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SPOKEN PRESENTATIONS: FROM AWSEL TO PRACTICE- MAXIMISING THE IMPACT

Pit Bull Type Aid to Identification Protocol

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The identification of banned breeds of dog under the Dangerous Dogs Act 1991 has proved problematic, as even with recent advances in canine genetic science it is difficult to positively identify the breed of a given dog with certainty.

Currently the identification of Pit Bull Type (PBT) dogs relies upon a list of highly subjective physical characteristics taken from the American Dog Breeders Association Standard of Conformation.

The law does not require a suspected PBT to fit the description perfectly, rather it requires for a 'substantial number' of characteristics to be present to that it can be considered 'more likely' to be a PBT than any other type of dog, again these requirements are very subjective.

Using microscopic analysis of samples of over 800 hairs from known PBTs from the USA, UK and Republic of Ireland we have compiled a database (the first of its kind) which shows that objective, non-invasive measurements of hair features can be taken from hair samples in order to aid in the identification of a PBT dog.

In the field of human forensics, hair samples can be used to identify the ethnicity of the donor, and we have found similar physical attributes which can be used to differentiate between PBT and non-PBT hair.

These characteristics relating to the thickness of the cuticle, and the relationship between the cuticle, cortex and medulla give us objective, repeatable characteristics which can be used alongside the existing method of identification, in order to make the identification process more reliable, and to reduce the subjectivity associated with the current process.

The importance of Animal Forensic Evidence in solving Crime

N. C. Sweeney: practising barrister; author of Animals-in-Law & Dogs of Law

Veterinary forensic evidence is now at the frontier of changes to the face of criminal law.

Whether they are dead or alive the evidence derived from animals can convict a killer.

The significance of animal forensic science was first used in Canada in 1996 when it was declared to be admissible in a trial by the Supreme Court. The Jury found the defendant guilty of Murder. His conviction rested in part on the DNA of hairs left on the body of the victim. An examination proved a perfect match with the hairs from his own cat, Snowball.

The strength of such evidence is that while it has been used to convict the guilty, it can also be relevant to offer a scientific explanation and thereby provide a defence to acquit the innocent. In 2013 a man in Sweden arrested for killing his wife was denied bail and languished in prison. He was ostracised in the small community and denied release to attend her funeral. Later he was completely exonerated when the scientific analysis proved that the true assailant was a crapulent elk.

In the first case of murder where the killer used his dog as a weapon happened in London in 2010. The defendant used his dog, Tyson, who he had trained to deliberately attack people. Tyson brought down the 7 stone youth, who had Crohn's Disease, to the ground. While the victim struggled with Tyson, his owner stabbed the youth six times. Blood spatter found on the killer was analysed and confirmed to have come from the victim and the killer's pit-bull. The defendant was convicted by Tyson's blood being smeared on both of the humans.

In Dorset in 2012 a man crossing a public park saw some thugs kicking a deer to death. The police had no evidence to trace the assailants. By chance an American scientist read about the case and offered her services. She found evidence which identified the defendants who were convicted in the Youth Court.

It is often said that life hangs by a hair. Sometimes death and truth does too.

The development and implementation of low atmosphere stunning systems of poultry – a review

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Experiments on the effects of high altitude and low barometric pressure on animals and man resulted in large body of knowledge on dybarism and hypoxic hypoxia and the effects of explosive , rapid and slow decompression. This evidence base allowed aviation medicine to develop standards for pressurisation of aircraft, oxygen supplementations and the routine pilot/ astronaut training in decompression chambers to recognise the insidious onset of loss of cognition and consciousness caused by slow decompression.This was also the basis used in the USA to develop a low pressure atmosphere system (LAPS) for killing poultry using slow decompression resulting in hypoxic hypoxia and progressive anoxia without causing injury, pain, or distress. The need for LAPS was to replace the water bath electric systems which were welfare unfriendly due to inversion and shackling of birds and also gas systems which although avoid shackling there is no ideal gas mixture (EC 2012, EFSA 2012) .

LAPS has received “no objection” from both USDA and Canadian authorities in relation to its impact on food quality and public health. The AVMA 2013 have recognised the LAPS as humane for the euthanasia of birds.

Under EU Regulation Number 1099/2009 which lays down stunning and killing methods for farmed poultry LAPS is regarded as a novel stunning system . Before implementation in the EU it has to be approved by a complex process including an impact assessment and an EFSA opinion. The Food Chain Evaluations Consortium (2012) noted that LAPS had both lower economic and environmental costs than gas systems and improved the working conditions. EFSA ‘s 2014a opinion rejected the LAPS application using self imposed quality standards (EFSA 2013c) without considering any other evidence on whether LAPS was equivalent to existing systems. The evidence considered by EFSA included:

A study showing exposure to LAPs resulted in less stress than an electrical system and which also found no pathological evidence of pressure induced injures (Vizzier-Thaxton et al 2010.)

Evidence based on EEG analysis and the lack of behavioral responses indicating aversion or escape and absence of heart rate elevation in the conscious period which strongly suggest that birds do not find LAPS induction distressing (McKeegan et al 2013).

There is a need to ensure that the EU process of approval of humane novel stunning systems is fit for purpose and does not unduly delay nor prevent the uptake of novel systems which are significantly more welfare and/ or environmentally friendly than existing systems.

Statement of conflicts of interest

I declare that I am an independent consultant trading as “Animal Welfare Science and Practice” and I am also Director of The Humane Slaughter Association, The University Federation for Animal Welfare, and Veterinary Consultancy Services Limited and also an Honourary Senior Lecturer in Animal Welfare at the Royal Veterinary college University of London ; that I have as independent consultant or as Director of VCS

ltd also provided consultancy and services to Defra ,the European Union research Projects , for example EUWelNet , AWARE, AWIN and to the DGSANCO Executive Agency for Health and Consumers (now called Consumer, Health and Food Executive Agency (CHAFEA)) and also to a variety of national (including Governments of Slovenia and Tawain) and international non-government organisations (including OIE and FAO) and to private companies (including TechnoCatch LLC) ;and that I also contribute to the European Union Training programmes for official veterinarians under both the Better Training for Safety of Food and the Technical Assistance and Information Exchange Instrument which cover training in welfare of farmed animals on farm, during transport , at slaughter , at depopulation and pets including stray dog control ; and that I am a member of the Royal College of Veterinary Surgeons and several veterinary (including BVA. PVA, CVS, AWSELVA, VRC) and scientific organisations (including World Poultry Science Association); and that this abstract has been made independently of my role in these organisations and that the views expressed are my own and should not be deemed to represent the views of those organisations nor companies.

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Risk to Welfare of animals during slaughter from protraction or resurgence of brain stem reflexes, anger type behaviours or aversion, in birds, cattle and sheep: Relevance for the training of Animal Welfare Officers (AWOs). Non-Experimental Research, non-funded, non-affiliated.

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EC Regulation 1099/2009 for the protection of animals at killing, depends upon the training, erudition, and the degree of independence of the Animal Welfare Officers, using the EFSA Toolbox techniques to assess the sensibility and consciousness of animals at the Key Stages of killing. These techniques are essential to establish the level of stunning being applied to each animal set down under Article 5(1), and have the stunning level maintained to prevent any signs of consciousness or sensibility between stunning and death.

However, non-stunned animal slaughter is permitted under Article 4(4), the protection afforded under Article 5(2), is limited to "systematic checks" to ensure there are no signs of consciousness or sensibility prior to the release of animals from restraint and no signs of life before scalding or dressing.

One's research has indicated there are welfare risks to non-stunned animals from the use of systematic checks using the EFSA Toolbox techniques. Birds bleeding in cone restraint responded to attempts to touch the birds head with aversive movements, if tested within 15 seconds of the incision, if checked at 25 seconds, the birds used a pecking behaviour with kicking. 121/788 birds were alive at 90 seconds, 29/788 at 120 seconds, and10/788 at 150 seconds showed truncated unsolicited resurgent episodes of anger type behaviour.

Non-stunned calves 3/100 prolonged survivors (5 minutes) showed behaviours e.g. endeavour to stand and one stood for 5 minutes with signs of moving indicating hypothalamic processing. Non-stunned sheep showed corneal reflexes for over sixty seconds. Sheep also calves stunned using electronarcosis, were found to recover corneal reflexes and even consciousness after inverted hoisting. Resurgence may be exacerbated by extra blood to brain by inversion.

The risks to animal welfare from poor stunning or no stunning should be imparted during the AWO training and the neuro physiology of consciousness.

Could banning non-stun slaughter be detrimental to animal welfare?

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Conflict of interests: None. Funding: RVC Internal Grant. Memberships: Member Royal College Veterinary Surgeons, Member Academy of Medical Educators, Member of the British Veterinary Forensic and Law Association, Member of the Association of Animal Lawyers, Fellow Royal Society of the Arts, Member of AWSELVA.

The ethical permissibility of non-stun slaughter has been contested in peer-reviewed literature since 1892. Scientifically supported concerns regarding animal welfare have led the campaign to end this practice to be reinforced by influential organisations such as RSPCA, BVA, HSA, FVE and FAWC. Often cited is the claim that the production of non-stun slaughtered meat causes unnecessary suffering. Little attention has been paid to the legal arguments around non-stun slaughter and the consequences to animal welfare of introducing a ban. This abstract seeks to expound these legal arguments and investigate potentially negative welfare outcomes for animals if the UK removed the exemption that permits non-stun slaughter. This is a key legal debate which, unlike other welfare debates uniquely engages the Human Rights Act, must generate a novel form of legal consideration.

Following France's ban on non-stun slaughter in 1999, the European Court of Human Rights (ECHR) determined that the forum externum of Article 9.1 (the right to manifest religion) includes the consumption of meat slaughtered for religious reasons. Countries subscribing to the Human Rights Convention have the ability to prohibit the production of such meat within their territory but are not permitted to prohibit, or impose limitations, on the import of such meat for the purposes congruent with Article 9. This challenges the validity of the 'unnecessary' element of the claim of suffering purported by the organisations above; the non-stun slaughter becomes necessary in order to produce meat suitable for religious consumption.

If the UK removes its current exemption permitting non-stun slaughter, the ECHR judgement for France becomes engaged, and thus must open its borders to the importation of non-stun slaughtered meat. This could have seriously detrimental consequences to animal welfare. It may cause UK farmers to export live animals to be slaughtered elsewhere, with fewer controls, before returning the meat to the UK, but more likely the UK will import meat raised in other countries which do not have the same high standards of farming welfare. The consequences of introducing a ban on non-stun slaughter could markedly harm animal welfare further, while still not causing cessation of the practice concerned.

Development of a welfare assessment protocol for sheltered dogs

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In some countries, dogs may spend part, or most, of their life housed in shelters, being exposed to environmental and social challenges that may impair their welfare. Currently, no standard tool is available to evaluate the welfare state of dogs housed in shelter facilities. Welfare Quality® principles and criteria were used to develop the 'Shelter Quality'(SQ) welfare assessment protocol for long-term resident dogs in shelters. This protocol was composed using both outcome indicators (animal-based measures, ABMs) and input ones (resource and management-based measures) and allows the assessment of the welfare state of the animals in terms of their behaviour, health or physical condition. In order to ensure standardisation, all the assessors received training prior to the on-field application of the SQ. The raters' accuracy compared to 'gold standards' previously defined and their overall agreement were assessed. Fleiss' kappa index of agreement and Cohen's weighted kappa were computed for all comparisons. Analysis performed after the training sessions showed a high to perfect (K>0.6 to 1) inter-observer agreement and a moderate to perfect (k>0.4 to 1) level of accuracy. The protocol was tested in 29 shelters (n dogs=1278) in Italy, Spain, Croatia, Romania, Serbia and Montenegro. Logistic regression was used to determine levels of association between the input and outcome measures. A higher incidence of dirty or wet coats was observed in presence of inadequate bedding or space allowance ($p=0.047$ and $p<0.0001$, respectively). Inadequate bedding, space and the presence of sharp or harmful edges in the pen were also associated with the dog clinical conditions, i.e. injuries, hair loss and swelling ($p<0.0001$ for all measures). Further, body condition varied with space allowance, with inadequate space being associated with low body condition ($p=0.01$), and with feeding regime (i.e. co-occurrence of dry feed and low condition) ($p<0.01$). Results showed as some environmental and management aspects were consistently predictive of poor welfare. The Shelter Quality protocol would then represent an innovative way of evaluating the welfare of sheltered dogs. Moreover, it allows the identification of shelter design features and management practices that require remediation, supporting quality improvement of animal welfare status at shelter level.

Comparison of the official animal welfare control in Sweden, Ask the Cow and Welfare Quality®

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Kristina Dahlborn is a member of The Scandinavian Physiological Society, Scand-LAS, IGA International goat association and ISES.

Margareta Stéen is a member of AWSELVA (the Animal Welfare Science, Ethics and Law Veterinary Association).

Louise Winblad von Walter is a member of IDF, International Dairy Federation.

Three available assessment systems for evaluating animal welfare (AW) in dairy herds in Sweden have been studied: 1) The Swedish official AW control, 2) Växa Sweden's program “Ask the Cow”, 3) The Welfare Quality® assessment protocol for dairy cows.

The official AW control in Sweden mainly use resource-based measures to check AW, while Ask the Cow and Welfare Quality® systems use animal-based measurements. As reference data, welfare parameters from the Swedish Dairy Data Base were used. Data from 22 herds with cows housed in tie stalls and 19 herds with cows in loose housing systems with a mean size of 65 cows (range 12-268) in four Swedish counties were investigated. Factor analysis to identify the AW parameters contributing most within the systems was performed in SAS (version 9.2) with Varimax rotation method.

The systems ranked the herds in different order. Totally, the official AW control had 55 remarks of low AW. With Ask the Cow the parameters dirtiness, lameness, ecto-parasites, lesions, body scores, asymmetric or long hooves, competition at the feeding table and caudal licking explained 60 % of the combined AW scoring. With the Welfare Quality® assessment the parameters behaviours, dirtiness, human-animal interaction, vulvar discharge, eye disease, coughing, social behaviour, lesions, and body score explained 62% of the combined AW scoring. Welfare Quality®-factor 1 (mainly positive behaviours) showed correlation to the numbers of cows and remarks in the official AW control, as well as Ask the Cow-factor 1 (dirty and lame cows) and Ask the Cow-factor 2 (lesions and lameness). Both Welfare Quality® and Ask the Cow showed high scores for dirty cows at 50 % respectively 33 % of the studied herds, compared to dirtiness observed only twice in the official AW control. In conclusion: The three systems rank the herds in different order relative to AW, partly because they measure different parameters. Based on our results animal-based indicators are recommended since they enable quantifying for example body condition, cleanliness, lesions and important behaviors.

Preliminary results on the effect of intradermal vaccination on sow's welfare

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In commercial pig production, sows are often vaccinated several times per gestation period which can result in a reduced welfare. This preliminary experiment investigated whether intradermal vaccination (IDAL) improves welfare through stress markers, behavioural and health parameters compared to the traditional vaccination intramuscularly. Two treatments (IDAL and Traditional) were performed with 6 replicate pens of gestating sows (14 sows per pen), using the vaccine Porcilis PRRS® (MLV European strain). Salivary samples for Alpha-amylase (sAA) and cortisol determination were taken from 45 animals just before vaccination and 25-30 min after the injection. At 48 hours post-vaccination, 28 sows were blood sampled for Haptoglobin (Hp) and C-reactive protein (CRP) determination. Behavioural indicators of fear or pain and general activity were recorded the day before, during and the day after the vaccination. Skin reaction at the site of injection was monitored at +28h, +52h and +28 days post-vaccination. IDAL sows presented lower CRP levels (IDAL=21.3 µg/mL vs. Traditional=35.8 µg/mL, p-value=0.064) compared to the traditional group. sAA (IDAL=3433 UI/L vs. Traditional=2662 UI/L, p-value=0.92), salivary cortisol (IDAL=0.51 µg/dL vs. Traditional=0.41 µg/dL, p-value=0.29), and Hp (IDAL=1.82 g/L vs. Traditional=1.88 g/L, p-value=0.76) did not differ significantly between treatments. IDAL sows showed a reduced acute fear (or pain) response at the time of injection and were significantly less fearful towards the assessor the day after the vaccination. Sows from the traditional vaccination treatment decreased (p=0.039) activity the day after vaccination compared to IDAL sows. A reddish skin reaction of 0.5 cm of diameter was observed in 47% of IDAL sows at +28h while 9% of Traditional sows presented a skin reaction at the site of injection. At + 28 days, not any IDAL sows presented any sign of skin alteration whereas 26% of sows from the traditional vaccination group presented abscesses at the site on injection. Those preliminary results show that intradermal vaccination can be a very promising strategy to improve the welfare of gestating sows when vaccinated.

Animal welfare in an environmental perspective; a case study of life cycle analysis of pig production from field to fork

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Sustainability within animal production is a highly complex issue with numerous interconnections within the production system. Besides the sustainability aspects generally discussed, i.e. ecological, social and economic, agriculture also involves issues related to animal husbandry and animal welfare. In order to get a general picture of sustainability in farm animal production, life cycle analysis can be used for quantifying the environmental impact of the food production. In this paper aspects of pig welfare were investigated in relation to the sustainability of the integrated pork production chain (from crop growing to final product for consumption (smoked ham)).

An interdisciplinary project developed descriptions of supply chains of pork produced based on empirical data from a Swedish region in 2012. The set-up of the project was that experts on production along the supply chain designed environmentally improved systems. The next step was to challenge the improvements considering their possible consequences on products and systems from different perspectives: e.g. food safety, animal welfare, consumer appreciation and costs. Three future scenarios were created and compared to the current situation (reference). The three scenarios had different goals; 1. Reduced impact on local ecosystems; 2. Optimized plant nutrient use; and 3. Reduced climate impact. The finalized supply chains for pork were analyzed regarding environmental impact with LCA, as well as from the other perspectives.

All scenarios decreased the environmental impact of the pork production compared to the current system. Results for the animal husbandry part of the pork chain revealed that there were many similarities between the three solution scenarios. A production system with partly slatted floor for the pigs has previously been found to have reduced ammonia emission compared to a deep litter system. However, taken the whole production chain into account, the differences in environmental impact of these different systems were found to be marginal. On the other hand the pig morbidity and mortality had a substantial impact on the amount of pork produced (functional unit). The environmental impact of the housing systems has to be considered in relation to systems' effect on the health and welfare aspects to get an accurate estimation of the full productions chain. Thus, improved animal welfare (incl. health) is essential for shaping a more sustainable pig production in future.

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Why we need an Animals' Ombudswoman:

N. C. Sweeney: practising barrister; author of Animals-in-Law & Dogs of Law

Law is our language of natural justice which we use to speak for the strong and the weak.

Our past and present is tainted by our cruelty to those who we have under our control. While those chosen are treated unequally, our bias is justified by the blind eye of the law.

So we have easily identifiable targets like blacks, children, Jews and women. Above all one group was and remains the perennial victim. As to who and why the reason is the same: animals because they are animals.

Animals need a legal watchdog for the underdog. While people can by voice or vote persuade or force a Government to change, animals are always denied the means of dissent. Like Saul's persecution all they can do is await their fate at the gate of the abattoir and laboratory cage and occasionally kick against the pricks.

We are now aware of the connection between violence to vulnerable people and cruelty to animals. Sex offenders are subject to a Register so their movements can be monitored for the future. Similarly there should be an Animal abuse Register for precisely the same reason.

Our law protects those who are vulnerable by age, capacity, race, religion and sex.

Animals need a legal representative for the same reason for they are by nature our victim's victim. An Ombudswoman should be appointed to:

Represent animals in court and Parliament where any action affects their future;

Liaise with the Law Commission to introduce a new Act with the paramount principle of granting animals a legal personality.

A Minister for Animals would lead to numerous practical consequences. In 2008 the Leg Disorders in Broiler Chickens Report from Bristol University found that chickens are 'almost routinely unable to walk...' An Ombudswoman would investigate that position and if proven to be a breach of the Animal Welfare act 2006, prosecute those who breached their legal duty.

The Minister would protect the interests of badgers subject to the Cull and those who suffer when experimenters breach their Licence.

The Ombudswoman would be the victims' legal voice.

The teaching of ethics, a means to maximize the impact of ethics in practice: a survey in European Veterinary Education

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This study did not involve any competing interest.

Veterinarians face a myriad of ethically challenging issues in their daily practice and therefore need strong ethical reasoning skills. Veterinary education should provide them with such skills. Qualitative studies about the teaching of ethics in Europe were recently carried out (Magalhaes-Sant'Ana, M., 2014, JVME and Veterinary Record). The present study is quantitative; its purpose is to find out how the teaching of ethics is implemented in Europe. Such a piece of research has, to the authors' knowledge, never been published.

The authors designed and pre-tested a detailed questionnaire investigating about all aspects of the teaching of ethics and aimed at the veterinary schools members of the European Association of Establishments for Veterinary Education (EAEVE). A pilot test was conducted among US veterinary colleges. The final questionnaires were then sent by post to the Deans of the European establishments. Reminders were sent both by post and by e-mail. Confidentiality was guaranteed and the results of the study will be given to all respondents. Results made it possible to provide a descriptive account of the teaching of ethics and differences between groups of countries were analyzed using Fisher's exact test for qualitative variables and Wilcoxon rank sum test or Kruskal Wallis rank sum test for quantitative ones.

The authors gathered answers from 28 countries with a global answer rate of 63%. Amongst the respondents, one has no ethics teaching, 58% have a formal teaching in ethics, 40% have an integrated teaching only (ethics is taught with other subjects). Ethics is part of the core curriculum in 93% of the respondent establishments. 24% offer continuing education in ethics for practicing veterinarians. Significant differences between the countries north of the 50th parallel north and the others were highlighted: the teaching in the northern countries includes more case studies ($p=0.01$), more tutorials and seminars ($p=0.0142$), more student personal work ($p=0.0001$).

The northern countries are leaders in the teaching of ethics. The formal teaching format seems to be the more comprehensive one in order for students to develop strong ethical reasoning skills. Further studies will be necessary to assess the learning outcomes.

From AWSEL to veterinary education policy and practice - Maximising the impact

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With the support of the World Veterinary Association, World Animal Protection is aiming to establish a system to recognise good practice in animal welfare within veterinary education. The aims of this initiative are to:

- Establish ten key areas of teaching, research and organizational culture through which veterinary schools show excellence in animal welfare practices;
- Embed these standards in all veterinary schools to improve animal welfare in education;
- Influence future vets to have a thorough grounding in animal welfare.

An online survey from April – October 2014 investigated the following four key themes:

- The benefits of improving animal welfare education
- The criteria for welfare standards of excellence award scheme
- How to assess vet schools against the award scheme standards
- What the awards scheme system should be called

The number of respondents was 2,614 from 97 countries. Over half of respondents were female (57%). Responses were analysed in terms of the global average, after which they were broken down by region and socio-demographic variables.

Analyses so far indicate strong support for animal welfare education from the veterinary profession, motivated primarily by the desire to ensure better treatment of animals. The response was consistent across professional groups (vet educators, students, practising vets and other professionals) and regions of the world. More than 80% of respondents supported each of the ten proposed criteria for standards of excellence in animal welfare, and more than 50% were in strong agreement.

It is concluded that a system for recognition of excellence in animal welfare at veterinary schools is supported by veterinary schools and has potential to support and encourage demonstration of good practice in animal welfare by veterinary schools.

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New perspectives for the pig welfare assessment: when pathology and behaviour explain communication alterations

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The authors declare that there is no conflict of interest

The vomeronasal organ (VNO) is a bilateral chemosensory structure responsible for semiochemicals detection and involved in controlling animal behaviour. It is composed by a non-sensory epithelium (NSE) and a vomeronasal sensory epithelium (VNSE), which is directly involved in pheromones detection. Up to now, only experimental VNO lesions, such as surgical removal or nasoincisive duct closure, have been linked to deficits in social, maternal and reproductive life. No evidences about this relationship are reported regarding spontaneous VNO lesions. The aim of this study was to investigate if the vomeronasalitis can be associated to intraspecific behavioural alterations in farm pigs.

Eighteen six-months-old female pigs were included in this study. The number of skin lesions (scratches longer than 2cm) was counted on one side of the pig's body three times during the last three months of the fattening period. The 36 VNOs were submitted to routine processing and stained in hematoxylin and eosin for histological examinations. VNO lesions were classified depending on process intensity (absent, weak, moderate, or strong) in the VNSE, considering that only this portion is responsible for pheromones detection. The Wilcoxon two-sample test was used to compare VNSE inflammation and skin lesions number.

Five of 18 (28%) animals presented unilateral VNSE inflammation, while 13/18 (72%) were bilaterally affected. Of these latter, 5/18 (28%) had a weak inflammation of the two VNOs, 3/18 (17%) presented 1 VNO affected by weak and 1 VNO affected by moderate inflammation, and 5/18 (28%) presented bilateral VNSE moderate inflammation. The mean±SD of the three skin lesion measurements was 3.5±1.95 skin lesions per animal (range: 1-9.3). Statistical analysis showed that pigs bearing a bilateral VNSE moderate inflammation presented more skin lesions than those presenting weaker vomeronasalitis (mean=5.6 vs 2.6, p=0.0029).

This is the first report linking vomeronasalitis to social life in farm animals. Our data showed that the increase of vomeronasalitis intensity is associated to wounded pigs, and this is a probable consequence of a chemical communication alteration. Due to the role of social life and environmental adaptation process in animal welfare, our data open a new field of research linking pathology to animal behaviour.

The maternal appeasing pheromones: a message to respect the Five Freedoms of animal welfare

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Pheromones have been found in species in every part of the animal kingdom (Wyatt, 2010). They elicit innate responses and in mammals the maternal appeasing pheromones are the natural chemical messages involved in the mechanism of attachment between mother and offspring. This message was isolated in a native sebaceous secretion in different mammals species (Pageat and Gaultier, 2003).

The pheromones synthetic analogues of maternal secretions are used today in order to improve welfare in different species. Maternal pheromones are especially applied as emotional modulator before or during potentially stressful situations in order to restore the balance of the subject. Dogs, cats, horses, rabbits, pigs, cattles, poultry, fishes are exposed daily to different stimuli: during this process the animals needs to use their physical and cognitive abilities in order to cope with the social and spatial stimuli.

This review analyzes the researches about the impact of the maternal appeasing pheromones synthetic analogue in different situations and species and the indicators used to proof the efficacy of these compounds: behavioural, physiological, zootechnicals (Mills et al, 2006; Madec et al 2008; Bouvier et al, 2008; Denenberg and Landsberg, 2008; Yonezawa et al, 2009; Cozzi et al 2010; Siracusa et al, 2010; Mengoli et al 2014; Osella et al, 2014). Researchers suggest this approach as a preventive measure to maintain a good level of welfare, and/or to control of behavioural problems in association with behavioural rehabilitation programs.

Different species share their life with human and this situation often represents a challenge for the balance of their emotional state and a possible threat for the respect of the “Five Freedoms”. Discomfort, pain, fear and distress can trigger abnormal reactions and consequently the impairment of the capability to cope with the environment and to emit the normal behaviour of a specie. Studies about the impact of the maternal appeasing pheromones explain the role of this chemical messages: an innovative way to communicate with different species to facilitate the natural adaptation process respecting while their welfare.

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Some welfare and ethical considerations on flight restraint methods in birds.

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Deflighting procedures such as wing trimming and the more invasive and permanent surgical techniques are among the most controversial topics in society on an international scale. Despite the existing controversies, deflighting is one of the most routinely performed procedures in captive birds. Can owners expect these procedures to be performed as part of a routine check-up of their bird by their veterinarian, or does the procedure warrant a more careful and critical assessment of the purpose and method used to deflight the bird?

To answer these questions, several fundamental biological and welfare aspects need to be taken into account. For example, is flying an essential behavioural need for a bird, and will it's welfare be impaired when it is not able to fly? These issues are complex by nature, since deflighting a bird does not automatically imply reduced welfare. Paradoxically, some deflighting techniques may actually increase the pet bird's opportunities to express other biologically relevant behaviors which they would otherwise miss out on if they were able to fly.

In this review presentation, the most commonly used deflighting techniques will be discussed and critically appraised from a welfare and ethical perspective. Finally, an algorithm will be presented based on which it can be decided upon if and which method is most desirable under the given circumstances, taking into account the purpose, medical and behavioural consequences and ethics of the procedure. By using this algorithm, professionals may be able to select the method of choice to deflight the bird according to the principle that it is the least intrusive, least painful and most effective method to use.

About welfare monitoring in wild species: analytical validation of a method to extract and measure glucocorticoides metabolites from African grey parrots (Psittacus erithacus) droppings

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The noninvasive measurement of glucocorticoid metabolites (GCM) from mammalian feces and bird droppings is now widely used to assess stress and welfare issues in various species, especially in wild or endangered ones. Among them, African grey parrots (Psittacus erithacus) are common in captivity and regularly kept by humans as pets. However, their sensitive and intelligent nature makes them particularly vulnerable to stress, which can compromise their welfare. Importantly, several authors have highlighted the requirement of a rigorous validation of GCM measurement for each new studied species. To our knowledge, such work has not been published yet for African grey parrots despite its high interest to monitor their welfare and stress-related issues. Procedure validation includes among others the selection of a suitable combination of GCM extraction and immunoassay methods.

Here we evaluated several method combinations to extract and assay GCM from a pool of 18 droppings from both sexes of African grey parrots: (i) two pre-extraction treatments of droppings (fresh vs. dry); (ii) two extraction buffers (60% ethanol vs. 60% methanol); (iii) three commercially available enzyme immunoassay (EIA) kits initially designed for assaying corticosterone (from EnzoLifeSciences, CaymanChemical, and ImmunoDiagnosticSystems). To select the best global procedure, several parameters were assessed: (i) the maximum capability of quantification; (ii) the parallelism between serially diluted extracts and the standard curve; (iii) the matrix effect using measurements of blank extracts and spiked blank extracts; (iv) the relative accuracy by comparing GCM level in a known amount of feces and twice this amount; (v) the precision. These data demonstrated a good recovery between GCM amount in dry and fresh droppings in every method combinations and lesser matrix effect with the use of methanol 60% as extraction buffer. The use of EIA from CaymanChemical gave the most accurate and precise results, with the highest capability of quantification.

Finally, this work showed that the best procedure to measure GCM in African grey parrots droppings is an extraction from fresh or dry droppings in 60% methanol associated with a measurement using the Corsticosterone EIA kit from CaymanChemical. Following it, welfare of African grey parrots could then be properly monitored.

Milk portion size for the dairy calf: from established practice via science to new practice

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It has been a well established practice in Norway to separate the dairy calf from the cow at birth and subsequently feed the calf two litres of milk three times per day. This daily milk allowance corresponds to 10-13% of the calf' body weight and to approximately half of the amount ingested by nursed calves. In young calves, such a restricted feeding regime is questioned, as it causes relatively low weight gains, hungry calves and thus reduced welfare. However, the common belief is that higher rations would result in milk entering into the rumen causing indigestion, diarrhea and reduced growth. We aimed to test this myth, as it is an important obstacle against increasing the daily milk allowance in calf rearing. Six calves (19-23 days of age at the beginning of the experiment) were included in the study. During three morning feeding sessions, all calves were offered a portion size of milk according to the Response Surface Pathway design in which the portion size offered depends on the result of the previous feeding. The milk was blended with a contrast agent containing barium sulphate (Mixobar®) and fed by a teat bottle giving a drinking speed of approximately1.5 liter/minute. The calves' abdomen was radiographed before, during and immediately after intake. Calves were observed carefully for two hours following feeding. Four out of six calves drank five litres or more, and the highest voluntary intake was 6.8 litres in one meal (13% of body weight). Traces of milk in the rumen were not detected in any of the abdominal x-rays, regardless of intake. No signs of abdominal pain were recorded. The results show that when milk is administered from a teat bottle, farmers can safely increase the milk meal size. This makes it feasible for farmers to increase milk allowances in young calves without introducing an extra feeding per day or investing in an automated milk feeder. The findings have already been implemented by the Norwegian Cattle Health Service: the new recommendation disseminated via information materials and production consultants all over Norway is now four litres per meal.

Creating Welfare Sensitive Models of Pig Disease.

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Introduction

A wide range of animal models of disease (mainly human) exist in the research literature. Most of these involve invasive, traumatic and stressful procedures under HOL approval. In a current study on the automatic detection of early disease behaviour in pigs we have explored the potential for more welfare sensitive approaches to modelling disease.

Methodology

Animals were 20-50kg mixed sex, growing Landrace X Large White pigs kept at the Newcastle University HOL farm facility. Housed in a self-contained 4-pen unit, each 2.4m x 4.1m with 15 pigs, on adlib dry feed and water, fully slatted floor. Daily feed and water intake also interaction with enrichment (rope) recorded. Roof mounted 'Kinect' cameras covered each pen for video tracking analysis of pig behaviours to create post annotation disease detection algorithms.

Models created:

1. Acute 'sickness behaviour' induced over 4hr period following vaccine administration.

2. Lameness, a functional non-painful change in gait of individual pigs by applying a boot to one limb for <1hr.

3. Aggressive mania, simulated over 10 minutes after introducing a newspaper to the pen.

Validation: 1. Pyrexia and elevated blood cytokines. 2. Pedometer readings and lameness score.

3. Elevated heart rate (HR) and hyperactivity.

Results

1 Vaccine reaction caused classic 'sickness behaviours' of lethargy (reduced activity and increased lying) and anorexia, with significant elevated serum IL-1beta (317pg/mL) levels and pyrexia (+2^{0}C) both $p<0.001$.

2 Boot application resulted in lameness score 2 with significant change in gait and pedometer readings $p<0.05$.

3 Newspaper induced mania, rapid head shaking and significantly elevated HR (>200bpm) $p<0.001$.

Conclusions

By selecting salient behaviour characteristics of a disease, these can be modelled without inducing the pain and suffering inherent in actual disease. Consequently we believe, in selected cases, this more welfare sensitive approach to modelling disease is possible and so provides a valid addition to the '3Rs' improvements to animal experiments.

Ethical problems with EBVM in Equine Practice.

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Introduction

Evidence-based veterinary medicine (EBVM) is becoming a central tenet in veterinary healthcare [1-3], including equine practice [4]. However, the translation of EBM from the human to veterinary fields raises ethical problems relating to availability of evidence, consent, and autonomy [5]. These are particularly pronounced in equine practice, where animal numbers are small, and research funding sparse.

Ethical problems with the availability of evidence

The British Equestrian Industry contributes £7 billion p.a. to the national economy [6]. Nonetheless, equine medicine is analogous to 'orphaned fields' of human medicine [7]. There is little money available for research, and, as in human medicine, it is difficult to build up an evidence base on surgical techniques [8]. The ability of equine clinicians to practice EBVM (and to meet regulatory requirements to do so) is limited by a lack of high quality evidence.

EBVM and autonomy in equine practice

Patient autonomy is problematic in EBVM because patients are unable to consent. In equine medicine, this is further complicated by the involvement of trainers and riders as well as animal owners [9]. An economically-driven desire to keep horses competing may cause those giving consent to act other than in the horse's best interests. Pressure on veterinarians to undertake treatments for which there is no evidence base (e.g. 'firing' or soft palate surgery) is anecdotally strong.

Less economically developed countries (LEDCs) and consent

Consent to involvement in research is a requirement of publication for reputable veterinary journals. Field research in LEDCs can improve the efficacy of care, and have beneficial effects on whole communities. However, requirements for informed consent are hard to fulfil in countries with low levels of literacy, and where evidence based practice is an unfamiliar concept even in human medicine.

Principal conclusions and implications for the field

Problems with availability of good quality evidence and relating to consent and the ethical principle of autonomy are particularly pronounced in equine veterinary practice. Enthusiasm for promoting EBVM needs to be matched by academic consideration of how to address these problems if EBVM is to fulfil its potential to deliver improvements in international equine healthcare.

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An Ethical Framework for Renal Transplantation in Cats

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Advances in medical technology together with increasingly specialist training of veterinarians have led to a rapid expansion of the range of advanced surgical techniques that can be performed on animals. However, as Bertrand Russell pointed out, our humanity does not always keep up with our progress in our techniques so “as skill increases, wisdom fails”. Continued controversy and debate around procedures such as renal transplantation in animals have highlighted the need for the development of comprehensive ethical frameworks for dealing with decisions on advanced surgery in animals. The purpose of this presentation is to develop one such framework using one of the most complex modern surgical scenarios – renal transplantation in cats.

Contractarian theories and Kant’s moral perspective can be used to derive two important principles related to our duties to our domestic animals: our duty of care for our animals, and our duty of care for ourselves and society. These can be applied to a veterinary regulatory context and any consideration of advanced surgical procedures to provide resolution of the dilemma “just because it can be done, should it be done”? In relation to feline renal transplantation, exploration of the interests of the affected parties, recipient, “donor”, and human agents, reveals that the main challenges relate to the human agents and their behaviours rather than a pure animal welfare ethic. This means that appropriate checks are required to avoid driving perverse behaviours on the part of human agents if the procedure is approved. A key issue is the identification of an appropriate donor cat and the protection of its interests. In particular to avoid animal abuse, and killing as a consequence of the need for a transplant, rather than harvesting post-necessary euthanasia, strict protections must be in place for donor identification (as a minimum) and subsequent guarding of the interests of the donor. Without these, which are likely to include substantial endowments made by the owner of the recipient to guarantee the future of the donor animal, it is not likely that society would consider feline renal transplantation to be an ethical procedure.

Potential conflicts of interest: S. May is a member of RCVS Council and Senior Vice President of the European Board of Veterinary Specialisation. M. Whiting is a member of the RCVS Disciplinary Committee.

EBVM: Whither patient values? A case for their inclusion

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Definitions of EBVM do not currently include patient 'values', in stark contrast to their central role in human EBM where they are seen as a central consideration, comprising "unique preferences, concerns and expectations each patient brings to a clinical encounter".[1,2] Whilst it would be too much of a philosophical stretch to say that animal patients can possess values akin to their human patient counterparts, they are likely to have a preference for not suffering, and for the transition to health to be as rapid, certain, and least harmful as possible. It may be possible, therefore, to ascribe some values to them in a similar way to ascribing moral consideration, even if they cannot articulate such.

EBVM's consideration of patient values only extends to demonstrating effectiveness, or not, of an intervention for an animal. This misses the unique nature of veterinary medicine where patients cannot consent, or rationalise interventions that may involve considerable periods of negative experiences. There is a significant risk of causing harm to the patient's welfare when practising EBVM, especially as the evidence is often weak, incomplete, contradictory, fuzzy, or non-existent and the animal lacks a dissenting voice. This stands in opposition to a veterinary surgeon's oath and ethical imperative to do no harm, and to do the best for her patients' welfare.[3]

At what point does the risk become ethically unacceptable? The answer comprises both empirical and philosophical considerations: empirical in defining the magnitude, duration and nature of benefits and harms of interventions, and philosophical in conceptions of what constitutes an acceptable or good animal life.[4,5,6]

The presentation will critically review the definitions of animal patient 'values', outline the case for assigning values to animal patients in EBVM practice, and examine how different philosophies of what is a good animal life can be applied to the empirical practice of EBVM in different circumstances to help realise these values. It will expound how rather than being excluded from definitions of EBVM, patient values should be the central, primary and overriding consideration in both its practice and research if it is to be an ethical pursuit.

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INFLUENCING CLIENTS- HOW FAR CAN AND SHOULD WE GO?

Rethinking consent in veterinary practice

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It is a mainstay of veterinary ethics that non-emergency treatment should usually be given only when owners have given consent. For this consent to be valid, it needs to be free from undue influence. This creates (perceived) difficulties for practitioners keen to advise on ethically and emotionally-charged topics such as the patient's welfare.

This paper reviews (1) the ethical "rights" that might underlie a requirement for consent in veterinary practice as an extrapolation from human medical practice, (2) potential risks from requirement for consent and (3) ways in which owner's decisions should be made and constrained.

(1) There is no convincing ethical basis for the extrapolation of these concepts to veterinary practice. Owners do not have equivalent moral status to patients or proxy consent-givers in human medicine, and there is insufficient evidence for potential wider implications (eg in reducing dis-incentivising owners from presenting animals at practices). (2) A requirement for consent risks animals not receiving treatment to avoid unnecessary suffering, and stress for veterinary professionals. (3) Owners' decisions should be based on, and constrained by, concerns for animals' interests and specifically to avoid unnecessary suffering.

Given that informed owners are often best placed to assess what is in their animals' interests, it seems sensible to allow them to consent to treatment where they judge it in an animal's interests (in such cases a veterinary surgeon can still refuse to perform the treatment if they consider it to be harmful to the patient). But given that some owners do not provide consent for necessary treatment, it seems also sensible to allow veterinary surgeons to perform necessary treatment in the absence of consent. This would mean that either consent OR necessity could provide a "key" to ethically legitimise treatment, that owners could consent to treatment, but not refuse it (although they might still refuse to pay), and that veterinary surgeons are not ethically negligent for treating without consent in their patient's interests.

Don’t give up: ongoing, multi-pronged approaches may be needed to reduce the incidence in practice of complex problems such as feather pecking

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Feather pecking (FP) is the most recognised form of injurious pecking (IP) that also embraces vent pecking and cannibalism and is widespread in flocks of laying hens, particularly those kept in large, loose-housed flocks, where it can be a major cause of early death. Although widely regarded as developing from misdirected ground-pecking behaviour, IP has complex aetiology with genetic and numerous environmental risk factors associated with its occurrence (Nicol et al, 2014). Its high prevalence in practice has consequences not only for bird health and welfare but also reduces the efficiency, profitability, sustainability and consumer confidence in premium systems of production such as free range and organic, which have the potential to enable birds to express a full repertoire of behaviour. Moreover, the practice of beak-trimming, which is widely used to limit the damage resulting from IP, is regarded as an undesirable mutilation requiring derogation from EU legislation.

While research is ongoing to understand the complex aetiology on a fundamental level (Rodenburg et al, 2013), groups like ours are exploring a variety of methods to improve the uptake on farm of evidence-based practices which reduce the risk and prevalence of IP. Indeed we have amassed evidence that the greater the adoption of these on farm, the better are the outcome measures of hen welfare and production. Importantly, we have recognised that social science methodology can improve uptake on farm by utilising techniques that have been demonstrated to enhance change behaviour in other contexts such as preventive medicine. In our two projects that have used one-one approaches on farm, we recognised that a tailored approach is necessary on many levels. Further; providing knowledge on several platforms is effective, with our website www.featherwel.org providing an example of high impact.

Recognising that the issue is continuously evolving because the associated variables, including the genotype, change over time, the paper will discuss various initiatives to improve the adoption of best practice on farm. The overarching goal is to establish sustainable mechanisms whereby the industry can recognise and respond to emerging challenges and improve uptake of best practice to achieve year on year improvements.

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POSTERS

Main reasons for the relinquishment of cats and dogs in two Portuguese municipalities

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There is a well-studied strong relationship between animals and their tutors[1], which started with the domestication more than 10,000 years ago[2]. Notwithstanding, currently humans still have some attitudes to animals that are not compatible with their welfare, namely the abandonment or relinquishment. Some studies[3] have been made to understand the reasons for relinquishment that can lead to a possible find of solutions to this social problem.

To identify the main causes of relinquishment of dogs and cats in a Portuguese region, the authors have placed a questionnaire in the regional official municipality shelter and in two animal protection associations' shelters, in Sintra and Cascais (both municipalities from the district of Lisbon, Portugal), during seven months. This questionnaire included the characterization of the participant (age, income level, composition of the household, among others), as well as the relinquished animal (specie, gender, reproductive status, breed, among others) and the main reasons to relinquish. 79 questionnaires were received.

The reason most often given for the relinquishment was emigration (7 answers), followed by financial problems, excess animals, animal diseases and allergies in the family (each with 6 answers). Behaviour was also mentioned (aggressiveness and destructive behaviour) but not among the main reasons. The reason for that could be related with the fact that during the period of the study the country was under an economic crisis. Twenty-one from the 34 owners who have relinquished their animal said, in the same day, that they were willing to have other animal in the future.

Based in these results, several measures can be proposed to minimize relinquishment. Nevertheless, further studies are required to assess this undesired social problem, as there is the possibility that the expectation of the owner at the adoption can fail and lead to relinquishment.

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A survey on the presence and work of Animal Affairs Bureaux in Italy

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In the last years, due to an increased awareness on animal welfare, some bureaux dealing with animal protection, especially protection of dogs and cats (Animal Affairs Bureaux=AAB), have been created on the Italian territory.

The aim of this study was to investigate the presence and work of AAB in Italy.

In 2011, a 16-item questionnaire was sent to all the Italian Animal Affairs Bureaux that could be tracked on the web.

Overall, a shortage of AAB was observed (n=68). The first AAB was created in 1992. The distribution was uneven, with 34 centers in Lombardy, 7 in Tuscany, and 5 on 20 Regions without any AAB.

Thirty-one questionnaires were returned. Among respondents, the staff (1 to 8 people per AAB, 88 in total) had not attended any preparatory courses; and only 22.6% of people working in a AAB had previous experience or training in the field.

The tasks mainly performed by AAB were: providing information to public audience regarding animal protection and management (96.7%); petitions for animal mistreatments (87.0%); census of free-ranging cats living in the colonies recognised by the municipality (74.1%); acceptance or rejection of the relinquishment or transfer of owned dogs (67.7%); capture and reintroduction of cats belonging to recognised colonies (67.7%).

In many of the districts, dog shelters were not present (38.7% for short permanence shelters and 58.1% for long permanence shelters), although mandatory by law. The vast majority of districts (83.8%) had created areas in which owned dogs can be left off-leash and socialize with other dogs. However, only 40.0% of districts along the coast had beaches equipped for dogs (8 in Tuscany and 6 in Emilia-Romagna).

Most districts (74.2%) fulfilled their own regulations concerning animal protection.

In conclusion, AAB play an important role in urban anthrozoology. However, their staff, spread, and facilities should be largely implemented in Italy.

What makes a hen happy? - Consumer perceptions of factors influencing free-range hen welfare

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No conflict of interest.

This research aimed to understand what consumers think is important for free-range hen welfare with regard to management, resource provision and aspects of the range. Furthermore, we aimed to determine whether responses were affected by demographic or purchasing behaviour groupings.

An online survey link was sent via email to approximately 30,000 consumers on a mailing list accumulated by a large free-range egg brand in the UK, with a small incentive to take part. A reminder email was sent out one week before survey closure and 6,378 responses were received over a month period. 81.4% of respondents were female.

Respondents chose to buy free-range mostly for reasons relating to hen welfare although product taste was also important. They bought non free-range eggs for reasons relating to cost and availability. Likert-style questions were presented, asking respondents to rate the importance of various factors that might affect hen welfare as well as aspects of the outside area. Although all options were rated as important by respondents, when asked to prioritise, outdoor access was deemed the most important factor (51.6% of respondents) and fresh-air the most important aspect of the range (30.5%). Similarly, respondents were then asked to rate the suitability of various resources as a means to improve welfare both inside and outside the hen house. Resources directly related to behavioural needs of hens (e.g. perches and dustbaths) were rated as more suitable inside the house and shelter was deemed most suitable on the range (62.6%).

Comparisons between those who always or regularly buy free-range (n=5653) and those who only occasionally or never do (n=725) demonstrated that free-range buyers significantly rated importance and suitability of all aspects and resources as higher (Mann-Whitney U test: P=<001) and rated welfare higher on a 1-10 scale (Mann-Whitney U test: P=<001) than non-buyers.

This research has demonstrated that consumers have an interest in hen welfare when buying free-range and believe that outdoor access is very important for welfare. When deciding on the suitability of ‘enrichment’ to enhance welfare, consumers generally chose those that fulfil a behavioural need. An effect of purchasing choice on responses was also shown.

Dog bites: what can we learn from social media?

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Dog Bite statistics are generally recorded through emergency hospital admissions, however little evidence is available on the dog bites which are less serious; require minor medical treatment through a GP or self-treatment, and limited figures are available for these. There may be an opportunity to source additional information through social media relating to the nature of dog bites and circumstances that surround them, thus enabling more informed education of the public to reduce the number of dog bites. Furthermore, reaction to dog bites in the media and legislation change is also beneficial. Research using social media has been carried out in some sectors which may be useful to ascertain similar methodologies, such as assessing animal behaviour (Burn; 2011; Nelson & Fijn, 2013); the agri-food sector (Boehm et al., 2010) and public reaction to media reports (e.g. Sanderson and Cheong, 2011).

There are currently a range of social media applications (such as Facebook, Twitter, YouTube and Instagram etc.) available which may provide evidence in a pictorial, written or combined format which relate to dog bites. This paper [1] reviews previous research relating to the use of social media for assessing public perceptions, [2] proposes future research using methods of social media, assessing the advantages and disadvantages of each form of social media, [3] to assess incidences of dog bites and note what can be gained from such sources, [4] gauge public reaction to media reports and legislative changes relating to dog attacks.

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Body temperature monitoring system as non-invasive welfare indicator in sheep transport

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Transport involves several potential stressors that could negatively affect animal welfare, impacting on both homeostasis and metabolism. Changes in core body temperature have been used to assess the stressfulness of transport in sheep. However, the manipulation of the animals to assess rectal temperature is in itself a source of stress. New technologies to assess the thermal response avoiding the invasive load upon the animal are available, with potential applications in improving livestock welfare assessment for research and commercial purposes.

Aim of this study was to assess changes on core body temperature in adult sheep during long journey transport using non-invasive data logger, in order to test the appropriateness of this technology to assess animal welfare.

A long journey transport (29h) was carried out under mild weather conditions. Forty-eight ewes were transported from a commercial farm to a control post, while twelve remained at the farm of origin (control group). I-Buttons® were used both to continuously monitor environment (at farm and on truck) and to measure internal animal's body temperature (through insertion into vaginal sponges). Data were collected continuously both on the day before transport and on the day of transport (four time interval: before transport, at loading, during transport and at unloading). Mean body temperatures statistical analysis for different groups and time intervals was evaluated using a mixed model by the PROC GLIMMIX procedure of SAS.

Body temperature showed significant differences between the control group and ewes subjected to transportation ($P < 0.05$), and the influence of time intervals ($P < 0.05$). During the first 4h of transport and at the unloading, body temperature increased in transported animals. This significant difference with the pre-transport value lasted until 8h of travelling, being not significant in the last part of transport (from 25th to 29th hours). During the trial, environmental temperature not exceed the thermoneutral zone of animals and no significant correlations between animal body temperature and environmental temperature were found.

In conclusion, long journey transport affects the core body temperature of sheep and the technology of I-Buttons® could represent a valuable tool to evaluate body temperature changes due to transport practice.

Epidemiological features of Endoparasites in working donkeys in Al-Fudial village / Baghdad / Iraq

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This study intended to investigate the prevalence of endoparasites of donkeys in Al-Fudial village/ Baghdad from January 2015 to May 2015. For this purpose, a total of 50 faecal samples from working donkeys were coprologically examined for nematode, cestode and trematode infections. Coprological examinations showed prevalence of strongyles, Trichostrongylus axei, Dictyocalus arnifieldi, Anoplocephala spp. and Triodontophorus spp. significantly ($p<0.05$) higher mean prevalence and overall epg count was observed for strongyles in young donkeys than in both adults and old donkeys. Furthermore, ovaculture revealed 100% prevalence of strongyles and Trichostrongylus axei and 35.8% Dictyocaulus arnfieldi. The results of the current study demonstrate that a wide range of parasites with high prevalence affect working donkeys in Iraq.

Conflict of interest:

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The assessment of affective state in dairy cows: A potential method for gaining insight into pain associated with clinical problems such as lameness

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Lameness not only causes a great economic loss for the dairy industry each year but also indicates poor animal welfare as the condition is often associated with painful foot lesions. Physiological and behavioural indicators are often not reliable for assessing subjective experiences such as pain. Recent studies have shown that cognitive testing could help to identify the pleasant- or unpleasantness (valence) of emotional states more precisely (Harding et al. 2004). Animals with laterally placed eyes have been found to show a strong side preference in their approach towards novel objects due to lateralised brain functions (Leliveld 2013). Although both sides of the brain are involved in processing emotions, right hemispheric dominance is associated with negative emotions while positive emotions induce high activity in the left hemisphere (Silberman and Weingartner 1986). A lateralisation study in cattle (Robins and Phillips 2010) demonstrated that cows preferred to watch fear eliciting objects from the left visual field (right hemisphere dominance). We believe there is potential to investigate whether visual lateralisation behaviour could be used to identify affective states in dairy cows. Lameness is likely to cause pain and therefore affected cows may be in a negative emotional state. We investigated whether lame animals show different (lateralised) approach behaviours compared to sound animals when they are confronted with novel objects. Findings will be presented and discussed in terms of how they may contribute to understanding affective states in dairy cows. In conclusion, this study could yield new and practical methods for assessing pain and related affective states associated with diseases that commonly affect dairy cows, including lameness.

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Utility of a Novel Piglet Grimace Scale for Evaluating Pain Mitigation in Piglets Undergoing Surgical Castration

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There is a critical lack of information surrounding methods to improve the well-being of piglets undergoing painful procedures. It is not uncommon for piglets to undergo potentially painful procedures without anesthesia or analgesia, particularly for agricultural research projects. The objectives of this study were to develop and validate a Pig Grimace Scale (PGS) in association with behavioral scoring techniques to assess analgesic efficacy in piglets undergoing castration. Castration was performed on 4 litters of 5 day old pigs (n=19) with treatments randomized across litters: no treatment, meloxicam 0.4 mg/kg IM + EMLA (a eutectic mixture of prilocaine and lidocaine), meloxicam + unmedicated cream, saline + EMLA, and saline + unmedicated cream (4-5 pigs/group). Pens were videorecorded for 1h the day prior to castration, immediately after castration for 7h, and for 1h at 24h post-procedure. Thirty behaviours and postures were scored continuously for the first 15min at -24, 0, 1, 2, 3, 4, 5, 6, 7 and 24h by an observer blinded as to time and treatment. For PGS scoring, 627 facial images were captured across the 9 timepoints. Facial action units and an associated scale were developed, including ear position, orbital tightening, and cheek bulge. Three individuals blinded to treatment scored each photo separately. Baseline PGS scores from -24h pigs were subtracted from scores obtained post-castration. Data was analyzed using a linear model ANOVA with post hoc Bonferroni tests. All piglets displayed significantly more inactive behaviours (e.g., lying, sleeping) than active behaviours (e.g., walking, running, playing, nursing) up to 6h post-castration. No litter-associated differences were noted in behavioural or PGS data and data was combined across litters. There were no treatment-associated differences in PGS scores and PGS scores at 0, 3, 4, and 5 were significantly higher than those at 7h post-castration ($F_{4,15}$>3.06, $p<0.05$). The use of meloxicam and EMLA® were not associated with a reduction in painful behaviours or postures compared with untreated piglets. Our findings indicate that the current recommended dose of meloxicam is not effective in alleviating castration-associated pain in neonatal piglets. These findings also indicate that the PGS may have utility for evaluating pain in piglets.

The Wild Animal Welfare Committee (WAWC)

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There are no known conflicts of interest

A new committee, dedicated to the promotion of wild animal welfare, has recently been launched. The Wild Animal Welfare Committee (WAWC) has been set up to provide independent advice and evidence about the welfare of free-living wild animals in the UK, aiming to reduce harm to animals and prevent suffering that might have an anthropogenic cause. The WAWC will highlight the importance and value of wild animals and in particular the welfare of the individual; it will disseminate information and commission reports on contemporary wild animal welfare issues, ranging from habitat and population management techniques to the impact of wildlife conservation measures. The WAWC has already identified many issues where there is a need for more evidence and information and is evaluating and prioritising topics so its work can be effective for the largest number of animals in the shortest possible time. One of the first projects is underway to gather together published research about the state of wild animal welfare in the UK from the perspective of the individual animal's needs and to consider current practice and existing guidance. A stakeholder survey is being run to gauge support for this work and help identify early priorities. The UK already has a long-standing Farm Animal Welfare Committee (FAWC) and a Companion Animal Welfare Council (CAWC) providing independent advice on the welfare of farmed animals and pets. The WAWC aims to ensure that wild animals receive the same level of consideration. More information about WAWC can be found on its website: www.WAWCommittee.org

Public attitudes about companion animal welfare and legislation: a pilot study

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No conflict of interest to declare.

Public awareness of animal welfare continues to change dramatically. To further understand some of these changes, we administered an online survey about attitude toward companion animal welfare and Italian legislation concerning dog bites to 227 (149 women) participants. Answers used a 1 to 5 Likert scale (1=complete disagreement, 5=complete agreement).Respondents' also indicated gender and current/previous/present dog/cat ownership.

Most respondents either completely (36%) or partially (24%) agreed that random public controls of privately owned pet welfare were needed. Respondents also tended to endorse greater public control of the welfare conditions for: pedigree animals in breeding (39% completely, 17% partially), animals working in animal assisted interventions (45% completely, 24% partially), horses in riding yards (45% completely, 19% partially), and public-school courses in human-animal relationships in for students up to 16 years old (46% completely, 16% partially).

Most respondents disagreed (59%, 12%) with compulsory euthanasia for privately owned dogs that had bitten three or more times "out of contest," and 40% (29%, 11%) disagreed with the euthanasia of dangerous dogs in shelters.

Women reported stronger animal welfare concerns than men (all Mann-Whitney U tests ps<.05). Although 64% of the entire sample was against experiments using dogs and cats as subjects, women (p=.02) and dog- (p=.04) and cat- (p=.03) owners were significantly more opposed than men and non-owners. Previous dog (p=0.03) or cat (p=.02) ownership was related to propensity to agree with pro-animal welfare positions.

Man-Whitney U tests found that women disagreed with euthanasia under the above mentioned circumstances more than did men (p=0.02), and present (p=0.002) and past (p=0.04) cat owners disagreed more than non-owners. Women (p=.01), as well as current (p=.01) and previous (p=.02) cat owners, were also more likely (than men or non-owners) to agree that live puppies or kittens should be forbidden in pet shops. In general, there appears to be prevalent concern among the general public about animal welfare.

Practice driven innovation in the laying hen sector

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Statement of conflict of interest: none

Commercial animal husbandry has undergone many changes recently in response to animal welfare and sustainability concerns. These changes often require producers and industry to modify existing practices, thereby creating opportunities for experimentation and innovation. With the growing recognition that the traditional model of knowledge transfer from scientific research to industry practice has not always been effective in addressing hoped-for changes in animal welfare and environmental sustainability, a growing emphasis is now being placed on more cooperative forms of knowledge generation and experimental innovation. Using the laying hen sector as a case study, the Hennovation project aims to explore and test novel mechanisms for addressing and overcoming the 'research/practice' divide in the delivery of sustainable animal welfare practice in two specific areas of current farm animal welfare concern: feather pecking amongst laying hens and end-of-lay transport.

The research project promotes practice-driven innovation through the establishment and encouragement of innovation networks of both producers and the hen processing industry that proactively search for, share and use new ideas to improve hen welfare, efficiency and sustainability within laying hen systems. Up to 20 networks are being mobilized at different levels of the production chain, local, national and European level. These networks are supported by science driven-actors, such as veterinary surgeons, farm advisors and scientific researchers alongside market-driven actors, such as those who buy eggs or certify egg production. Critically, the need for innovative responses amongst producers and industry drives the innovation process.

In focusing on the dynamics of practice-driven cooperative approaches to innovation and its articulation with existing science and market-driven actors, this project explores and identifies the conditions necessary for a significant and lasting shift in the relationship of science, innovation and practice within the egg-laying hen and other animal production sectors.

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The design of an indoor rabbit housing from an ethological perspective

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The study was conducted at the Department of Industrial System and Product Design with the support of the Department of Nutrition, Genetics and Ethology at Ghent University.

Product Design for animals in the domestic context is generally developed from a human point of view. In the context of an undergraduate project at the Department of Industrial System and Product Design at Ghent University a study was conducted about keeping a rabbit as a pet in the domestic context, in order to develop indoor rabbit housing from an ethological perspective. In order to enhance pet welfare, animals should be given the chance to express behavior as close as possible to the ethogram. The result of the study was a product, designed according to an animal-centered-design (ACD) methodology.

In order to create an innovative product that meets the needs of both human and animal, three interactions were considered: animal-product, human-animal, and human-product interaction. These three interactions were simultaneously analyzed during the design process, which consisted of four stages:1. Behavior research, 2. Analysis of research results, 3.Design of product features 4. Testing and evaluation.

In the first stage of the design process especially qualitative research was conducted. The aim was to identify spontaneous human behavior when handling pet rabbits and natural rabbit behavior. Eighteen adult pet owners and their rabbits were observed both in person and online, such as online inquiries and inside consulting on social media. Contrast between human expectations and rabbit needs were identified by analyzing data from stage 1. Four rabbit behavior areas were found in which human-animal interaction is obstructed: prey instinct, olfaction, moving space and social behavior. Based on those four conflict areas ideas on rabbit housing were generated with the purpose of enhancing animal welfare and human user experience in the third stage. Discussions with experts on rabbit behavior led to a final concept. Essential aspects of the concept were tested with rabbits and human users in the fourth stage. Through iteration of the third and the fourth stage, the prototypes evolved, according to the human and animal behavior that manifested when interacting with the product.

The study has shown that, when designing products for the pet industry, the application of Animal-Centered-Design can contribute to animal welfare and user experience.

New frontiers in welfare data collection: AWINGoat and AWINHorse app

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The authors declare that there are no conflicts of interest

The EU project AWIN (FP7-KBBE-2010-4) addressed the development, integration and dissemination of animal-based welfare indicators. In this framework, AWIN researchers developed practical and science-based welfare assessment protocols for sheep, goats, horses, donkeys and turkeys.

To improve efficiency and reliability of protocols data collection on-farm, reducing transcription mistakes and enabling automatic data upload to a server, we aimed to create a digitalized data collection system.

We started collecting data on-farm using open-source app Open Data Kit (ODK), developed by the University of Washington, Department of Computer Science and Engineering (available for Android devices). ODK was initially selected due to flexibility in creating forms for data collection, easiness of use and possibility to create a virtual server to gather and aggregate data. ODK forms were developed and used on-farm to collect animal-, management- and resource-based indicators included in the welfare assessment prototype protocols for horses, donkeys and goats. By testing the application on 100 farms by 5 assessors, AWIN researchers identified pros (on-farm feasibility and easiness of using an app on mobile devices) and cons (ODK does not create an output) of the method.

As second step, AWIN researchers in collaboration with DAIA Intelligent Solutions S.L (Ordizia, Spain) developed dedicated apps for veterinarians and farmers, enabling on-farm welfare data collection and the creation of the direct output on the welfare status of assessed animals. The AWINHorse and AWINGoat apps were developed and are now freely available at Animal Welfare Science Hub (http://animalwelfarehub.com). These apps allow the user to collect data and store information on their own device, delivering an immediate visual output about welfare status of each assessed farm. Data are displayed in bar charts and the position of the assessed farm is highlighted in comparison with the median value of a reference population based on the farms assessed during the AWIN project. Besides increasing efficiency and transparency of the assessment process, these apps allow opening a dialogue with farmers about the welfare of animals assessed and actions needed to improve it.

The AWINGoat and AWINhorse apps are designed in the view of the future development of global database for animal welfare.

Influence of Housing on Behaviour and Welfare of Kennelled Dogs

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The authors declare that there is no conflict of interest and that there was no funding to this revision.

It is known that long-term kennel confinement causes stress in dogs and altogether compromises the dogs' welfare [1,2,3,6].

Especially being kennelled alone can decrease competence in social behaviour and communication skills, and can lead, among others, to problematic behaviours as intensive vocalization and destruction[2,6]. This can mean a big drawback for adoption, as most people are leaned to adopt or maintain non problematic dogs[1].

This review looks at the effect of single and group housing in kennelled dogs with consulting the following databases: PubMed, AALAS Publications, Applied Animal Behaviour Science, SAGE journals, Scholar Google. The key-words used were: welfare in kennelled dogs, housing of kennelled dogs, kennelled dogs, shelter and behavior in kennelled dogs.

According to the literature, the following topics were the most relevant with regard to welfare: activity levels (including training), social interaction with humans and other dogs and display of abnormal behavior.

Following the existing literature dogs in re-homing shelters are mostly single housed, however solitary dogs were more inactive, socially less interactive and exhibited more likely repetitive behavior such as circling, unlike group housed dogs that had an increase in activity such as playing, socialization and investigation behavior.[3, 6,7,8] It was also found that group housing could even facilitate a higher adoption rate, as when dogs were kept singly [5,7].

Together, findings suggest that since dogs are social animals[4], it would be better to choose group housing[3], as it reduces behavioral problems by allowing them to express a wider range of social behavior[4] and stress, which in turn increases the adoption chances.[5]

Nevertheless, further studies are required to assess the effects of different housing systems on behavior and welfare of dogs in a shelter.

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The influence of feline neutering voucher value and expiry date on owner redemption.

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Welfare charities, such as Cats Protection (CP), fund subsidised neutering voucher schemes to encourage owners to neuter their cats. To be eligible for a CP voucher the owner must be a student, pensioner, have an income <£18,000 or be on government benefits. Vouchers are not issued to owners self-reporting as not being eligible. The study's objectives were to investigate risk factors for redemption, and to investigate whether non-eligible owners subsequently neutered their cats.

Risk factors for redemption were investigated over four months during which expiry period and value varied. Owner and cat-related data were collected by CP staff at the time of voucher request, 3949 vouchers were issued, and voucher redemption was recorded. Telephone questionnaires were used to collect data from randomly selected non-redeeming and non-eligible owners (n=600).

Multivariable logistic regression models were used for risk factor analysis.

Most (64.4%) vouchers were redeemed, the majority (77%; 461/600) were issued to owners on benefits, who were 0.5 times less likely to redeem (P=0.01) than other owners. Owners were less likely to redeem, if their cat had had a litter, or if the cat was acquired at ≥7 months of age. Owners were more likely to redeem, if their cat came from a rescue organisation (P=0.002) compared with any other source, or had neutered cats already in their household (P=0.004). No evidence was found for a significant association (P>0.05) between redemption and voucher value or expiry period.

Questionnaires were completed by 144/293 (49.5%) of non-redeeming owners. Fifty-five (37.9%) of these cats had been neutered (or an appointment was booked) without using a CP voucher. Fifty-two (35.2%) remained sexually entire (42/52 belonged to owners on benefits) and 38 (26.9%) were neutered using a CP voucher that had not yet been recorded as redeemed. Forty-four of 98 (44.9%) non-eligible questionnaires were completed, of which 80% of owners stated that they had neutered their cat or booked an appointment.

This research indicated that owners on benefits are less likely to redeem neutering vouchers. Following up on vouchers issued to this group and also providing more education could increase the number of cats neutered.

Assessing the impact of the Cats Protection East Midlands neutering campaign

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Neutering is key to feline population control and minimise the negative welfare implications of over population. Neutering campaigns aim to encourage neutering within target populations by providing education and/or financial assistance towards the cost of neutering. This project assessed the impact of the Cats Protection East Midlands Neutering Campaign (CPEMNC) on the proportions and ages of cats neutered in the East Midlands. A secondary aim was to investigate whether owners 'took advantage' of financial assistance where available.

The CPEMNC began in June 2014. Data were collected by postal questionnaire. Questionnaires were sent to owners who had attended 12 veterinary practices within Derbyshire or Nottinghamshire to have their cat neutered or to complete a cat vaccination course during autumn or summer 2013 (CONTROL group) or 2014 (CAMPAIGN group). A total of 234 completed questionnaires were received (CAMPAIGN, n=134; CONTROL, n=100) with response rates of 32% and 26% respectively.

The proportion of cats neutered by six months of age was significantly higher Chi-square test, $p<0.01$) and the age at neutering significantly lower (Mann Whitney U test, $p<0.01$) in the CAMPAIGN group. Results of multivariable logistic regression analysis indicated cats were significantly more likely to be neutered at/by six months of age if they were male as compared to female (OR = 2.06), in the CAMPAIGN as compared to the CONTROL group (OR = 2.18), or if questionnaire responses on reported ages were perceived by owners to be EXACT rather than APPROXIMATE (OR = 3.63. A high percentage (99.5%) of owners reported that they would have had their cats neutered without financial assistance.

Results indicated that for neuter status of cats at six months of age, the CPEMNC increased the proportion of cats neutered and reduced the age at which they were neutered. This suggests that neutering campaigns can improve feline welfare by contributing to feline population control. Further work is need to evaluate whether financial assistance is key to campaign success and to explore the effectiveness of campaigns within the wider community and across the UK.

BEHAVIOURAL MEDICINE MEETING

SPOKEN PRESENTATIONS

FRIDAY 2ND OCTOBER: CLINICAL TRIALS TO CLINICAL PRACTICE

Effects of puppy socialization classes on owner-reported behaviour of adult dogs

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Abstract
Puppies' socialization programmes are typically aimed at providing basic early training and adequate socialization, as well as allowing responsible pet ownership.
In the present study we compared the owner-reported prevalence of behavioural characteristics in dogs which had attended a puppy socialization class (n=52) and dogs which had not (n=70). The puppy class was divided into six theoretical and practical lessons for a total of twelve hours. Owners were asked to complete a questionnaire, providing information about their dogs and whether the animals exhibited any of 14 potential problem behaviours when in their usual environment. Pearson's χ^2 test of independence in 2x2 contingency tables and binary logistic regressions were applied to analyze the effects of puppy class attendance on behavioural patterns. The odds of displaying toy possessiveness, food possessiveness and intraspecific aggression, as reported by the owners, was significantly lower for the dogs that had attended a puppy class than for those that had not. No statistically significant differences were detected between the two groups of dogs for other behaviours. These findings suggest that early socialization and training programmes are useful in reducing the risk of developing potential problem behaviours later, particularly those related to resource guarding and inter-dog aggression in companion dogs.

Keywords: Puppy class; Canine; Survey

May the source be with you: what dog owners find important for puppy socialization and environmental learning, and how this is affected by the source of information.

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Conflict of interest: none

Suitable socialisation/environmental learning help to ensure dogs are able to function in human society. This requires knowledge from the owners, obtainable from various sources. We used a convenience sample of 105 visitors to the Small Animal Clinic at Ghent University to survey what dog owners find important for puppy socialization/environmental learning and to examine whether the source of information influenced this perception.

The majority of respondents found it important that puppies have contact with other dogs (65%, 69%, 79%), household stimuli (68%, 77%, 68%), regularly play with children of different ages (56%, 72%, 61%), and receive obedience training and house training (72%, 95%, 83%), respectively during the time a puppy is at the breeder, during the first weeks in the new home and as an adult. Except for at the breeder (39%), exposing puppy's to moving vehicles was also considered important (68% during the first weeks and 69% as adult). Being handled regularly by different people (49%, 55%, 49%), contact with other animal species (43%, 56%, 56%), and keeping the dog inside to prevent disease (55%, 45%, 2%) were deemed less important.

Sources from which respondents obtained information on puppy socialization and environmental learning included books/internet/TV/magazine (54%), dog school (46%), breeder (44%), friends/acquaintances (25%), and the veterinarian (24%). Multinomial logistic regressions revealed several associations ($P<0.05$) between the information source and the importance attributed to an aspect of socialization or environmental learning. During a puppy's first weeks in a new home, having indicated dog school or books/internet/TV/magazine as a source was associated with a higher importance attributed to handling the puppy by different people (OR=0.442;95%CI=0.219-0.893 and OR=0.248;95%CI=0.120-0.513) and exposure to moving vehicles (OR=0.431; 95%CI=0.210-0.884 and OR=0.392;95%CI=0.192-0.803). Friends/acquaintances, on the other hand, reduced the respondents' attributed importance of contact with other animals (OR=2.272;95%CI=1.008-5.124), but increased the importance attributed to keeping a puppy indoors to prevent disease (OR=0.329;95%CI=0.143-0.760). There was no influence of the veterinarian on the attributed importance of any socialization aspect during this period.

This study suggests veterinarians might be underused as a source of information on puppy socialisation/environmental learning and the type of source affects owner perception on puppy rearing.

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Effects of predictability in a model of sound-induced fear and anxiety in Beagle dogs

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Separation Anxiety (SA) is a very frequent canine behavioural problem which has serious negative effects on dog welfare. A usual recommendation to owners of dogs with SA is based on establishing the unpredictability of exits from the home with the objective of reducing the anticipatory anxiety of the animal. This strategy can be at odds with our current understanding of the importance of predictability in the response to stress.

Our main objective was to prove if, as happens in studies carried out on other species, establishing predictability reduces the stressful effect derived from an aversive stimulus. An additional objective was to describe anxiety-related behaviours and validate anxiety indicators by correlating behavioural and physiological changes.

To test our hypothesis we compared the physiological parameters and the behavioural response caused by noise aversion induced through the use of recordings of fireworks in an open field task using a total of 14 Beagles. The dogs were divided into two groups: in one group the aversive stimulus appeared in an unpredictable way, and in the other the presentation of the aversive stimulus was indicated. The tests were divided into 3 time points: before firework (60–120 seconds), during firework (10 seconds), and after firework (60-120 seconds).The statistical analysis revealed significant differences between the two groups while the stimulus was being applied. During this period the dogs in group 1 (predictable group) showed a tendency to cover more distance than those in group 2 (unpredictable group) ($p=.0.0601$) and, also, they exhibited *rearing* behaviour more often ($p=.0061$). On the other hand, the dogs in group 2 (unpredictable group) displayed sniffing behaviours for a longer period than those in group 1 (predictable group) during this same period ($p=.028$). Moreover, we also found that, both during the period before the aversive sound ($p=.023$), and during the period after ($p=.057$), the dogs in group1 (predictable group) carried out significantly more grooming than those in group 2 (unpredictable group). These results suggest that there could exist an effect of predictability in reducing the magnitude of the stress response.

Generalised Anxiety Disorder in an imported Indian street dog

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Conflict of interest statement
The authors report no conflict of interest.

A female neutered mix-breed dog presented for increasing signs of anxiety in benign and non-benign contexts.

The dog was approximately 5 weeks old when the current owner adopted her from a foster/host family in India. There was no mother dog present. The dog lived in a secluded environment in a compound in India and did not go through a specific socialisation process. The dog showed fearful behaviours to noises such as rustling palm trees outside in the compound and the dishwasher. This behavior emerged when the dog was approximately 6 months old.

The family moved to the NL when the dog was approximately 2 yo. The journey was very stressful and the dog was anxious upon arrival. The family lived in a temporary house. The dog wouldn't walk on the laminate floors after she had slipped on them. She was particularly reluctant to walk through narrow passageway to the bedrooms. A few weeks later the family moved and the dog would not walk on the stone floor in the kitchen and was also extremely reluctant to walk in other areas.

The dog's condition worsened and she was eventually extremely anxious and fearful outside at the slightest noise and could no longer be walked on certain paths in the forest as she refused to even enter them. There had been several incidents prior to this of the dog being approached by playful dogs to whom she displayed fearful behaviours (no aggression).

At the consultation, the dog was let loose in a secure consultation room. The dog was unable to relax, almost fell asleep standing and her anxiety progressively worsened in spite of little or no stimuli. Alprazolam was administered as the dog was acutely suffering. The dog responded very well.

A general general physical examination, orthopedic examination and laboratory testing (haematology and serum biochemistry) revealed no abnormalities.

A diagnosis of Generalised Anxiety Disorder was made. Behaviour modification was commenced. The dog was successfully treated with fluoxetine initially followed shortly with supplemental daily alprazolam. The dog is now stable, can go anywhere with the owner and has been weaned from the alprazolam.

Predatory behaviors in dogs: a challenge for the behavioral medicine

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In literature canine predatory aggression is reported in clinical behavioral medicine classifications. On the contrary predatory behaviors are rarely described even if all dogs have some level of prey drive because hunting and killing was the means for the survival of their ancestors. In the authors' experience predatory behaviors are more present in clinical practice as expected, but in most cases it is really difficult to detect them.

The aims of the present study are (1) to describe the basic ethogram of the canine predatory behaviors and (2) to suggest a problem oriented approach to predatory behaviors in dogs, especially but not exclusively, when they are expressed in an aggressive context.

First, the full predatory sequence is described. The initial components involve intense visual scanning and attending to the area where "prey" are anticipated, followed by stalking and chasing of a wide range of moving stimuli. Barking, nipping, and/or biting complete the sequence; growling is apparently not observed. Consumption of the prey rarely occurred. These behaviours may be directed to cats, birds, smaller dogs, etc. (and in these cases may involve killing), or towards children or adults who move in a particular way, usually quickly.

Then, the functional role of predatory behaviours is suggested. Starting from a broader discussion based on the authors' clinical experience, one clinical case for each category will be proposed: play behaviours and fitness, social dynamics and conflict situations management, impulsiveness, coping and survival strategies. These findings will be discussed with respect to the variables influencing each type of behavior, the relation between aggression and other behavioural systems, and the classification system itself.

It is clear from the present study that predatory behaviour in the dog is not a unitary phenomenon. There are several type of predatory behaviour. These types are differentiated by the behavioural components involved in the behavioural sequence, the stimuli which elicit them, and the extent to which they are influenced by sex and reproductive hormones. Genetic effects would also be expected. The relevance of the control of predatory behaviours is discussed. It is hoped that the present paper will facilitate future research on the controlling factors underlying these problems, their treatment, and their prevention.

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Monitoring equine (acute) pain – construction and validation of two composite pain scales: for total pain expression and facial expression of pain.

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Statement of conflicts of interest: for none of the authors

Recognition and treatment of equine pain has been studied extensively over the last decades. However, there is still need for improvement in the ability to objectively identify acute pain in horses, especially for severe pain. This study assessed validity and clinical applicability of two Composite Pain Score systems: Equine Utrecht University Scale for COMposite Pain ASSessment (EQUUS-COMPASS) and EQUUS-Facial Assessment of Pain (EQUUS-FAP) in horses with acute pain (colic, trauma or surgically induced). All control horses were free from lameness or other painful conditions.

For both the scale construction and scale validation twice a cohort follow-up study of 50 adult horses (n=25 horses with acute colic and n=25 controls) was performed. In addition n=25 patients with acute pain on the head or pain induced by head surgery and 37 control individuals were assessed with EQUUS-FAP only. The scores were taken during five minutes (COMPASS) and one-minute (FAP) direct observation and by observing blinded video clips. Patients were assessed at arrival in the clinic; at the first and second morning. Control horses were assessed once.

Both scores showed high inter-observer reliability in all cases (for instance ICC=0.98 for COMPASS, ICC=0.93 for FAP, $P<0.001$ during construction). Internal validation by specificity and sensitivity for differentiating between control horses and colic patients (n=50) was good for both EQUUS-COMPASS (sensitivity 95,8%, specificity 84,0%) and EQUUS-FAP (sensitivity 87,5%, specificity 88,0%). Internal specificity and sensitivity differentiating between conservatively treated and surgically treated (or euthanized) colic patients (n=25) was good for EQUUS-COMPASS (sensitivity 80,0%, specificity 85,7%). External validation with new (n=25) colic patients versus controls was satisfactory (COMPASS sensitivity 88,9%, specificity 68,4%). Development over time of the conservatively treated horses (n=13) decreased significant both for EQUUS-COMPASS ($P=0.021$) and EQUUS-FAP ($P=0.012$). The EQUUS-FAP for the head patients versus controls showed that this scale is working in these patients as well (sensitivity 73,3%, specificity 83,8%). There was no difference between age, gender or breed.

The EQUUS scores improve objectivity and repeatability of the assessment of the severity of pain in horses. These scales will be interesting additional instruments when patients are examined for behavioural problems or animal welfare issues.

Investigating anhedonia in a non-conventional species: are some riding horses depressed?

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We report no conflicts of interest.

Some riding horses display states of inactivity and low responsiveness to external stimuli that we term *'withdrawn',* and that resemble the reduced engagement with the environment seen in clinically depressed people. To assess whether these animals are indeed affected by a depression-like condition, we investigated anhedonia: the loss of pleasure that is a core symptom of human clinical depression.

Subjects were withdrawn horses and controls from the same stable (16 geldings & 4 mares, 7-20 years old, 85% French Saddlebred). The time individuals spent being withdrawn was determined by a trained observer using instantaneous scan sampling every 2 minutes over 1h long periods repeated daily over 15 days. To measure sucrose intake, a classic measure of anhedonia in rodent-based biomedical research never previously applied to horses, commercially-available flavoured sugar blocks, novel to these subjects, were mounted in each stall and weighed 3h, 8h, 24h and 30h after provision. We hypothesized that if depressed-like, withdrawn horses would consume less sucrose than controls.

Horses spending the most time withdrawn did show reduced sucrose consumption ($F_{1,18} = 4.65$, $p = 0.04$, in a repeated measures model also controlling for age, sex, and the time each horse spent in its stall - thus able to eat the sucrose - during testing). We then controlled for two possible alternative explanations for this pattern: neophobia towards novel foods, and generally low appetites. Hay consumption was measured over 5 days, as were subjects' latencies to eat a meal scented with a novel odour. When included in our model, high hay consumption strongly tended to predict high sucrose consumption ($F_{1,14} = 4.52$, $p= 0.051$), while long latencies to eat a novel food predicted low sucrose consumption ($F_{1,14}= 8.34$, $p= 0.012$). However, statistically controlling for these two confounds did not eliminate the relationship between being withdrawn and consuming less sucrose (although reducing it to a strong trend: $F_{1,15} = 4.28$, $p= 0.056$), suggesting that neither overall food consumption levels nor neophobic reactions explained our previous findings.

This study reveals possible depression-like conditions in riding horses, and suggests a way of assess anhedonia in other animals showing profound inactivity.

Is equine prolactin measurable using a commercially available canine prolactin ELISA kit?

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The authors declare that there is no conflict of interest.

Besides its well-known role in milk production during lactation, prolactin is a proteic hormone which has a wide variety of biological functions in vertebrates. Notably, emotional or physical stress can temporarily increase prolactin levels. Prolactin also interacts with the dopaminergic system and has been linked to anxiety in several species. Thus, prolactin concentration in plasma or sera has been monitored in order to assess stress levels or emotional states of animals in various studies. Among them, some authors have determined equine prolactin concentration in horse serum or plasma using a commercially available Enzyme-Linked ImmunoSorbent Assay (ELISA) kit initially designed to measure canine prolactin. This work aimed at verifying the capability of this particular ELISA to efficiently and correctly measure equine prolactin in horse plasma through standard analytical validation tests.

Since proteins are species-specific, a bioinformatic study was first performed to compare amino-acid sequences between equine and canine prolactin: they share 95% of similarity, letting foresee that antibodies raised against canine prolactin could also recognize equine prolactin. Several criteria from standard analytical validation procedure were then assessed in the forementioned ELISA using six horse plasma samples: precision, accuracy, parallelism study and linearity under dilution. Precision was evaluated through five repeated measures of samples at three different level concentrations within an assay: the mean intra-assay repeatability was 4%. Accuracy was assessed on four samples spiked with standard canine prolactin: the mean recovery was 10.2%, meaning a bias of approximately 90%. Parallelism study and linearity under dilution were established via serial dilutions of two samples to check the parallelism between sample dilution curve and standard curve as well as the recovery between expected and measured values: neither parallelism nor linearity under dilution were observed. Consequently, all the validation criteria but precision were not fulfilled according to the international recommendations on immunoassays performance.

The use of this canine prolactin ELISA kit is not validated and thus not recommended to measure equine prolactin in plasma samples. This study showed the sensitivity of this assay to some interference, commonly called matrix-effect, from horse plasma samples, leading to artefactual signal and so falsely measured horse prolactin concentrations.

Displacement activities in horses (*Equus Caballus*): are they really adaptive?

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Different impulsive or compulsive behaviours are commonly faced in veterinary clinical ethology. Characterised by a complex diagnostic approach, the collection of physiological parameters is fundamental in order to study these peculiar stress-related responses. Because of their sensitivity to the environmental changes, the role of the social isolation associated to their rearing condition or housing, horses are supposed to be one of the most important species that uses to show displacement activities.

Pilahr, a 16-years-old mare, competing for dressage, was received in consultation in IRSEA showing a huge number of so-called “stable vices” (weaving, head bobbing, wood-chewing and lip shaking), when placed in the box and without the possibility to be free in the paddock.

Video-recording and the study of her Heart Rate Variability (HRV), thanks to a heart rate monitor (Polar®), allowed us to differentiate the internal activation and vigilance during displacement activities (D) from the ones redirected to a specific target. Indeed, an adapted Kong® toy with appreciated food mix was placed in the box to try to calm her down (T). Data were compared with a baseline (B), recorded when alone in the box.

With mild frustration, in T, Pilahr used to show reduced wood-licking and lip shaking, characterised by four-time lower LF/HF ratio: (B: 4.383, T: 1.587; passing from a huge sympathetic dominance in B with 23.3% of LF vs 5.3% of HF to a more balanced autonomic response: 17.1% of LF vs 10.8% of HF). Nevertheless, during higher frustration level, Pilahr showed increased displacement activities and no interaction with the toy. In that case her autonomic system activation was characterised by the reduction of the inhibition on the parasympathetic branch (B: 1.765, T: 0.472; with HF passing from 11.6% to 45.6% and poor modification in LF). This behavioural response seems to be really adaptive in self-controlling.

In equine clinical ethology HRV permits to really describe the stress response and differences in the autonomic system activation. Mild stress level could be reduced by the introduction of a target, where to redirect animal distress, while high stress level could be better appeased by known, recurrent behavioural displacement responses.

The Personality Trait of Sensory Processing Sensitivity and Its Relation with Behaviour Problems in Dogs

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Introduction

The personality trait 'sensory processing sensitivity' (SPS) "involves a deeper cognitive processing of stimuli driven by higher emotional reactivity" in humans (Aron 2012, p.1). This study investigates whether the SPS trait is measurable in dogs and is related with behaviour problems.

Methodology

A 32-item questionnaire measuring SPS in dogs was developed based on the protocol used for humans by Aron and Aron (1997). An online survey including this questionnaire, questions regarding fearfulness and neuroticism, information on dogs, owners, and their environment, and the validated highly sensitive person questionnaire (Aron et al. 1997) was conducted. Linear mixed effect models (LMMs, R software) were run using forward stepwise selection to test prediction of SPS and behaviour problems in dogs.

Results

3647 questionnaires were fully completed. SPS showed good internal consistency (Cronbach's alpha = 0.897) and construct validity was only moderately correlated with fearfulness ($r = 0.37$, $p < 0.001$) and neuroticism ($r = 0.41$, $p < 0.001$). A LMM showed that demographic and owner factors explained only a small amount of the variance of the SPS score of the dogs. LMMs revealed that dogs' SPS, together with other factors, was related to increased behaviour problems.

Conclusions

The personality trait SPS can be measured in dogs and is, in combination with other factors, linked to an increased frequency of certain types of behaviour problems. Further research to increase understanding of this trait will facilitate prevention and treatment of behaviour problems in dogs.

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The perception of stress in cat owners

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No conflict of interest

Being responsible for care-giving, cat owners strongly influence the welfare of their pets.

The aim of the current study was to assess owner-perception and recognition of stress in their cats.

A 42-item, mostly multiple choice, questionnaire was created for this study, and was completed by 194 cat owners. Statistical analysis was performed using the Chi-square test with Bonferroni correction (p=0.0125).

In a closed-question, the majority of owners (71.1%) correctly included both physical and psychological features within their definition of stress, whilst 15.5% considered stress to be a purely psychological phenomenon. One in ten owners (9.8%) thought that stress had no consequences for the cat.

When asked to use a provided scale to rate whether the stress level of their own cats was low, medium or high, 56.7% chose low, 38.1% chose medium and only 5.2% chose high.. Owners were more likely to rate stress as high if their cats played little or not at all (90.0% versus 33.2%; X^2=13.290; p<0.001), or showed over-grooming (30.0% versus 7.6%; X^2=4.948; p=0.015). The presence of aggression and house-soiling did not influence the rating of stress level.

When asked whether their cat was ever stressed in a situation, the majority of respondents answered affirmatively (76.6%). The remainder considered their cats never to be stressed (11.7%) or were not able to answer (11.7%). However, when those people were presented with a list of potentially stressful situations, 42 out of 44 selected at least one situation.

Owners were also presented with a list of signs and asked which might be indicative of feline stress. Mydriasis (35.6%) and recurrent cystitis (21.1%) were the least recognised signs. Around half of respondents thought that house-soiling, panting, trembling, avoiding other animals, and baldness caused by over-grooming were not signs of stress, or indicated that they could not give an answer. Owners most frequently regarded excessive vocalisation (70.1%) and ears back (66.0%) to be stress signs.

These findings suggest that owners often have a very limited knowledge about cat behaviour. This inability is likely to prevent owners from properly assessing, and intervening in, situations of poor welfare.

Behavioural co-morbidities of canine idiopathic epilepsy: is epilepsy not simply a seizure disorder?

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Idiopathic epilepsy (IE) is the most common chronic neurological condition in domestic dogs, with an estimated prevalence of 0.6-0.75% in the general dog population. Age of onset is most commonly between 6 months-6 years of age, and the condition is lifelong, often requiring daily medication to reduce seizure frequency. Owners of dogs with IE have reported that their dog's quality of life (QoL) is of greatest importance to them above their seizure frequency; however, little research has been carried out to identify determinants of QoL of affected dogs, with the inter-ictal period relatively neglected. In contrast, the impact of IE upon QoL during the inter-ictal period has been widely studied in human epilepsy research, exploring the impact not only upon the patient's physical health, but also their mental health and cognitive capabilities.

The prevalence of psychiatric disorders in people with IE is higher than in either the general population or patients with other chronic medical diseases, with the most common disorders being depression, anxiety disorders, psychoses and attention-deficit/hyperactive disorder. In addition, patients are predisposed to attention-related cognitive deficits, with impairments in sustained visual and auditory attention, with lower intellectual abilities than the general population. In a study of health-related QoL (HRQoL) in people with IE, inter-ictal mental health was found to have a greater adverse effect on HRQoL than the effects of seizure frequency, severity and chronicity. To date, only one study has considered the possibility of psychiatric co-morbidities in dogs with IE, in which dogs showed behavioural changes since the onset of IE including increased fear/anxiety, abnormal perception and defensive aggression.

It is clear that further research is required to ensure that behavioural co-morbidities of epilepsy, if present, are recognised, and if appropriate, treated in the canine IE population. Although seizures may be the most salient feature of IE, the potentially broader impact on QoL should not be ignored. The causal mechanisms underlying the associations between epilepsy and neurobehavioural changes have not yet been explored in dogs, but may prove meritorious, as if common mechanistic pathways underlie these problems, a common therapeutic pathway may be available.

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High rise syndrome in cats: a clinical or a behavioural problem?

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Domestic cat is one of the most widespread companion animal in urban environment in Europe. One common cause of injury, for cats living in high rise building, is represented from falls from windows. Different authors define this condition as “high-rise syndrome”. The fall frequently causes traumatic injury or can even lead to death, moreover episode of relapse are not infrequent.

Although the high diffusion of this syndrome, behavioural aspects linked to cat behaviour or behavioural problems has never been investigated as possible predisposition factor to the falls. In most cases the causes of the fall have been related to play activity or slipping whilst walking on the edge of it, but further studies were required.

The aim of the study was to investigate the possible presence of behavioural risk factors in cats with high rise syndrome. In particular we wanted to investigate the effect of age, neutering and the presence of concomitant behavioural problems in cats with this condition. The study was structured as a case control.

To reach this aim a questionnaire has been administered to cat owners who’s cat has been taken to the veterinary clinic after a fall (n = 35) and a control group (n = 21). Questions wanted to investigate the management of the animal, the relation with the owner, play activity, and, when present, the description of the fall episode.

Results showed that some behaviours were related with the fall: owners of cat with high rise syndrome reported in 57 % of the cases aggressive behaviours towards their hands and feet, hissing and growling behaviours, whether these behaviours were absent in the control group (Dev= $26.1_{(1)}$, p = 0.03), moreover younger age result related with falls (Dev= $26.7_{(1)}$, $p < 0.001$).

These results evidence that young kitten are most likely to present high rise syndrome, probably due their inexperience. On the other hand, they highlight the possible correlation between behavioural problems and this syndrome changing the prospective of its prevention and therapy. A behavioural assessment and treatment should be considered to reduce the number of falls and increase cat’s welfare in urban environment.

The veterinarian's role in dealing with cats and dogs with "behaviour problems" – a literature review

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The authors report no conflict of interest.

Every year millions of pet owners euthanise or relinquish their cats or dogs because of behavioural issues resulting in massive animal wastage and a serious animal welfare problem. Many of these animals may have been showing undesirable but normal behaviour. Others may have pathological behaviours. The latter have by definition mental health issues and will almost definitely be suffering and the former may be made to suffer at the hands of inappropriate or inhumane treatment strategies. In any case, the end result is similar, a combination of suffering, rehoming or euthanasia.

Veterinarians are typically seen as the first point of contact dealing with health issues in companion animals, and they should ideally be the first person that an animal caretaker consults if there is a behavioural issue. However, anecdotal evidence suggests that caretakers often don't have faith in the veterinarian's ability to diagnose and treat behaviour problems. They typically seek advice from non-veterinarian "professionals" who may have no academic qualifications what so ever.

Furthermore, many veterinarians do not seem well equipped to diagnose and treat behaviour problems. This partly reflects the fact that many veterinary schools do not (adequately) teach students about behaviour problems. In some cases veterinarians may inadvertently issue harmful advice or prescribe inappropriate medications propagating animal suffering. Moreover, the attitudes of veterinarians to animal behaviour problems are crucial but varied.

The aim of this presentation is to discuss the role of the veterinarian, present and future in dealing with cats and dogs with behaviour problems. We will present the results of a comprehensive review of existing literature concerning the issue. As the literature is rather limited we will highlight areas warranting further studies. Finally we will suggest ways forward, both in terms of research and practical initiatives from the side of the veterinary profession, veterinary education and regulators.

Effects of predictability in a model of sound-induced fear and anxiety in Beagle dogs

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Separation Anxiety (SA) is a very frequent canine behavioural problem which has serious negative effects on dog welfare. A usual recommendation to owners of dogs with SA is based on establishing the unpredictability of exits from the home with the objective of reducing the anticipatory anxiety of the animal. This strategy can be at odds with our current understanding of the importance of predictability in the response to stress.

Our main objective was to prove if, as happens in studies carried out on other species, establishing predictability reduces the stressful effect derived from an aversive stimulus. An additional objective was to describe anxiety-related behaviours and validate anxiety indicators by correlating behavioural and physiological changes.

To test our hypothesis we compared the physiological parameters and the behavioural response caused by noise aversion induced through the use of recordings of fireworks in an open field task using a total of 14 Beagles. The dogs were divided into two groups: in one group the aversive stimulus appeared in an unpredictable way, and in the other the presentation of the aversive stimulus was indicated. The tests were divided into 3 time points: before firework (60–120 seconds), during firework (10 seconds), and after firework (60-120 seconds).The statistical analysis revealed significant differences between the two groups while the stimulus was being applied. During this period the dogs in group 1 (predictable group) showed a tendency to cover more distance than those in group 2 (unpredictable group) ($p=.0.0601$) and, also, they exhibited *rearing* behaviour more often ($p=.0061$). On the other hand, the dogs in group 2 (unpredictable group) displayed sniffing behaviours for a longer period than those in group 1 (predictable group) during this same period ($p=.028$). Moreover, we also found that, both during the period before the aversive sound ($p=.023$), and during the period after ($p=.057$), the dogs in group1 (predictable group) carried out significantly more grooming than those in group 2 (unpredictable group). These results suggest that there could exist an effect of predictability in reducing the magnitude of the stress response.

POSTERS

Analysis of dog behaviour during consultations: a comparison between dogs aggressive and non-aggressive to people.

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No conflict of interest

Consultations involving canine aggression are very challenging for behaviourists.

The aim of this study was to analyse the behaviour of dogs during behavioural consultations, in order to assess whether those which were aggressive to people acted differently in this context from those which were not.

Videos of twenty-six behavioural consultations, carried out in a behavioural service, were analysed. The sample included 13 dogs with a history of aggression towards people and 13 dogs with other non-aggression behavioural problems (NAG). Of the aggressive dogs, seven showed aggression toward family members (AGF) and six towards strangers (AGS). For each video, a total of 30 minutes were observed in three focal periods (minutes 0-10, 25-35 and 50-60). The duration of social and non-social behaviours was recorded. Contrasts between groups were analysed using the Kruskal-Wallis and Mann-Whitney tests ($p<0.05$).

Compared with the NAG group, the AGS group dogs displayed significantly longer durations of: attention-seeking from the owner (medians: 0.875 versus 0; minimum-maximum ranges: 0-16.25 versus 0-1; U=9.50; p=0.003), sniffing the owner (2.38 versus 0; 0-9 versus 0-3.5; U=13.00; p=0.011), and proximity to the owner (460.75 versus 131.375; 343-776 versus 38.3-476; U=9.00; p=0.009). AGF dogs showed a statistically higher level of behavioural signs of stress (sum of: licking lips + yawning + shaking + scratching + autogrooming + trembling + whining) compared to NAG (53 versus 19; 8-105 versus 1-120; U=21.00; p=0.052), and a longer duration of autogrooming (14 versus 0; 0-98 versus 0-5; U=20.00; p=0.027). No difference was found between AGF and AGS groups.

From reports and scientific literature, it could be hypothesised that the higher level of social, and affiliative behaviours displayed by AGS dogs to their owners might be due to their seeking for a secure base; they were in the presence of an unfamiliar person (the behaviourist). The stress displayed by AGF dogs was perhaps related to anxiety, originating in inconsistency and conflict within the dog-owner relationship, and the use of punishment by the owners (who were present).

In conclusion, a careful analysis of the behaviour of dogs during a consultation could provide additional valuable support in the diagnostic process.

A new approach to treat fear-related problems towards unfamiliar people in dogs.

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Fear towards unfamiliar people is one of the most frequent complaints in canine behavioural medicine. The main part of the traditional treatment is to establish a behaviour modification program to habituate the dog to people using behavioural modification techniques mainly based on habituation and operant condition and including, for example, rewarding the dog when it does not show signs of fear in presence of unfamiliar people. This treatment, although successful if properly applied, is very slow and oftentimes results in owners stopping it before its completion. We hypothesize that treatments based on operant conditioning are slow because they address the behavioural manifestations of fear rather than the emotional state of the dog, e-g, fear itself. Furthermore it is very common that dogs feel frustrated due to the lack of predictability and control during the training sessions. The aim of this paper is to present an alternative technique which is mainly based on classical conditioning and that aims at changing the dog's perception of the threatening stimulus and its subsequent emotional state. This is done by pairing the presence of unfamiliar people to a reward regardless of the dog behaviour. Additionally, and in order to increase the dog's perception of controllability and predictability, a safe area around the owner is set up and the unfamiliar person used in the treatment sessions is not allowed to enter it. Although further studies are needed, in our experience dogs that follow this program improve faster than those treated with standard protocol.

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Assessment of the presence of behavioural problems in dogs: a case study of 499 cases

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Introduction

Problematic behaviors exhibited by dogs can lead to the breaking of the human-animal bond (Hunthausen & Seksel, 2004) and to the relinquishment of dogs from the owners (Serpell, 1996; Blackwell et al., 2008). Therefore it is important to inform the owners regarding the normal behaviour of the animal, the causes of the alteration of such behaviour and possible solutions (Hunthausen & Seksel, 2004). An appropriate prevention, based knowledge of the needs and behavioral species-specific patterns is also essential (Kutsumi et al., 2012). This study aim to investigate owners perceptions of their dogs' behavioural problems and how they tried to solve them.

Materials and methods

The research was carried out in collaboration with the Canine Education School "Il Biancospino" (Pavia, Italy). Owners were asked to fill out a questionnaire including questions about dog management and presence of behavioural problems.

Results

499 questionnaires were collected. 450 dog owners reported to have some kind of problem with their dog. 311 indicated the problem as "undesirable"; among these, 142 were management problems (jumping on people, inappropriate playing, pulling on the leash), 80 were household problems (destroying objects, house soiling, excessive barking, digging holes in the garden), 71 were anxious behaviors (emotional micturition, agitation, excessive licking) and 18 were interdog aggression.

139 dog owners indicated the problem as "pathological"; among these, 43 were aggressive behviours, 41 anxious behaviors, 36 management problems, 19 were destructive behaviours.

In order to try to solve this problem, 100 owners asked for a dog trainer intervention or subscribed to dog training course and only 5 owners asked for a vet specialist consultation.

Conclusions

Our findings show that, in our sample, a large number of owners reported to have problems with their dogs and in many cases, they asked for an advice to a dog trainer. It must be considered that owners cannot always distinguish between pathology and management problem or be unaware about the existence of behaviourist veterinarians.

Future studies will be needed to understand why the owners choose trainers (and not behaviour vets) and whether the trainers resolved or diminished the behaviour problems.

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Ex-fighting dogs: reformed or euthanized ?

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In most severe cases and after appropriate evaluation, one potential outcome for "ex-fighting dogs" might be euthanasia, but rescue associations remain strongly opposed to this approach. Concerns have been raised over the welfare of dogs which are housed long term in shelters since these animals can experience conditions which risk severe deprivation and threaten to result in very poor quality of life. If dogs are aggressive to other dogs or humans the problem is further compounded by the need to carry out relevant risk assessment.

The aim of present study was to develop a specific protocol for ex-fighting dogs guested in a private rescue shelter.

Twenty ex-fighting dogs were enrolled in the study. All dogs were behaviourally and clinically assessed. According to the evaluation a personal and exclusive therapeutic approach was applied (cognitive and behavioural therapies) plus a drug therapy if necessary.

The evaluation included multiple phases of observation and physical approach. A list of behaviours (reactivity, predation, space and resource control) was analysed in different contexts (familiar and strange people, outside and inside the kennel): (A) behaviours for the social approach; (B) behaviours by imposition; (C) passive submissions; (D) agonistic behaviours: threatening behaviours, inhibited attack behaviours, not inhibited attack behaviours, escape and behaviours of de-escalation; (E) behaviours to show stress.

For each dog an ethogram and a profile of personality was filled out, a list of suggestions was proposed and applied in handling and management.

For each case the risk for workers in the shelter was assessed, appropriate management instructions according to the animal welfare criteria and human safeness were defined, further adoption procedure hypothesised.

Results of this study highlight the following points:
(1) there is no statistical approach which is suitable for standard evaluation and intervention and monitoring of behavioural changes is necessary
(2) there is a need for accurate evaluation of management/housing conditions for ex-fighting sheltered dogs in order to improve their welfare and the safety of humans and other dogs
(3) rehabilitation can be long and expensive, but the success rate of adoption might be very high (11 dogs have been successfully adopted).

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IDIOPATHIC EPILEPSY AND BEHAVIOURAL PROBLEMS COMORBIDITY. PRELIMINARY RESULTS

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Abstract

Idiopathic epilepsy is the most common canine neurological disorder with a documented prevalence in the UK of 0.62 per cent (Kearsley-Fleet et al., 2013). Association between idiopathic epilepsy and behavioural changes in dogs has recently been reported (Shihab et al., 2011).

The aim of this work was to study if the frequency of behavioural problems was higher among epileptic dog's population than in a general dog's population, and to analyse the distribution of behavioural problems in these epileptic patients.

One hundred records of canine epileptic patients of the Veterinary Hospital of Zaragoza University (HVUZ) were randomly selected from the 187 neurologic patients with recurrent seizure disorders attended from 2005 to 2014. All this dogs had undergone the inclusion criteria (normal interictal neurological examination without any identifying cause for seizure disorder). A behavioural interview was conducted to their owners. The prevalence of behaviour problems in the surveyed population was 70% and the most frequent problems were fear, anxiety and hyperactivity. A 34% of the owners had already refereed the behavioural problem to the specialist and had introduced a behavioural intervention.

The behavioural interview had been already conducted to 110 owners attending at the HVUZ for reasons other than behavioural or neurological ones (Luño et al., 2013). The prevalence of behavioural problems in the surveyed population was 69% and the most frequent problem was fear to various stimuli, followed by aggression problems. Only a 16% of them had visited a specialist due to these problems.

In conclusion, it seems that the prevalence of behavioural problems in the surveyed epileptic dog's population was similar to general dog's population. The possible influence of behavioural problems on the risk of developing seizures may prompt owners to seek the advice of a specialist.

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Hypothyroidism and behaviour in dogs. Four clinical cases.

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Hypothyroidism in adult dogs represents one of the most frequent endocrinological disorders. Early behavioural signs of this condition more often include decreased activity levels, but signs of aggressive behaviour and anxiety have also been reported (Beaver and Haug, 2003)

Four clinical cases of behavioural changes in dogs with hypothyroidism are described. All dogs were presented for behavioural problems on referral and their veterinary surgeons performed routine clinical exams before referral without finding any sign of disease. Three dogs were unneutered males; one was a neutered male. Ages ranged from 3 to 6 years.

Behavioural signs in all the above cases were related to fear and aggression. Owners described that their dogs showed the tendency to avoid unfamiliar situations, and reported their dogs' aggression as unpredictable. Although referred by their veterinarians after having excluded clinical problems, it was decided to investigate thyroid function for three main reasons:

1. Age and behavioural history of dogs made us consider the possible role of underlying diseases in the onset, worsening or perpetuation of the complained behavioural problems.
2. All dogs showed, along with the reported behavioural problems, exercise intolerance / lower activity levels and weight gain in the preceding few months.
3. Fluoxetine and Clomipramine are drug options in the case of canine aggression. These drugs might cause a lowering of circulating thyroid hormones and bias future interpretation of thyroid function results (Bou Khalil, 2011; Gitlin, 2004).

Blood checks of thyroid profiles revealed serum thyroxine and free thyroxine concentrations (T4 and fT4) below reference ranges and thyroid-stimulating hormone (TSH) over the reference ranges.
All dogs were treated with a combination of behavioural therapy and drug therapy. Drug therapy solely comprised levothyroxine at an initial dose of 0.02mg/kg.
Follow ups at 8 weeks, 6 months, and 1 year were positive: all owners reported an improvement in their dogs' behaviours.

Including thyroid diseases as differential diagnosis in dogs with behavioural problems and decrease of activity levels is of paramount importance in order to reach a correct evaluation of the behaviour problem. It is worth heeding that SSRIs and tricyclics, drugs often used in cases of dog aggression, can induce a decrease of blood levels of thyroid hormones.

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Mental Health, Professional Burnout and Life Satisfaction: Are there differences between Behavioural Medicine Specialists and other Specialities in Portugal?

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Several studies have been conducted about stress and burnout in health professionals, namely in Human Physicians[1], Human Nurses[2, 3, 4] and Dentists[5]. Nevertheless, there is a lack of research in this field with veterinarians. The available studies linked professional specificities of the profession to stress and professional burnout. A significant factor in the available literature is the workload (hours of work). Excessive work can be a real threat, especially when there is a lack of professional satisfaction[6, 7, 8, 9, 10]. Another important source of stress is the relationship with clients. To manage clients' satisfaction good communication skills are required[11, 12, 13].

Different veterinarian specializations are prepared with different skills that may lead to better mental health. In Portugal the certification of specialists is not yet official, but there are recognized veterinarians developing a specific work in different specialties. The sample for this study consisted of 66 veterinarians (44 women; 67%), most of them working in full time jobs (91%), with emergency duties (68%). The most frequent veterinary fields involved Reproduction, Cardiology, Oncology, Exotic animals, and Behavioural Medicine specialists, which comprised more than two-thirds of the whole sample. Data collection for this study was done online with self-reports for mental health (Depression, Anxiety and Stress Scales), professional burnout (Maslach Burnout Inventory), and life satisfaction (Satisfaction with Life Scale). The statistical analysis was conducted with one-sample t-tests to compare the mean scores in each of these dimensions with the normative data available for the Portuguese population. The results for the overall sample showed worse levels of anxiety, stress, personal accomplishment burnout, and life satisfaction when compared to normative data. The same analysis by speciality revealed worse life satisfaction in behavioural medicine and oncology specialists, whereas specialists in cardiology and oncology were affected respectively mental health dimensions and emotional exhaustion burnout.

These results show the need for further studies, if possible at an European level, with different specialists to have a comparison that allows the identification of which professionals require more psychological support and better training on techniques to protect their own mental health.

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The Use of the Drug Pexion® (Imepitoin) in a Cat with Night-Time Vocalisation

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Introduction

A 15-year-old Persian, female neutered cat weighing 2.5 kg was presented for vocalisation and soiling during the night. Clinical work-up, including physical examination, blood work, thyroid, urinalysis, and x-rays, revealed slightly increased blood pressure (medicated with Norvasc (0.6mg/d)) and rhinitis/conjunctivitis (treated with antibiotics).

Diagnosis and therapy

The most frequent differential diagnoses for vocalisation include painful processes (e.g arthritis), changes in senses (e.g. deafness), systemic hypertension, anxiety disorders (e.g. separation), compulsive disorders, and cognitive dysfunction (Gunn-More et al., 2007; Landsberg et al, 2010; Landsberg et al, 2013).

Previous treatments including medication against high blood pressure (Amlodipin), analgesics (Meloxicam), Zylkène®, Calmex®, psychoactive drugs (Selegilin and Fluvoxamine) were not effective or had unwarranted side effects (e.g. inappetence).

Pexion® (Imepitoin) was administered orally at a dose of 11 mg/kg BID. Imepitoin is a partial GABA-agonist that has anti-epileptic and anxiolytic properties. One week after initiation of Pexion®, the cat had stopped screaming, was eating normally and behaving more affectionately. After eight months of treatment, the screaming during the night was controlled completely, the inappropriate urination had only slightly decreased. Increase of the dosage led to ataxia ca. 2 hours after application, and unintended skipping of a dosage was followed by reoccurrence of vocalisation and restlessness approximately 2 hours after the usual application time.

Conclusions

This report indicates that Pexion® may be a safe and effective measure to treat anxiety-related behaviour problems in cats. The inclusion of a larger population of affected cats in placebo-controlled studies is necessary to draw definitive conclusions regarding effectiveness.

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The use of Facial Fraction 3 pheromone and Cat Appeasing Pheromone in association to behavioural modifications to control cohabitation problems in cats

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Cohabitation problems are commonly found in feline behavioural medicine. Pheromone therapy regularly supports behavioural modifications to control this problem: FF3 (Facial Fraction 3) to manage urine marking and general stress-related responses and CAP (Cat Appeasing Pheromone) to increase peaceful relationships. Nowadays the interaction between these compounds could be researched in complex clinical cases (i.e. aggressiveness with urine marking).

Two cats that use to live in different households were presented to consultation with complaints regarding cohabitation problems, described as severe aggressions when homed together at weekends. Oscar (adult) and Ice (about 1 year-old), both European and neutered male cats, were found on the road-side. Oscar and Ice were respectively found about 3 and 2 months before the consultation. According to the owners, Ice presented play-related and predatory aggressiveness against people. During the week Oscar had exterior access, which was limited when Ice was in the household. In that case, Oscar used to present housesoiling. Scratching behaviours were showed on sofas and other facilities. Marking as rubbing was more owner-oriented by Oscar and toward new objects by Ice. They generally show spraying on the closed door that uses to separate them in the household. During the consultation, Ice presented hyperresponsiveness and a chaotic exploratory behaviour, while Oscar was hidden all the time.

Ice was diagnosed with sensory homeostatic disorder and predatory aggressiveness, while Oscar with irritation-related aggressiveness associated with cohabitation problems. The prescribed treatment consisted in improving controlled interactions with Ice, general environmental enrichment (spread, increased in number and easy-to-find resources for both), and pheromone therapy. FF3 (diffuser) was applied in order to decrease the stress related to the environmental modification and the CAP Spot-on (2ml) to reduce the uncontrolled behaviours and better manage the conflicts.

In two months, the therapies reduced Ice's self-controls problems and improved cat-owner interaction and playing behaviour. The behavioural therapy in association with the pheromone one reduced cohabitation problems leading to improvement of the household welfare. Results showed the interest to investigate the characteristics of these chemical messages associated with behavioural programs, in order to optimise the management of cohabitation problems and to improve the overall situation.