensure adequate blood levels of a transdermal active is to measure the concentration of drug present at the site of action.

The Australian Veterinary Association has prepared guidelines for the correct use of compounded medicines in veterinary practice.

These guidelines recommend the use of a flowchart that advises that if a suitable registered product is available for the animal species being treated that the registered product should be used. If a registered product is not available but there is a registered product for another species including humans, this should be considered next, if none of these are available the use of a compounded product should be considered and discussed with the animal’s owner. The associated risks and benefits should be considered.

AVA guidelines would be accepted as peer professional opinion and failure to follow professional guidelines could be considered evidence of negligence.

The Pharmaceutical Society of Australia (PSA) recommends that pharmacists should only prepare compounded medications if they are satisfied that no suitable registered product is available.

Section 5 of the Agricultural and Veterinary Chemicals Code Act 1994
(1) This section defines what is meant by a veterinary chemical product for the purposes of this Code.
(2) Subject to subsections (3) and (4), a veterinary chemical product is a substance or mixture of substances that is represented as being suitable for, or is manufactured, supplied or used for, administration or application to an animal by any means, or consumption by an animal, as a way of directly or indirectly:
   (a) preventing, diagnosing, curing or alleviating a disease or condition in the animal or an infestation of the animal by a pest; or
   (b) curing or alleviating an injury suffered by the animal; or
   (c) modifying the physiology of the animal:
      (i) so as to alter its natural development, productivity, quality or reproductive capacity; or
      (ii) so as to make it more manageable; or
   (d) modifying the effect of another veterinary chemical product.
(3) A veterinary chemical product includes:
(a) a vitamin, a mineral substance, or an additive, if, and only if, the vitamin, substance or additive is used for a purpose mentioned in paragraph (2)(a), (b), (c) or (d); and

(b) a substance or mixture of substances declared by the regulations to be a veterinary chemical product.

(4) A veterinary chemical product does not include:

(a) a substance or mixture of substances that is:
   (i) prepared by a pharmacist in accordance with the instructions of a veterinary surgeon; or
   (ii) prepared by a veterinary surgeon; in the course of the practice, by the person preparing the substance or mixture of substances, of his or her profession as permitted by or under a law of this jurisdiction; or

(b) a substance or mixture of substances declared by the regulations not to be a veterinary chemical product.

Relevant legislation

Australian Capital Territory
Medicines Poisons and Therapeutic Goods Act 2008
Medicines Poisons and Therapeutic Goods Regulations 2008
Agricultural and Veterinary Chemicals (Control of Use) Regulations 2007

Commonwealth legislation
Therapeutic Goods Act 1989
Therapeutic Goods Regulations 1990

New South Wales
Poisons and Therapeutic Goods Act 1966
Poisons and Therapeutic Goods Regulations 2008
Stock Medicines Act 1989
Stock Medicines Regulations 2010

Northern Territory
Poisons and Dangerous Drugs Act 2012
Poisons and Dangerous Drugs Regulations 2012
Agricultural and Veterinary Chemicals (Control of Use) Act 2011
Agricultural and Veterinary Chemicals (Control of Use) Regulations 2008

Pharmacy
Australian Pharmaceutical Formulary and Handbook APF 22
www.psa.org.au
Pharmacy Board of Australia

Queensland
Health Act 1937
Health (Drugs and Poisons) Regulation 1996
Chemical Usage (Agricultural and Veterinary) Control Act 1988
Chemical Usage (Agricultural and Veterinary) Control Regulations 1999

South Australia
Controlled Substances Act 1984
Controlled Substances Regulations 2000
Agricultural and Veterinary Products (Control of Use) Act 2002
Agricultural and Veterinary Products (Control of Use) Regulations 2004

Tasmania
Poisons Act 1971
Poisons Regulations 2008
Agricultural and Veterinary Chemicals (Tasmania) Act 1994
Agricultural and Veterinary Chemicals (Tasmania) Regulations 2004

Victoria
Drugs Poisons and Controlled Substances Act 1981
Drugs Poisons and Controlled Substances Regulations 2006
Agricultural and Veterinary Chemicals (Control of Use) Act 1992

Western Australia
Poisons Act 1964
Poisons Regulations 1965
Veterinary Chemical Control and Animal Feeding Stuffs Act 1976
Veterinary Chemical Control and Animal Feeding Stuffs Regulations 2006

Additional references
Polo Ponies were given Incorrect Medication
Multistate Fungal Meningitis Outbreak Investigation
http://www.cdc.gov/hai/outbreaks/currentsituation/
Suprelorin (Deslorelin) keeps a feline terrorist at home – a Case Study of N=1

Dr Kim Kendall

Deslorelin is very successful as an implant in altering reproductive activity in many species. It down regulates the Gonadotropin Releasing Hormone, and prevents pulsatile release of FSH and LH from the Anterior Pituitary gland. FSH and LH regulate the reproductive cycles in ovaries and testes, and the sex hormones produced are part of the negative feedback or inhibitory loop back to the hypothalamus. In neutered animals, there is no negative feedback loop, and large amounts of FSH and LH are released with little or no synchronicity. These two hormones affect tissues other than just the (missing) reproductive ones, and in large amounts, may create problems at these other sites.

The Problem

There are a few cats who seem to need more territory than the urban environment allows. These cats – usually neutered males – seem to be unable to withdraw from disputed territories, and frequently fight other cats repeatedly, refusing to arrange a more equitable ‘timeshare’. Often called despots, when these cats come across a victim-type cat personality, they seem to enjoy hunting the pariah. Many of these cats are also very human-directed and friendly – especially to their own humans – I refer to them as Kitty Conmen. However, their activities are quite disruptive to the local community, especially for the owners of the chosen victim cat.

Recommendations for community peace include ‘belling the aggressor’ (to give the victim warning for escape), microchip activated cat-flaps so the victim cat can get away, caging the aggressor in a cat park (as keeping them permanently indoors often results in the despot spraying in the house), and arranging neighbourhood forced timeshare – one cat in while the other is out.

For persistent troublemakers, medication is often requested – ‘something to keep the cat home and happy’. Fluoxetine is relatively successful at doing this, but in this case, the owner was unable to reliably medicate the despot, and other interventions were sought.

The Theory

Peter Howe (2013?) stated that “When we castrate or spay animals we essentially destroy the negative feedback mechanisms to the hypothalamus that play a role in regulating the production and release of FSH (Follicle Stimulating Hormone) and LH (Luteinizing Hormone) from the anterior pituitary. Because there are no brakes applied to the latter, the levels of FSH and LH build up to massive levels (hypergonadotrophism). There is an adenomatous-like change in the pituitaries of all spayed and castrated animals.

There are receptors for these peptide hormones (FSH & LH) in many organs of the body including the bladder and the adrenal glands. When their target organs, the gonads, are missing (as in a castrated cat), they can be more active at the lesser target sites, like the adrenal glands and bladder. There can be an aberration in steroid synthesis in the adrenal gland leading to excessive cortisol levels as a result.

Up-stream of the site of Deslorelin’s action there is an involvement of melatonin. Melatonin is produced by enzyme action on Serotonin and N-Acetyl Serotonin. We know how important serotonin is in the modulation of psychological well-being. It just so happens that melatonin also modulates the peripheral effects of cortisol as well; and the whole hypothalamo-pituitary axis can be or is disrupted by castration and spaying and total ovarian follicle attrition as in menopausal women.

N=1 could well have had a very legitimate endocrine reason for his behavioural traits.”

Navarro and Schober (2012) stated that “Gonadotropin Releasing Hormone (GnRH) controls
the release of the gonadotropins Luteinising Hormone (LH) and Follicle-Stimulating Hormone (FSH) by the pituitary gland. When administered acutely, GnRH analogues stimulate the release of pituitary gonadotrophins. However, a chronic systemic dose decreases the synthesis and secretion of LH and FSH.

This second step is related to the desensitisation of the GnRH-R with a suppression of synthesis of the gonadotropins. This is the principal reason for clinical use of the GnRH agonists in companion animals (e.g. temporary infertility, treatment of benign prostatic hyperplasia, treatment of urinary incontinence). The individual variations of the duration of action may be explained by the mode of action involving gene regulation.

The Test Case

DLH M(N) whom we shall call N=1, came from a rescue source and arrived in a household already occupied by two cats – 5yo M(N) Burmilla and 3 yo M(N) Ragdoll, who are well-bonded. By the time he was 18 months old, N=1 was already putting the Burmilla under enough pressure to cause him to spray (hunting him from chairs etc) and for the Ragdoll to avoid him. At 3 years old, N=1 had encountered the pariah in his life and had bitten her foot, had started going inside her house (“home invasion”) and terrorising her by chasing her under the bed. The pariah’s cause was not helped by the fact that the children of her household found N=1 to be a very attractive cat and they encouraged him to invade the pariah’s territory.

By 3 ½ years old, his housemate cats were both spraying (reduced a bit by a Feliway diffuser). I discussed fluoxetine with the owner, dispensed it at a transdermal cream and heard nothing for a few months (turned out the TD fluoxetine was not used). Then the Ragdoll underwent major surgery for a GI adenocarcinoma and was doing well. There was no spraying in the household and a lot of attention was diverted from N=1. Then the Ragdoll was killed by a car. I hypothesise that N=1 chased him onto the road, but that is unproven. Then N=1 lashed out and slashed the neighbouring household’s 18 year old cat’s nose while it was sleeping on its own verandah, and in front of the owners (described as an SAS counter-insurgence manoeuver). This called for community consultation, as now all the cats involved were under my veterinary care. There did seem to be a marked ‘season’ to his activities, which I hypothesised to be related to the ‘sex season’ where the intact males are travelling looking for the intact females and disrupting all the local territories and any unstable feline relationships.

N=1 was put onto Fluoxetine 2 mg sid (Reconcile® 8 mg ¼ sid) – he is a 7.3 kg cat - which made him sleepy and boring, according to the owner. He was not going outside at all, but was also not chasing the Burmilla out of his favourite resting spots nor away from food. The Burmilla had stopped spraying as well. The owner really did not want a boring cat.

The other problem with tablets was that the owner had an irregular schedule, and N=1 did not like to take pills, so his medications were intermittent at best. She could tell when the fluoxetine wore off as he would start hunting the Burmilla again. She tried the TD fluoxetine but same problem – the application was simply not reliable enough.

I cannot remember who suggested that the LH / FSH excess may be part of the stimulus for the territorial behaviour, especially as it seemed to be during the early spring and mid-summer (Sydney has a kitten season running from October to May most years, so the breeding season starts 2 months earlier).

As an experiment, but with no blood tests etc being done to check FSH / LH levels, I inserted a ‘6 month’ Suprelorin implant under N=1 scruff skin in August 2012 (last year).

The Result

Success within the parameters required. No more fluoxetine was administered. N=1 still visited the pariah’s house but did not chase her (he played with the children). He has not been seen by the other neighbouring old cat’s owners since either – except in his own yard. He does not give the Burmilla a hard time and there is no more spraying in the house.
The effects have just started to wear off now (June 2013) – nearly a year after the implant, and just as we go into the cat breeding season again. I will be seeing if the implant is successful a second time around, and I have a second cat (this time he does the spraying) that I am going to trial with this approach.

To Be Continued

References


Freddie’s timeline

28/12/07 Freddie arrives – KK met him and asked why owners buying into trouble.. VERY human-friendly. Gus 5 yo (first cat) and Archie (3yo 2nd cat) love each other dearly. Owner just wanted a black cat.

13/10/08 discussion re pressure on Gus – 6yo burmilla, Archie 4 yo ragdoll

Freddie 18 months old

6/2/10 Zoe bitten left fore

1/11/10 Freddie despot – going out beating up neighbouring cats, giving Gussie very hard time. Gussie and Archie spraying – advised Fluox TD – not used, just Diffuser

5/1/11 all well (no spraying) with Diffuser – Archie major surgery (GI adenocarcinoma) @ 6 years old, less time for Freddie

28/2/11 Freddie in fight (cat bite right wrist) – lost fight?

17/4/11 – tore Holly’s nose – hunted her on her own verandah

26/5/11 Archie RTA ..

13/7/12 Freddie going through cat flap into Zoe’s house

20/8/12 cannot get the pills in regularly enough, the TD abandoned as well

7/9/12 Last dose Reconcile, settling down already

22/9/12 – not seen by neighbours but Gussie under pressure. Much less bullying (pushing him off eats etc, no outright fighting). Adv re Buspar for Gussie.. Elect not – wait it out.
6/11/12 – Suprelorin working, Gus OK (separated at night + no Whiskas to fight over), Freddie not leaving yard to harass Holly or Zoe.

27/3/13 back at Zoe’s house, not beating cat up, just visiting daughter.. and torments Gussie to get the owner’s attention..

26/4/13 Zoe euthanased (possibly unrelated – ‘flea’ fits then heart fail)

10/5/13 Freddie back at Zoe’s, not seen at Holly’s.
A semi serious approach to behaviour problems

Emeritus Professor Katherine A. Houpt

This lecture consists of a series of cartoons. They illustrate some of the concepts that are important in solving canine and feline behaviour problems. The first concept is the value of dogs and cats to human emotional well being. Many owners fail to understand what a dog is trying to communicate. Visual acuity, facial expression, and vocal communication will be addressed. Obedience training is an important part of the solution to some behaviour problems. An over diagnosed pica problem is discussed. Because canine aggression is the most common and most dangerous canine misbehavior it will be emphasized. Feline communication, including scratching, will be illustrated. Litter box problems and feline aggression will be presented. Finally, population control and animal rescue will be mentioned.
Stress and learning and how we can apply this knowledge to help our fearful and anxious patients.

Dr Caroline Perrin

Neuroplasticity refers to the changes in the neural pathways and connections between neurons that occur in response to learning, the environment and structural damage to the brain. Usually these are highly adaptive and they allow an individual to respond appropriately to the changes and challenges of life. However, in some individuals they can be maladaptive and contribute to behavioural disorders such as fears, phobias and anxiety.

Animal patients with anxiety disorders are sensitive to stimuli and often generate a fear or anxiety response which is out of context to the level of danger or threat. During a fear event, stress hormones such as cortisol and noradrenalin are released and these have a direct affect on neuroplasticity and the ability to ‘unlearn’ fear. Prior to seeing us, clients will have often been given advice that the dog needs to ‘get over’ their fears or they need to be exposed to whatever it is they are afraid of. Hence you will commonly see well meaning owners taking their dog that is fearful of other dogs to the off leash dog park. Most of these dogs worsen with these uncontrolled “treatments” as the dog continues to be exposed to fearful stimuli.

How does stress affect the amygdala?

- The amygdala is an important brain structure in fear acquisition
- The amygdala, via activation by noradrenalin and cortisol enhances memory consolidation during acutely stressful events[1]- this is one of the reasons why people have vivid memories of acutely arousing or stressful events.
- At the same time, these events impair amygdala based memory retrieval and working memory- this is one of the reasons our patients have difficulty ‘remembering’ information when they are stressed.
- Acute and chronic stress cause remodelling of the synapses and dendritic branching in the amygdala that are expressed as increases in anxiety and enhanced fear learning[2]

How does stress affect the hippocampus?

- The hippocampus is involved in the negative feedback of the HPA-axis and helps ‘switch off’ the stress response and restore homeostasis
- The hippocampus is thought to be one of the most plastic parts of the brain
- It is particularly sensitive to chronic stress[3]
- Stress causes shrinkage of dendrites and reduction of spine density in the hippocampus

In addition, observing the behaviour of our patients always gives a reliable indication of whether learning is likely to be occurring in the hippocampus (preferable) or if learning is likely to be occurring in the amygdala and likely to be favouring fear learning rather than fear reversal. If the patient is displaying obvious signs of amygdala activity such as fight, flight, freeze or fiddle behaviours, it is likely that the learning occurring is favouring strengthening of fear. However there is likely to be a point where mild amygdala activation is occurring, the animal is feeling uneasy or uncomfortable, but this may not be apparent to an observer, particularly owners who don’t know the signs to look for.
Fear reversal

The cellular mechanisms behind fear reversal are not completely understood however it is generally agreed that the fear coupling that occurs in the amygdala is never eradicated. Rather, an alternative learning pathway occurs which competes with the original pathway. With repletion, the brain learns that the old fear pathway is not relevant and the new pathway is the most salient. This is one of the reasons why apparently eradicated fears may spontaneously and easily return.

Environmental Management

The aim of a well structured environmental management plan is to keep our patients in an emotional state compatible with learning new behaviours and which is unlikely to be compatible with consolidation of fear learning. Clients need to be educated to recognise very subtle signs of fear and anxiety and avoid situations that generate these responses. These patients need to be wrapped in cotton wool and protected from their fears as much as possible. Despite this, things will happen. Visitors unexpectedly arrive, dogs appear unexpectedly around corners, and so called ‘experts’ will insist on patting the dog despite their owner clearly saying ‘my dog is frightened of people and may bite you, so please don’t touch him’.

For many patients, environmental management alone is not enough to keep the pet in the best emotional state for learning and medications may be needed to assist the pet.

In summary, our fearful and anxious patients are more likely to have increased circulating levels of cortisol and noradrenalin, they acquire fears more easily and it is more difficult for them to ‘unlearn’ fears compared with ‘normal’ individuals. Appropriate environmental management is an essential part of a treatment plan. This can be aided by appropriate medication selection.

References


Cognitive Dysfunction Syndrome (CDS) is a syndrome seen in older animals that is characterised by degeneration of cognitive abilities. That is the abilities to reason, remember and learn. There are many causes of CDS all of which are poorly characterised in the companion animal as little is understood about successful and pathological aging in companion animals (Salvin, McGreevy et al. 2011). Dogs have been used for the last 25 years as a model of human aging and Alzheimer’s disease (Cummings, Head et al. 1996; Escriou 2012).

**Signs:**
The acronym DISHAA is used to describe the signs of CDS.

D: Disorientation, Depression

I: Interaction changes in interaction- the pet may be less interested or may show mood changes

S: Sleep disturbances

H: housesoiling and loss of other learned behaviours

A: Anxiety

A: Activity level changes- less active, less interested.

**Causes:**
Age-related Neurodegenerative Complex is the result of pathological aging. The effects of Neuronal Loss, Oxidative Stress, Growth Factor Loss, Protein Aggregation, inflammation and reduction in hormone levels are Memory Loss, Movement Dysfunction and Mood Change. The nature of the signs owners report depends upon where in the brain pathology develops.

There are many diseases that can contribute to Age related Neurodegenerative Complex and multiple diseases may be present concurrently.

Alzheimer’s disease is recognized in dogs. It is caused by amyloid plaques and neurofibrillary tangles accumulating in the brain, specifically the areas related to memory formation and retrieval. The exact cause of the abnormal protein metabolism is not known but there are many theories.

The levels of Amyloid plaques and tangles are positively correlated with the level of impairment in affected dogs (Cummings, Head et al. 1996).
Examples of agents that do this are Antioxidants, Phytonutrients, Glutathione Inducers, Ginkgo Biloba, and Coenzyme Q10.

- Medications that decrease or prevent Methyphenyltetradropyridine (MPTP) a neurotoxin. Examples include Melatonin and Apoaequoin (Neutricks) which is made from an extract of Jellyfish (Not available in Australia).

- Supply Micronutrients. These act as cofactors and by improving the health of neurons leads to improved neuroplasticity. Examples include B-vitamins, Omega 3 Fatty Acids, melatonin, phosphatidylserine and phosphatidylcholine, S-adenosylmethionine (SAMe), Carotenes, Bioflavonoid, Magnesium, Vitamin E, Selenium, Zinc, Creatine, Neurosteroids.

- Supply a beneficial food source for the brain, examples Ketones(Raspberry) and Medium Chain triglycerides (Coconut, Purina Pro plan Senior 7+)

- Use of CNS stimulants may help. Selegiline is metabolised to Methamphetamine and may be useful.

- Amino Acids that alter brain physiology may be useful. Examples: Taurine, S-adenosylmethionine (SAMe), Alpha-lipoic acid, Glutathione.

- Nootropic Medications. These enhance memory formation, Nicergoline, Piracetam, Ginkgo Biloba,

- Anti-inflammatory Agents such as Omega fatty Acids, NSAIDS, NMDA antagonists (memantine, ketamine), Substance P inhibitor (Cerenia)

- Neurotransmitter Approach- there is a reduction in monoamine neurotransmitters due to damage to neurons. Treatment with agents that increase the Neurotransmitters in the synapse either by volume or by increasing the time they are present may help.

- Cholinergic agents (Donepezil, Scopolamine)

- Regular Exercise & Calorie restriction

- Sensory Stimulation such as massage, touch, smells as are appropriate to the species and the individual.

- Environmental enrichment and teaching new responses can have a protective effect. (Cotman, Head et al. 2002; Landsberg 2005; Heath, Barabas et al. 2007; Head, Rofina et al. 2008; Osella, Re et al. 2008; Fahnestock, Marchese et al. 2012)

All should be used in combination.

Avoid anticholinergic medications as many pets here reduced cholinergic function and the use of anticholinergics has been linked to increased impairment in elderly people.
References:


Use of Trazodone as an anxiolytic for surgical cases

Dr Kersti Seksel

Introduction

Canine and feline anxiety disorders such as separation anxiety, generalised anxiety, fears and phobias are common but perhaps under-recognised. They cause considerable distress and welfare compromises to the patient and impair the human animal bond.

So the additional stress caused, not only by a visit to the veterinary hospital but the additional stress of surgery and a possible extended stay in the veterinary hospital wards as well as the recovery period afterwards is a great welfare concern, not only for anxious pets but also for unaffected pets.

Although we may recognise that veterinary procedures can and do cause anxiety and distress for patients little has been done to investigate the effects of preoperative anxiety or post-operative anxiety in veterinary patients and the short and long term behavioural changes that may occur. Preoperative anxiety has been shown to have negative effects for humans, both adults and children. Anxiety also affects the type of memories that are formed and the strength of their formation. High levels of anxiety can result in strong, negative emotions to be associated with events.

In veterinary medicine this can have negative effects for how patients view the veterinarian and the practice at subsequent visits. There are also well recognised periods of development where the animal is more sensitive to fear or anxiety provoking stimuli. An anxious animal is harder to handle and more likely to injure staff. Research in humans has shown that reducing preoperative anxiety has positive effects on patients.

Although the increased recognition of anxiety by owners and veterinarians has led to more accurate diagnoses being made, and more treatment of anxiety disorders in dogs and cats it has not necessarily translated into the surgical sphere.

Trazodone

Trazodone is a serotonin 2A antagonist reuptake inhibitor (SARI) that blocks postsynaptic serotonin-5HT and alpha-adrenergic receptors. At low to moderate doses, trazodone mainly acts to antagonize postsynaptic 5HT2A receptors, as well as histaminic (H1) and adrenergic (alpha1) receptors, which may account for some of its hypnotic effects. At higher doses, trazodone also acts as an antagonist at postsynaptic 5HT2C receptors as well as blocking the serotonin transporter (SERT) on the presynaptic neuron.3 Its antidepressant activity is thought to be due to the combination of SERT inhibition and 5HT2A antagonism.

There is some evidence4 that trazodone works synergistically when given with an SSRI.

It is used in human medicine as an antidepressant, antiobessional and antianxiety agent. In dogs it is used as an adjunctive agent in combination with selective serotonin reuptake inhibitors (SSRI) or tricyclic antidepressant (TCA) in the treatment of anxiety and related disorders. In cats it is also used for treating anxiety disorders.
In the USA many veterinary surgeons are using trazodone not only as a premedication before surgery but also in the post–operative period.

**Pharmacokinetics**

In humans, trazodone is rapidly absorbed after oral dosing, with peak blood levels occurring one hour after administration if taken on an empty stomach, and two hours after dosing with food. It then undergoes extensive hepatic metabolism, with less than 1% being excreted unchanged in faeces or urine. Trazodone is converted to its metabolite (m-CPP) by CYP450 3A4, which is further metabolized by CYP450 2D6. To date there are no studies about the pharmacokinetic pattern in dogs or cats.

**Side effects**

In humans, reported side effects include somnolence, dizziness, appetite changes, and constipation. In two studies in dogs conducted at NCSU, side effects were generally mild, and included GIT signs, sedation, excitement, and panting. Trazodone is commonly combined with other serotonergic drugs and may, in theory, cause serotonin syndrome although this is not seen commonly in practice.

**Drug interactions and cautions**

Trazodone appears to have a large safety margin for the majority of patients. The LD50’s for mice, rats, and rabbits are 610 mg/kg, 486 mg/kg, and 560 mg/kg respectively.

Trazodone appears to be well tolerated when co-administered with many routine medications such as flea, tick, and heartworm preventatives. However, concurrent use of any MAOI inhibitors should be avoided, and includes products containing amitraz.

Plasma levels of trazodone may be increased by any medications that inhibit the CYP450 3A4 system such as ketoconazole and itraconazole.

Although trazodone has been shown to have less cardiotoxicity than TCA’s, and has been shown to have little effect on cardiac function in anesthetized dogs, caution should be used when considering trazodone in cases that have significant baseline cardiac abnormalities. In a retrospective study of dogs on trazodone, no adverse events were reported in dogs undergoing routine anaesthetic procedures while taking trazodone, however, the combination of trazodone with general anaesthetic agents has not been studied.

**Uses**

Dogs:

*Travel:* Trazodone may be useful in alleviating signs of anxiety in dogs on car rides or for veterinary visits.

3-7 mg/kg - start at the low end of the dose range, and titrate to effect

*Pre operative:* Administration of trazodone pre-surgically has been shown to be helpful to decrease anxiety and recovery.

*Post operative:* It has also been used to facilitate calming in dogs undergoing exercise restriction while healing from surgery, especially orthopaedic or neurologic surgical
procedures. When using with tramadol immediately postoperatively, a lower dose (3-5mg/kg q12-24) is used, and this may be increased when the tramadol course is completed.

Cats:

Trazodone has only recent been used in cats and no published data are available but is usually given at 1 -2 mg /kg but has also been reported as 12.5 – 25 mg per cat.

Conclusion

Trazodone has become more widely used in veterinary medicine for treatment of a diverse group of anxiety related conditions in dogs and cats. As Veterinarians we are responsible for not only looking after the physical health of our patients but also the mental health of our patients. Acutely stressful incidents such as storms, separation anxiety or visits to the veterinary hospital cause surges in noradrenaline release and activation of the hypothalamic-pituitary-adrenal (APA) axis.

Therefore stressful events, for example surgery, at the veterinary hospital can and do have long term detrimental effects in some patients. While the use of analgesic agents in veterinary patients to relieve pain is now an accepted part of veterinary practice the use of anxiolytic medication pre- and post -operatively to minimise short and long term behavioural changes is still in its relative infancy.

The use of trazodone should be more widely considered for use in pets starting from travelling to the veterinary hospital right through to alleviating any stress they may experience pre and post surgically.
References


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Integration of dog trainers with veterinary behaviourists.

Kathy Wilson

The Lake Veterinary Hospitals Group,
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There is a great need for trainers with appropriate education in dog behaviour and management strategies to help those dogs with “special” needs in general veterinary practice and veterinary behaviour practice.

General practitioners are able to prescribe a number of medications which may be enhanced with the use of behaviour modification. Often there is little or no behaviour counselling offered if practice staff have no behaviour training and incorrect advice may be given.

Dog training is an unregulated industry and it is difficult for dog owners to determine whether the advice they receive is correct or appropriate. This can result in dog trainers offering inappropriate training programmes for dogs with medical issues which are not training problems.

Not only are both of these practices inappropriate but they do not consider the welfare of all involved.

It does not have to be this way.

It is often difficult for clients to come to terms with the realisation that their pet may be a little different and not exactly what they thought they were getting.

Possibly these clients have had dogs before and their new dog does not behave in quite the same way. It may be their first dog and they may not have appropriate knowledge of normal dog behaviour.

Their journey to the veterinary behaviourist may be long and confusing.

It appears that everyone has an opinion on how dogs should behave and be trained.

There is plenty of information available:

- Television
- The internet
- Magazines
- The “expert” opinion
- Books
- Breeders
- Trainers with varied training methods
- Those who offer a “cure”

Usually none of these recognise or address the underlying medical problem that the dog may be experiencing and many of the methods recommended are not substantiated by science based research and have not taken the welfare of the dog into consideration.

These clients need help to understand that their pet is not “naughty”, “stubborn” or “dominant” and they have not caused their dog to have behaviour problems. They may have inadvertently made the problem worse due to lack of understanding and possibly the use of punishment based training, but they did not create the underlying genetic predisposition or the inert personality which predisposes the dog to behave this way.
They also need to know that while it may be possible for their dogs to be helped and there is often no “cure” for their pet’s issues there may be a variety of treatment options that can be implemented to help their dog feel more comfortable.

Behavioural trainers with appropriate education in learning theory, dog body language and the use of behaviour modification strategies can be of great support to both a veterinarian and a veterinary behaviourist in dealing with behaviour problems. They are also available provide the emotional support and guidance often required by the families of dogs with “special needs”.

What does a competent dog trainer do?

- obtains a detailed history of relevant information
- determines owner expectations
- teaches the clients how to understand their dog
- teaches the client about normal dog behaviour
- teaches the clients to interpret their dogs body language
- teaches their clients the importance and the use of humane positive reinforcement training methods
- teaches clients to train their dogs so that their communication is enhanced and gives the dog some choices
- teaches clients to provide a predictable routine causing less confusion for the dog
- gives clients the skills required to teach their dogs to be settled and calm
- conducts classes or private tuition following the guidelines of current best practice, where there is an opportunity to observe each dogs comfort and reaction to other dogs, people and the environment
- identifies dogs/people that may need more assistance
- refers clients to a trainer with more experience, if the problem is a training problem which they don’t believe they are experienced enough to handle
- refers clients to those with the ability to diagnose medical problems, i.e. a veterinarian or a veterinary behaviourist
- has the ability to work in conjunction with a veterinarian or veterinary behaviourist
- attends the veterinary or veterinary behavioural consultation with the clients

What a competent dog trainer does not do.

- diagnose behaviour problems
- tell clients that their dog requires medication
- suggest to the veterinarian what drugs to use
- tell the client that they can “fix” the dog’s problem and offer a cure

When do we refer?

As soon as possible if referral is deemed necessary

Early identification of and intervention in behaviour problems may be the difference between a long and happy life, re-homing or euthanasia for the dog and a great relationship or guilt, frustration and confusion for the clients.

It is during private consultations and training classes that trainers can use their skills in assessing if the dog’s behaviour is normal or abnormal.

Some problems may be addressed with appropriate training e.g. the puppy may jump up on people simply because it has not been taught to “sit” while some behaviours may have an underlying behavioural or physical problem e.g. anxiety/inability to settle, pain/arthritis.
When referring to a general practitioner or veterinary behaviourist the following information is recommended:

- The family and the environment
- The pet’s relevant details
- Detailed case history. What occurs, where does it occur, when does it occur, how long has the problem been occurring, who is present, etc.
- Observations of the dogs behaviour
- Observations of the interaction between the clients and the dog
- What has been done to modify and manage the problem

This information is ideally required before the initial veterinary consultation and may assist the success of a treatment programme.

After diagnosis by a veterinary professional, a treatment plan can be implemented. During the training sessions any changes in the dog’s behaviour can be documented. If the owners are having difficulties then appropriate changes can be made to the behaviour modification plan.

Owners should be encouraged to keep a diary so that any slight change either positive or negative can be discussed at the time of the training session.

After each training session, subsequent to a referral, appropriate feedback should be sent to the veterinary health professional. This will include any difficulties the owners may be having so that adjustments can be made to behaviour management strategies or medications and alternatives to the programme can be offered.

Change needs to be introduced slowly as often concerned animals find change confusing and frustrating and may heighten their arousal levels inhibiting progress.

Follow up appointments are essential.

Clients need to be given a time frame in which to possibly expect some change to avoid unrealistic expectations.

If written material is offered to clients it needs to be specific to their needs not generic.

**Conclusion**

The relationship between trainers and veterinary behaviourists can be an important association. Their collaboration can provide a balance of appropriate medical diagnosis with a well-managed behaviour modification plan.

Early referral to a veterinarian or veterinary behaviourist together with practical and emotional support from a trainer can give the client and dog the best possible chance for a successful outcome.

Appropriate trainer education in positive reinforcement training, learning theory, understanding body language and behaviour modification techniques is an essential tool in forging the relationship between trainers and veterinary behaviourists to create a positive outcome for the concerned owners and families of dogs with behaviour problems.
References


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Integration of non-vet behaviourists with veterinarians

Dr Karen Higginbottom and Dr Kevin Cruickshank

Introduction

This paper considers the role that animal behaviourists who are not veterinarians (henceforth called ‘non-vet behaviourists’ or NVBs) might play in addressing behaviour problems of companion animals through working in collaboration with general practice veterinarians (GP vets).

The veterinary profession considers that veterinarians should play the primary role in addressing behaviour problems of companion animals, sometimes with delegation of certain tasks to dog trainers or veterinary technicians. Only veterinarians are qualified to diagnose behavioural disorders (cases of ‘abnormal’ behaviour), explore medical causes, or prescribe medication. In Australia, if a GP vet does not feel sufficiently trained to diagnose or treat a behavioural disorder, they are professionally advised to refer the case to a board-certified veterinary behaviourist (VB). However, an alternative option now often adopted in North America and UK is to work collaboratively with a suitable NVB.

What is a non-vet behaviourist?

There is no regulation of people who claim to be animal ‘behaviourists’ outside of the veterinary profession. However, in the USA and UK, clinical animal behaviour (arising principally from the academic disciplines of psychology and zoology) is now developing into a professional field. This has been facilitated in part by accreditation and/or certification provided by the Animal Behavior Society (USA & Canada), the Association for the Study of Animal Behaviour (UK) and International Association of Animal Behavior Consultants. Depending on the scheme, accreditation requirements may include a suitable masters or doctorate in animal behaviour, a high level of relevant scientific knowledge, substantial experience in animal behaviour consulting, and adoption of an ethical code of conduct. The Animal Behaviour and Training Council has recently been established in the UK, aiming to provide effective industry self-regulation of NVBs and animal trainers there. This includes specified standards for Clinical Animal Behaviourists, who work in collaboration with the veterinary profession. In the remainder of this paper, we assume that a NVB is someone who is either accredited as above, or is considered by the veterinarian to meet similar standards.

Some parallels can be drawn between the potential role of NVBs in clinical animal behaviour, and psychologists working in the field of human mental health. General practice medical doctors and GP vets are both qualified to treat mental health/behavioural problems, but have limited training in this field, and so often refer cases to psychiatrists or psychologists. Psychiatrists can be considered comparable with VBs, with medically-based degrees, advanced qualifications in psychological or behavioural disorders, and treatment typically including medication. Like NVBs, psychologists have a strong academic grounding in behaviour and its modification, and some have completed postgraduate studies in mental disorders. As well as ‘normal’ psychological problems, they are qualified to treat the full range of mental health disorders, although psychiatrists are more likely to treat patients with psychotic conditions. Psychologists generally do not prescribe medication, and often collaborate with psychiatrists or general practitioners where medication or medical assessment is needed, or in relation to severe mental disorders. Psychologists and psychiatrists both diagnose mental disorders, using the same diagnostic systems. Collaboration between psychiatrists and psychologists for patients with mental disorders is widespread and seen as beneficial. In principle, NVBs could play a similar role to that of psychologists by collaborating with GP vets or VBs. However, a critical difference between psychologists and NVBs is that only the former profession is strictly regulated.

Who should address companion animal behaviour problems?

In Australia, an owner can choose to seek help with their pet’s behavioural issues from a VB, GP vet (or their staff), NVB or dog trainer, or some combination of these. Each of these options confers certain potential advantages and disadvantages (Table 1).
Table 1. Typical features of different practitioners in addressing animal behaviour problems

<table>
<thead>
<tr>
<th>Feature</th>
<th>Veterinary behaviourist</th>
<th>General practice veterinarian</th>
<th>Non-vet behaviourist</th>
<th>Trainer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Species</td>
<td>All, especially domestic</td>
<td>All, especially domestic</td>
<td>Potentially all, especially domestic</td>
<td>Dogs only usually</td>
</tr>
<tr>
<td>Regulation of standards</td>
<td>High</td>
<td>High</td>
<td>None in Australia but can obtain overseas/international accreditation</td>
<td>Weak industry self-regulation in Australia e.g. through Delta accreditation</td>
</tr>
<tr>
<td>Qualified to diagnose/ rule out medical issues and abnormal behaviour problems, prescribe medication, recognise medical issues</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Capacity to understand and address 'normal' behaviour problems</td>
<td>High</td>
<td>Low to moderate</td>
<td>High (potentially)</td>
<td>High for some, e.g. Delta trainers</td>
</tr>
<tr>
<td>Capacity to recognise and assess abnormal behaviour problems, and identify need to assess medical issues</td>
<td>High</td>
<td>Low to moderate</td>
<td>High (potentially)</td>
<td>Generally low. Moderate for some, e.g. Delta trainers</td>
</tr>
<tr>
<td>Capacity to understand and address 'abnormal' behaviour problems</td>
<td>High</td>
<td>Low to moderate</td>
<td>High potentially, in collaboration with GP vet or VB</td>
<td>Low, unless under directions from VB</td>
</tr>
<tr>
<td>Capacity/ inclination for face to face coaching in behaviour modification and training</td>
<td>Moderate</td>
<td>Low</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>Capacity for primary research</td>
<td>Moderate to high</td>
<td>Low</td>
<td>High potentially</td>
<td>None usually</td>
</tr>
<tr>
<td>Capacity and opportunity for literature research</td>
<td>Moderate to high</td>
<td>Low to moderate</td>
<td>High</td>
<td>Low usually</td>
</tr>
</tbody>
</table>
Based on consideration of these factors, we suggest that the most appropriate and cost-effective choice of practitioner will depend largely on the type of behaviour problem, as follows:

**Minor 'normal' behaviour problems:**  
GP vet (or staff)

**Significant 'normal' behaviour problems, with no medical components:**  
NVB or suitable trainer

**Behaviour problems due exclusively to medical cause:**  
GP vet or VB

**Abnormal behaviour problem with medical components excluded/treated:**  
VB or NVB, + GP vet

Thus, in principle, inclusion of an NVB can be an appropriate and cost-effective choice for the majority of significant behaviour problems.

**Benefits of collaboration**

Based on our experience (as a GP vet and NVB) of collaborating on 19 canine behavioural cases from September 2010 to May 2013, we perceive the chief benefits arising from this arrangement to have been:

- GP vet provides coordinated total care on medical and behavioural aspects, and guides direction of case.
- Detailed home assessment from NVB assists GP vet to make an accurate diagnosis of the behaviour problem (where needed) and determine treatment priorities
- Detailed home assessment from NVB alerts GP vet to importance of further medical testing where needed
- NVB has sufficient time and capacity to effectively educate the client and coach in behaviour modification techniques
- NVB is able to provide frequent communication with client, including a high level of emotional support where needed and to assist in ensuring compliance
- NVB provides additional monitoring and guidance on use of medication by client, under supervision of, and with feedback to GP vet as required

In summary, the client receives a comprehensive and coordinated package of assessment and treatment. When required, advice from or referral to a VB can still occur. The only disadvantage of this collaboration that we perceive has been the additional time required for communication between the GP vet and NVB, but we believe this to have been a minor issue in relation to the benefits.

**Ingredients for success of collaboration**

We consider that the success of our collaboration has relied on the following main factors:

- effective two way communication, particularly via frequent feedback by NVB to GP vet
- clear division of roles and responsibilities
- recognition of own limitations of skills and knowledge by both parties, and willingness to refer or seek outside advice when needed
- both parties communicate to client in a teamwork approach
• both parties committed to optimal outcomes for the client and animal
• mutual respect and trust, established over time

**Challenges of collaboration and a way forward**

While we consider our collaboration to have been beneficial to our clients and ourselves, we perceive three key challenges confronting wider adoption of this model. The first is the difficulty faced by GP vets in finding and assuring themselves of the ‘quality’ of a NVB (or trainer), given lack of regulation, minimal adoption and awareness of NVB (or trainer) accreditation systems in Australia, and negative experiences or reports vets may have had of certain ‘behaviourists’ or trainers. This can be best addressed through NVBs (and trainers) continuing to work internationally and within Australia on more effective industry self-regulation and preferably towards formal licensing\(^3\), as well as through enhanced communication with the veterinary profession. Meanwhile, veterinarians considering collaboration with NVBs need to assess any individual NVB’s credentials carefully.\(^1,3\)

The second main challenge to collaboration is a common lack of motivation by GP vets to collaborate with those outside the veterinary profession on behavioural problems. This stems in part to justified concerns about the quality control issue. However, it may also relate to lack of knowledge and confidence of many GP vets regarding behavioural issues and options for their treatment (including the potential role of NVBs), reflecting the veterinary degree syllabus.

The final, and perhaps most controversial challenge to collaboration between GP vets and NVBs is the perception among some sectors of the veterinary profession that VBs are the only suitable option for dealing with any ‘abnormal’ behaviour problems. We have argued that this is not necessarily the case, provided that the NVB has suitable expertise, collaborates appropriately with a GP vet, recognises their limitations and does not claim to duplicate the service provided by VBs.

In conclusion, while there are significant challenges to be overcome, the substantial benefits that can be achieved through effective collaboration between NVBs and GP vets justify further consideration of this option for dealing with behaviour problems of companion animals in Australia.
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Managing the owner: successful communication and conflict resolution

Dr Cam Day

Introduction

We humans have children because we have a self-sacrificing biological need to reproduce. We don’t really consider the length of our prospective progenys’ noses, the colour or length of their hair or whether he or she has straight, long, short or bendy legs.

And, when we decide to start a family, we don’t spend much time thinking about the behaviours our children will show.

We humans choose to have pets because we like their behaviour as well as their appearance. We know that the bendy-legged squat-nosed dyspnoeic Bulldog will behave differently to a long-legged, long-nosed Doberman. And both of those will behave and look somewhat differently to a guinea pig.

Unlike a pet's appearance, which remains constant, it's the behaviour of a pet that waxes and wanes for life.

Of all those maladies treated by veterinarians, it's bad pet behaviour, behaviour gone wrong, that can create the most long-term, welfare-negative suffering. That suffering is endured not only by the pets by also by the owners.

When behaviour goes bad, conflict in the family is a common consequence. It's then that the spouses may develop totally different views on the worth of the pet.

Handling that conflict and the emotions involved is an integral part of Veterinary Behaviour Management.

We also need to help our clients to develop realistic expectations about what can be achieved with end-stage or dangerous behaviours and, where necessary, we need to help them with the decision making on how to ‘part company’ with the pets.

Skilful communication and handling conflict when it arises is thus an integral part of Veterinary Behaviour Management.

Successful Communication means:-

1. Confirming the features and benefits of the services you provide

At the ‘first point of contact’ you or your staff need to clearly communicate the range of services you are offering to find the best match to their requirements. You can’t know the state of their bank account. That’s not your business. Your business is not to focus on your charges but to enhance the features of your practice and the benefits your services provide.

Concentrate on what makes Veterinary Behaviour Management different from the other alternatives your client may be considering. For instance dog trainers offer different services to veterinary behaviourists. State why veterinary behaviour management is not the same as dog training. Your clients will often be confused about that point.
You should also be prepared to explain how the science of Veterinary Behaviour Management is different to the use of electronic collars.

**Remember that medical disorders cause behavioural problems. That's just one thing that separates veterinary behaviourists from non-veterinary behaviourists.**

Let your clients know your practice focuses on the welfare of their pets and, equally, on the welfare of the people who are involved with those pets or who are victims of the pet’s behaviour.

2. **Confirming your fees and charges**

To prevent confusion and conflict, you need to clearly confirm the service your client has booked, the charges involved and the means by which your fee is to be paid.

**Consider offering a pre-payment facility with suitable discounts. It cuts bad debts to a minimum. (Ninety-eight percent of our clients prepay for their consultations online prior to the service.)**

Be sure to send confirmation emails or letters when the service is booked. That must confirm your fees and charges and conditions of service.

If you have a website, have all those details online for all to see. On your site, list your fees and charges but be sure to concentrate more on the features and benefits of your services and what makes you different. What’s your unique selling point? Know what that is and have that online.

3. **Confirming the concerns they have with their pets**

Good business is based on polished ‘plug and play’ systems.

Guide your interview by using a proforma to remind you of the questions you should be asking.

Remember that a pet’s behaviour relates to the lifestyle of the owners and, within that, the lifestyle of the pets. Your clients will appreciate you asking about their work routine and the type of home they live in.

Be sure to control the interview. Knowing how to listen to their verbal rants and to extract the issues they have with their pets in a logical format shows understanding and perception. Your clients will be comforted by you showing leadership and guiding them through the means by which they can give you the information you need.

You need to know how to promote their dialogue where needed and how to shut them down if need be. Knowing the difference between ‘open’ and ‘closed’ questions achieves that.

Consider the following:-

- Do you know what an open question is?
- Can you describe how to use closed questions please?
Create ‘headings’ of their main concerns

To do that you need to know about behaviour clusters.

For instance, for a client to say that ‘My dog is aggressive’ is meaningless. Aggression is divided into three clusters with their own sub-clusters. Ask your client if their dog is aggressive to the following clusters:-

1. Aggression towards people
   a. Aggression to my family
   b. Aggression to visitors to my home
   c. Aggression to people met when away from home
2. Aggression towards other dogs
   a. Aggression to dogs within the home
   b. Aggression to dogs met when away from home
3. Aggression towards animals that are not dogs
   a. Other pets (cats, poultry etc)
   b. Livestock
   c. Wildlife
   d. Dangerous/venomous/toxic animals

Behaviour clusters enable you to create ‘headings’ under which you can place written notes describing the behaviour concerned.

Having created those headings, restate them to your clients and get them to score those headings on a ‘level of concern or importance’ from 1 to 10.

- Give opportunity for all of the family to score behaviours differently if they wish – that points out areas of conflict within the family

For example:-

1. Aggression to my family 10/10
2. Barking when I am home 5/10
3. Barking when I am away 8/10
4. House soiling 3/10
5. Attention seeking 2/10

Then concentrate on the high-priority behaviours first.

Ask your clients to take you through an ‘incident report’. This is like your client ‘replaying the video in their head’ and recounting to you the step-by-step process of a behavioural event.

Incident reports are very good for cases involving aggression.

In my reports I identify incident reports with a ‘#’ symbol.

For example

(The arrows ‘→’ are an easy way to show progression – they are an MS Word auto-text hyphen – then ‘>’):-

# 15 months ago when Elvis was 3.5 yrs of age in the afternoon → at dog park 5 minutes away → present for 10 mins → a small number of people and dogs were present in the park → David (a neighbour) had his dog (BDC Charlie)
who can be grumpy → David kicked soccer ball for Charlie → David was going to kick the ball for Elvis but David did a ‘teasing dance’ → Elvis bit him on the ankle with no perceivable warning → caused a puncture wound. David was alarmed, frightened and angry after this event.

If conflict within the family is detected, restate their concerns when you are clear on what those concerns are. Ask them if ‘you have got it right’.

Use humour if need be to defuse a tense situation.

- ‘So we keep the dog and rehouse the husband/wife.’
- ‘Marriage counselling comes as an extra cost’.

Be firm and honest if you need to be – particularly if welfare issues exist. It’s hard for your clients to disagree with your advice if you stand for what’s correct for the pet’s welfare.

4. **Confirming your advice in writing**

- Create a clear, written program to confirm the therapy advised.
- Write proformas and store them in MS Word’s autotext or building blocks to make report writing easier.
- Try to set time scales for achievements.

5. **Have a follow-up and feedback system**

- Have a ‘follow-up’ system in place to actively seek recheck consultations. Automate this through your database.
  - Follow-up consultations show you how effective your remedies were and allow you to fine-tune your techniques.

- Have a feedback system to determine where your techniques can be improved
  - Blogs work well for feedback. Its public but be sure it’s moderated or spammers will hit it.
  - Cherish and adore criticism but respond to it. It makes you grow.
BONUS NOTES:

Behavioural medicine and psychiatry – blurring the boundary

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Over the past few years an increasing number of specialists from the fields of companion animal behavioural medicine and human psychiatry have become aware of the benefits of a multidisciplinary approach to behavioural disorders of both animals and humans.

From a practical perspective, the relationship between human psychiatry and behavioural medicine in companion animals can be divided into 5 main areas:

- The development of the so-called naturalistic animal models to understand psychiatric disorders and human behaviour.
- The study of psychiatric conditions as a model for behavioural disorders in companion animals.
- The application of methods in clinical psychiatry to the treatment of behavioural problems in companion animals.
- Human behaviour, psychiatric disorders and their influence in the behaviour and welfare of companion animals.
- Psychiatry, psychology and social psychology to understand our clients and to improve communication and adherence.

1. Natural animal models in psychiatric research and the study of psychiatric conditions to understand behaviour problems in companion animals

Animal models have been extensively used as a way to study fundamental aspects of the control of behaviour, which could be homologous in animals and human beings. Due to the high degree of development of the human cerebral cortex and the derived complex cognitive abilities, animal models have been mainly focused on the role of sub-cortical structures, which present a high degree of homology among mammal species. Animal behaviour can be studied either in a laboratory-controlled environment or in the natural ecosystem of each particular species.
The key aspect in relation to an animal model is whether it presents face validity, predictive validity or true construct validity. Laboratory animal models aimed to meet the criteria for construct validity usually involve surgical lesions, genetic manipulation and paradigms seeking a behavioural alteration (i.e. forced swim, crowding). Such an approach allows exploring in a very controlled way breakdowns in fundamental behavioural processes, which could play a part in the occurrence of specific psychiatric disorders. In contrast, natural animal models mimic to some extent the complex constellation of internal and external factors that underlie behaviour disorders. Further, natural animal models of research present an excellent opportunity to explore the relationship between different behavioural systems. A good example of that would be the connexion between fear and attachment related disorders, like simple phobias and separation anxiety, which in dogs show a clear degree of comorbidity.

**The domestic dog as a naturalistic animal model of research**

Ethological oriented research with dogs has gained a renewed interest over the last three decades from two different perspectives: comparative psychology and clinical ethology.

The domestic dog shows highly complex cognitive abilities among mammals, like fast mapping. Further, the study of canine cognition appears to be particularly interesting in the social domain, with many potentially homologies with human beings, like attachment-related behaviour and conflict resolution. For instance, dogs show comparable behaviour to humans in response to standardized situations such as the Ainsworth Strange Situation Test to evaluate attachment. Also, regarding social conflict dogs show elementary forms of highly complex cognitive processes, including inequity aversion and post-conflict friendly interactions (i.e. reconciliation).

Over the past few decades behaviour problems have been more and more understood as a true veterinary issue that if left untreated often results in euthanasia or abandonment. For this fundamental reason a new veterinary discipline named behavioural medicine has developed mainly in Europe and the United States. By the means of a careful analysis of clinical cases a whole body of clinical conditions have been described. Many of them resemble (face validity) and could be potentially homologous to previously defined psychiatric disorders, like separation anxiety and social phobia. Again, the functionality and neurophysiology of basic behavioural constructs that underlie many psychiatric diagnoses, particularly fear and anxiety, are highly preserved through evolution, whatever the surface behaviours displayed by each species may be.

The homologous nature of at least some companion animal behaviour problems and human behavioural disorders has been proved through different methodological approaches, including compared neurophysiology to neuropathology. Different studies on canine
impulsive aggression suggest similar traits in affected animals than in humans displaying impulsive violent behaviour, like a reduced serotonin turnover or a particular distribution of serotonin receptors in the frontal lobe of affected individuals. Other well-known pair of conditions among companion animals are canine cognitive dysfunction and Alzheimer’s disease and feline idiopathic cystitis and human interstitial cystitis, these later sharing a common stress underlying mechanism.

Regarding the use of similar treatment strategies (predictive validity), conditions like separation anxiety or some forms of stereotypic behaviour resembling human obsessive-compulsive disorder have been successfully treated in dogs with the same drugs, like clomipramine or fluoxetine.

From a strict clinical perspective, one of the main problems of behavioural medicine in companion animals, shared to a lesser extent by human psychiatry, is the difficulty to obtain precise and non-overlapping clinical profiles and physiological/biochemical correlates for the different problems, through the use of proper behavioural scales and physiological/biochemical measures. This shared interest makes the dog again a very interesting research model, which could ultimately give some insights in the characterization and many psychiatric conditions.

Finally, regarding the role of genetics in the control of behaviour and the occurrence of behavioural disorders, the domestic dog is again an excellent model of research for two main reasons: first, the canine genome has been extensively studied and second, the domestic dog presents the highest degree of internal variability among mammals.

2. The application of methods in clinical psychiatry to the treatment of behavioural problems in companion animals

Research and methods in clinical psychiatry can give us insights on 2 crucial aspects of behavioural medicine: the classification of behaviour problems and the analysis of the animal’s behaviour through the owners’ reports.

A structured classification system for behaviour problems requires the definition of a list of well-defined and more or less discrete categories of diagnosis. A review of the literature shows that almost every author presents an independent classification system based not only on the different categories included but also on the way the aetiology of behaviour problems is understood. The interpretation of behaviour problems as normal adaptive responses, or alternatively as dysfunctional conditions is a very difficult and controversial topic not only in veterinary behavioural medicine but also in human psychiatry.
Diagnosis is based on signs and symptoms, which come from 3 different sources: owner’s
descriptions, direct observation of behaviour and results from the medical examination.
Standardizing the extraction of information through questionnaires, scales and tests is a
burning topic in companion animal behavioural medicine. The field of psychometrics is very
well developed in psychology and psychiatry and therefore can help behaviourists to develop
new tools to assess behavioural disorders. Also, we believe that the multi-axial system of
assessment currently used in human psychiatry could be used as a model to refine the
behavioural evaluation of the veterinary patient.

3. Human behaviour, psychiatric disorders and their influence in the behaviour and
welfare of companion animals

The behaviour of companion animals could be influenced by differences in owners’ patterns
of behaviour, personality traits and psychiatric conditions. This and other similar assertions
are mainly based on clinical perceptions and therefore still remain highly speculative.
Nevertheless, over the past few years more and more research has been conducted on this
particular area. An early example is the study conducted in the UK on differences in
personality traits between owners of aggressive and non-aggressive English Cocker
Spaniels.

One area of human psychopathology that has gained increasing attention over the past few
years is animal hoarding, which represents an extreme example on the influence of the
owner’s psychological profile on the behaviour and welfare of companion animals. The key
defining features of animal hoarding are the presence of large numbers of animals kept in
housing that does not the minimum standards expected of responsible pet ownership, and
with the keeper being unable to recognize the negative consequences of such kind
conditions on health and behaviour. Thus, collecting a large number of animals becomes a
concern when the number overwhelms the ability of the hoarder to provide acceptable care.

Animal hoarding has welfare cost for animals concerned, and is currently considered a form
of animal cruelty. The environment provided is typically found to be inadequate, inappropriate
and overcrowded. Furthermore, animal hoarding has detrimental consequences for hoarders
themselves and also for their community.

From the perspective of the relationship with our clients, it is important to note that
psychiatric conditions are very prevalent in the general population. As an example, anxiety
related disorders might affect 1 out of every 5 of our clients and personality disorders are
found in around 10% of the population. These and other psychiatric conditions can exert a
strong influence on the way a person perceives and reacts to one particular behaviour
problem, as well as on their reactions to our assessment and treatment recommendations.
4. Psychiatry, psychology and social psychology to understand our clients and to improve communication and adherence

All prevention and treatment protocols for behaviour problems in dogs and cats require a good level of owners’ compliance. Nevertheless, estimated overall rates of treatment adherence in both human medicine and veterinary medicine are not higher than 50%.

Adherence is higher when clients understand advice, are more aware of past mistakes, remember and feel satisfied with our consultation. This highly depends on the clinician’s communication skills, as well as on a good understanding of some basic cognitive mechanisms driving human behaviour.

Research done by psychologists and social psychologists clearly indicates that just providing information is not enough to modify people’s behaviour. Cognitive dissonance is a central concept in psychology and social psychology that can help us to understand many of the behaviours that we observe in our clients in response to our advice and to the different treatment recommendations. The theory proposes that all the ideas, the attitudes and the way to react regarding of one particular situation have to be consonant with each other. When one element is inconsistent with the rest, the person feels an aversive emotional state that needs to be eliminated. Behaviour is always more difficult to modify than believes. So, when a specific treatment recommendation challenges previous attitudes and behaviour, our client will unconsciously tend to suppress it. There are many different psychological mechanisms to reduce dissonance, from trivialization to denial. To prevent those reactions, clinicians need to be aware of some of the techniques to promote behavioural change in their clients.

During the workshop we’ll analyse several practical examples of cognitive dissonance in the framework of companion animal behavioural medicine and the ways to manage them.
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