

4TH ANNUAL MEETING OF THE **EVCBMAW**

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ABSTRACT BOOK

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ORAL Presentations



OC-01

THE IMPORTANCE OF INCLUDING POSITIVE EMOTIONS IN THE ASSESSMENT OF ANIMAL WELFARE: AN EXAMPLE WITH PIGS

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Positive welfare is not only the absence of negative experiences, but also the presence of positive experiences (Fraser, 2009). An accurate assessment of welfare should involve positive emotions analysis to confirm positive welfare (Boissy and Lee, 2014). The availability of behavioural postures analogous to facial expressions in humans could be extremely valuable for the evaluation of animal emotions (Boissy et al, 2011; Dael et al, 2012). Besides, measurement of neuromodulators can be helpful in assessing positive welfare (Broom and Zanella, 2004).

Eighteen minipigs were involved in two experimental procedures in a controlled setting, aiming of identifying indicators of positive emotions. Positive situations (play sessions) were compared to control situations. Several physiological and behavioural measures were analysed.

Concerning peripheral oxytocin, a potential indicator of positive emotions (Rault, 2017), a significant difference was observed for time (GEE, $X=3.88$, $DF=1$, $p=0.05$) and for group*time interaction (GEE, $X=5.65$, $DF=1$, $p=0.02$); in the Control group, T_1 (after playing, in Play group, but not in Control group) was higher than T_0 (before playing, in Play group). Regarding tail movement duration, another potential indicator of positive emotions (Reimert et al, 2013), it was significantly higher in play than in control sessions (Student's t test, $DF=15$, $t=-3.40$, $p<0.01$).

Results support the interest in assessing the stability of peripheral oxytocin concentration and tail movement (Marcet-Rius et al, 2018a and b). Improving the knowledge on the assessment of positive emotions in animals seems essential to ensure a good quality of life for them, and not only the absence of suffering.

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OC-02

THE EFFECT OF ORAL MELOXICAM (METACAM®) ON SPECIFIC SOW'S BODY PAIN INDICATORS DURING FARROWING

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Reducing pain during farrowing enhances sow's welfare. The objective of this experiment was to assess the efficiency of a non-steroidal anti-inflammatory (Metacam®, Boehringer Ingelheim Vetmedica GmbH) before farrowing. Twelve Landrace x Large White sows (6 gilts and 6 multiparous sows) were randomly selected on the farrowing day. Six sows were treated with oral meloxicam (15 mg/mL oral suspension) and 6 sows received a mock administration with an empty syringe before farrowing. Farrowing was recorded from 30 min before the first piglet was born until placenta expulsion. Sow's body pain indicators (BPI) such as leg pushing (back leg pushes towards the abdomen), pawing (front leg is strongly pulled forward), back arching, sow's trembling, and intense tail movement were counted each minute and were presented either as part of the inter-piglet expulsion moment or at the piglet expulsion moment. Sow postures were recorded as a percentage of the farrowing duration (lying lateral, lying sternal, sitting, and standing). Statistical analyses were performed with a Glimmix model. Meloxicam sows trembled less (0 ± 0.000) than control sows (0.58 ± 0.135) during piglet delivery ($P < 0.05$). A trend toward a reduction of the leg movements was observed during piglet delivery in the meloxicam group (1.08 ± 0.137) compared with the control group (1.72 ± 1.69) ($P = 0.0692$). Sows' postures were not affected by treatment ($P < 0.05$). Therefore, the administration of oral meloxicam before farrowing reduces the BPIs, suggesting that its administration is a feasible option to reduce the pain in sows during farrowing and thus improve their welfare.

OC-03

FARM ANIMAL WELFARE: HEAL THE GUTS! A REVIEW

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Animal welfare encompasses five domains (Mellor et al., 2009): nutrition, environment, health, behaviour, mental state. Gut microbiota plays a central role in animals' physiology, as it influences the digestive, neurological, immune, and endocrine systems (Kraimi et al., 2019). This review aims to present the links between gut microbiota and several animal welfare aspects and discuss methods to modulate/improve gut microbiota in farm animals.

Numerous findings show the beneficial effects of gut microbiota on health: it helps the development and maturation of immune cells, ensures a healthy gut structure/function (gut motility, intestinal epithelium barrier homeostasis), promotes the resistance to pathogens via direct competition and antimicrobial peptides secretion, and can modulate inflammatory diseases (mastitis) and weaning diarrhoeas. Nutritional performances are also improved since gut microbiota allows the digestibility of additional nutrients (starch and cellulose hydrolysis), vitamin synthesis, and regulates some metabolic pathways, digestive enzyme activities, and feeding behaviours. Via the microbiota-gut-brain axis, other behaviours are also impacted: a link was demonstrated between gut microbiota and abnormal behaviours (feather-pecking), social behaviours (aggression (tail-biting), exploration), and anxiety-like behaviours (Birkl et al., 2018; Verbeek et al., 2021). Finally, gut microbiota can influence stress response, emotional reactivity, and memory capacities (Parois et al., 2017).

To feel good, farm animals need a balanced and diversified gut microbiota. Current methods are established to modulate/improve it: diet modification, administration of pro/pre/symbiotics, Faecal-Microbiota-Transplantation. Others are investigated: for instance, we observed that salmon treated with an appeasing-pheromone displayed higher gut microbiota diversity.

Soon, gut microbiota should become an animal welfare concern.

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OC-04

IMPROVING DAIRY CATTLE WELFARE THROUGH THE USE OF A NATIONAL WELFARE ASSESSMENT PROTOCOL

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Control of compliance with animal welfare legislation in Denmark is based on a risk-based sampling of livestock herds. For cattle, these risk parameters have included e.g. mortality, production type (dairy vs. fattening herds) and antimicrobial consumption. In 2013-2016 a population based animal welfare index was developed in order to quantify the levels of animal welfare and fluctuations over time. The Danish Animal Welfare Index (DAWIN) project developed and validated an integrated protocol with nine animal- and five resource-based measures for dairy cows and six animal- and seven resource-based measures for young dairy calves (0-180 days). The index ranged from 0-100 (worst to best possible welfare) and used scores below 50 as a threshold for problematic welfare. Among the 60 herds (stratified sampling based on mortality levels) assessed in 2016 the main welfare issues identified were insufficient water supply, total floorage and access to cow brushes for cows, while for calves the missing use of non-steroidal pain management upon dehorning was the major issue. Because of these findings, authorities launched more targeted welfare control campaigns in the following years. Hence, the most recent welfare assessment carried out in 39 randomly selected Danish dairy herds in 2020-2021, access to calving pens was the only measure below the critical threshold, and access to brushes for group-housed calves had the lowest but still non-critical score of 56. The results of the DAWIN work show potential to improve animal welfare in the Danish dairy cattle population.

OC-05

LOW AND NO-CONTACT EUTHANASIA: LESSONS FROM THE COVID-19 PANDEMIC

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Introduction

Many veterinary practices utilised low- or no-contact consultations to ensure the safety of their team members and clients, and comply with public health orders, during the COVID-19 pandemic (Steele et al., 2021). When surveyed regarding ethically challenging situations (ECS) encountered in the early months of the pandemic, a number of veterinary team members spontaneously reported that low- and/or no-contact euthanasia were the most common or most stressful ECS they encountered (REFERENCE REMOVED). We sought to explore ethical challenges associated with low- and no-contact euthanasia during the pandemic.

Methodology

Reflexive thematic analysis (Braun and Clarke, 2021) was performed on a subset of data (n=123/540; 22.8%) from a global mixed-methods survey of veterinary team members between May and July, 2020. Descriptive statistics of demographic features of this subset of respondents were reported.

Results

There were 141 comments. The majority of respondents were female (89.4%), veterinarians (79.7%) working in companion animal practice (74.8%). The mean year of birth was 1980 (SD 11.3), and mean year of graduation was 2005 (SD 11.1). Key themes included balancing veterinary team safety with the emotional needs of clients; pandemic euthanasia protocols as a source of distress in veterinary patients; challenges associated with physical distancing during euthanasia consults and biosecurity measures complication communication around euthanasia and end of life care.

Principal conclusions: There is an urgent need for development of evidence-based low-contact euthanasia protocols, suitable for use in a range of circumstances, to safeguard the welfare of animals, clients and veterinary teams during pandemics and other crises.

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OC-06

DECISION MAKING ON EUTHANASIA AND REHABILITATION ON WILDLIFE CASUALTIES

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There are complex ethical concerns while deciding whether the wild injured animal should be treated at all or euthanized (Mullan et al. 2017). We investigated veterinarians and care-takers decision making on wildlife casualties with a web-based questionnaire.

Respondents were asked to rate their agreement with 31 statements using a 7-point Likert scale. We got 81 responses, and report here results from two questions; Q1: "If there is no known end-of-life solution for the animal at the moment it is brought to me, the animal should be euthanized immediately if the species in question is common". Q2: "I think a wild animal should be rehabilitated even if the animal would be fully dependent on humans for the rest of its life". The respondent's education was classified as veterinarian (VETS, n=14), other animal-related training (ANIMED, n=18) and no animal-related training (NOED, n=49). Groups were tested for differences in age, wildlife work experience and agreements on statements with Kruskal-Wallis tests (with Bonferroni-corrected pair-wise tests).

Respondents median (IQR) age and work experience were 43(17) and 5(9) years, respectively, not differing between educations. Q1 and Q2 differ between educations (15.52(2) and 8.02(2), $p < 0.05$ for both, respectively): VETS agreed more with the Q1, than ANIMED and NOED; 3(4) vs. 1(1) and 1(0). NOED agreed the most with the Q2 differing from VET; 3 (3) vs. 1.5(1) ($p < 0.05$ for all).

We concluded that perceptions differ based on education and this should be noticed and researched more to avoid unnecessary conflicts between persons caring wildlife casualties.

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OC-07

PIGLETS BEHAVIOURAL RESPONSES TO SURGICAL CASTRATION UNDER INHALATION ANAESTHESIA: PRELIMINARY RESULTS

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Surgical castration of male piglets is a common, but stressful and painful practice (Prunier et al, 2006). This study aimed to evaluate piglets behavioural responses to surgical castration under inhalation anaesthesia and pharmacological and non-pharmacological analgesic treatments.

50 commercial-hybrid piglets were allocated to three treatments: Placebo (n=17) (5 ml of water), Glucose (n=16) (5 ml of glucosate at 10%), Meloxicam (n=17) (5 ml of meloxicam 1 mg/kg). Treatments were administered before castration per os. Piglets were castrated under automated isoflurane anaesthesia at 4 days of age. Before and after surgical castration, eye temperature was measured with an infrared camera (Avio Nec G120EX) and behaviour of piglets was video recorded for ten minutes. Videos were evaluated by 2 trained observers (continuous focal sampling), considering explorative behaviour, inactivity, lying and flight reactions. Procedures were approved by Italian Ministry of Health (863/2020-PR). Any time (pre-post procedure) and treatment effects were investigated using analysis of variance (ANOVA).

After castration, piglets showed a significant reduction of exploration and flight reactions and a significant increase of both ventral and isolated lying, regardless from the treatment (time $p < 0.001$; treatment $p > 0.05$). Inactivity was not influenced neither from time nor treatment ($p > 0.05$). The eye temperature decreased significantly after castration, but it was not influenced by the treatment (time $p < 0.01$; treatment $p > 0.05$).

Piglets castrated under inhalation anaesthesia showed alterations in behaviour and body temperature regardless of treatments; it remains to be investigated whether treatments affected the latency to return to normal behaviour.

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OC-08

DIE OR LIVE? THE KILLING OF YOUNG MALES IN FOOD INDUSTRY (LOCAL ANALYSIS)

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Introduction

A large number of young males in some farming productions are of no economic interest and are early killed. This unethical practice concerns the civil society. Therefore, technical, economic (costs/benefits) and legal feasibility of several alternatives to that killing were studied along with their societal acceptance, in the context of Wallonia (Belgium).

Methodology

For each production (dairy cattle, goats, laying flocks), data on early killing of young males were collected and possible alternatives assessed for animal welfare, feasibility and viability. Subsequently, stakeholder/consumer acceptance was verified (via 2 surveys (n=75 and 302 resp.) and 1 workshop). Information from the field (interviews of 7 to 11 stakeholders per production) was considered against available literature and legislation.

Results

Alternatives can be implemented preventively (e.g. sexing of eggs or semen) or after birth (e.g. fattening on farm, selling calves at a fixed price, extending goat lactation, dual-purpose breeds). Provided technical adaptations and costs support, farmers would accept sexing of eggs or semen, but consumers consider them as producing genetically modified organisms or an abortion process. Conversely, due to technical constraints, farmers were not in favour of fattening calves or cockerels and of prolonged lactation in goats. Nevertheless, those alternatives could be ethical and of societal interest. The coordination of a cross-sectoral debate led to the delivery of both transversal guidelines and a practical decision-making tool for assessing alternatives to the killing of young males against different viewpoints and drivers.

Conclusions

Further research is needed for implementing available alternatives and better defining their suitability.

OC-09

SIGNS OF REDUCED STUNNING EFFECTIVENESS IN CATTE AND PRESENTATION OF OPEN ACCESS ANIMATIONS

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Body movements in captive bolt stunned cattle are often misinterpreted especially in the context of video surveillance (von Holleben and von Wenzlawowicz 2019). In this presentation we discuss recorded visual signs of reduced stunning effectiveness and show videos, which help to distinguish the important signs of brainstem activity from impressive but irrelevant body movements.

Stunning effectiveness was assessed in 4550 cattle, mostly Black Holstein, Flecked and crossbreeds in 5 plants all except one using close head restraint (line speed 50-72/h, av. stun-to-stick time: 45s, 38–51s). Signs for “doubtful-stunning” included rotated eyeball or eyelids pressed together >30s after shot, nystagmus or up to 3 breathing-movements. Signs for “insufficient-stunning” and increased probability of reawakening are >3 breathing movements or repeated corneal reflex, spontaneous blinking or no collapse/righting (von Holleben et al 2012, EFSA 2020). Simultaneously movements were recorded by action cams (Apeman®A100) up to at least 4 min. after sticking and videos analysed for kicking, twitching, body arching, leg moves during the process intervals “landing”, “hoisting”, “sticking”, “1st” to “4th min. of bleeding”.

In total 10 cattle were judged “doubtful” and 11 “insufficiently-stunned”, of which 3 might have kept or regained consciousness for few seconds. No relations between movement categories and reduced stunning effectiveness were found. All movements occurred as well in perfectly stunned cattle (no movements: 6.6% of cattle) and are only indicative if shown together with brainstem-signs. To help identifying signs of reduced stunning effectiveness we created open access animations including examples from footage collected over the last 30 years.

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OC-10

PERFORMANCE AND BIOMARKERS OF STRESS OF RESCUE DOGS DURING SIMULATED SEARCHES IN RUBBLE

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The study aimed to evaluate the influence of the physical environment (i.e. rubble piles) and stressors (i.e. noise, smoke, people) on the performance and biomarkers of the stress of rescue dogs during simulated searches in rubble.

Two sessions (S1 and S2) were carried out in two simulated rubble fields which had different sizes, layouts, and features of the rubble piles. During each session, two trials were performed which differed in the presence of additional stressors such as noises, actors screaming and running, smoke (No stressors and Stressors trials). The search targets could be hidden people and tubes from which air came out that was exhaled by an operator positioned outside the field. Twenty-four search and rescue dogs of different breeds, 3-8 years old, of both sexes, were involved in the study. The success and the time taken to find each target were recorded to define the dog's performance[1]. Moreover, blood samples were collected before and after each trial to determine concentrations of cortisol, chromogranin A (CgA), and lysozyme. Data were analyzed by Generalized Linear Models.

The worst performances were recorded during S1 ($p < 0.001$) but they were not affected by the presence of the additional stressors. CgA was higher in Stressors trials ($p < 0.05$) while cortisol and lysozyme concentrations were only influenced by individual differences in basal values ($p < 0.001$).

The CgA seems a valuable biomarker for monitoring psychological distress in rescue dogs. Safeguarding the welfare and the ethics of employing rescue dogs as work collaborators in actual rescue interventions is fundamental.

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OC-11

VALIDATION OF MEASURES TO ASSESS COW WELFARE AT PASTURE

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Pasture is perceived as positive for dairy cow welfare as it improves expression of natural behaviours and freedom of movement. However, grazing cow welfare is not always optimal and, to date, there is no standardised protocol to assess it. We intended to design a protocol for assessing dairy cow welfare at pasture. A review of the literature highlighted that several animal-based measures needed to be further developed and validated. We performed an experimental study to validate some potential measures: fly dislodging behaviours, social behaviours and queuing at waterers. Five trained observers rated photos and video twice to assess inter- and intra-observer reliability. The measures were performed by one observer on 48 grazing cows (indoor housing on winter, December to March) and repeated two days apart for short-term repeatability and 7 times (5 weeks interval) for repeatability over the grazing season. Intra-class correlation (ICC) and Kappa (K) coefficients were calculated. Inter- and intra-observer reliabilities were mostly good to very good (ICC>0.7 and K>0.6). Repeatability at short term and over the season for social and fly dislodging behaviours were poor (ICC<0.1 and K<0.2). In conclusion, all measures were validated in terms of inter- and intra-observer reliabilities. Poor repeatability in time for measures of fly dislodging and social behaviours was probably due to environmental variability and raises the issue of how many assessments should be performed to obtain an overall picture representative of the grazing season. The development of sensors to continuously monitor cows' behaviours could be a solution to obtain such representativeness.

OC-12

VALIDATION PROCESS OF A HUMAN-ANIMAL RELATIONSHIP MEASURE FOR GRAZING DAIRY COWS

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Human-animal relationship (HAR) is considered a crucial aspect of animal welfare. Protocols have been developed to assess it from avoidance distance at the feeding rack (ADFR) (eg Welfare Quality). To date no such measure has been validated for grazing cattle. The aim of this study was to validate cow's avoidance distance at pasture (ADP) as a potential measure of HAR. We explored inter-observer reliability, short-term and long-term repeatability, and association with ADFR.

Two observers performed ADP and ADFR on 48 cows. One observer repeated ADP on the 48 cows two days apart (i.e. short-term repeatability) and 7 times, once every 5 weeks (i.e. repeatability over the season). Intra-class correlation (ICC) and Kendall's concordance (KW) coefficients were calculated to assess inter-observer reliability and short-term and long-term repeatability. A linear mixed model was used to assess association between ADFR and ADP.

The inter-observer reliability for ADP was good (ICC=0.83, $p<0.01$; KW= 0.93, $p<0.01$), but its short-term and long-term repeatability were poor (ICC<0.5). A linear relation between ADP and ADFR was found for 2 visits ($t=2.19$; $t=2.31$) but not for the 5 other visits.

This study does not allow to validate ADP to assess the HAR for grazing cows at individual level. Further studies are needed to assess the validity of this measure, for example investigating relation with other measures reflecting HAR such as the attitude of farmers towards cows. A further study with observations on several farms could permit investigate the validity of ADP measure at herd level.

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OC-13

A NEW OPTION TO INCLUDE THE ANIMALS' RIGHTS INTO THE NAPOLEONIC CODE, BY MEAN OF A MODIFICATION IN THE DEFINITION OF OWNERSHIP

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Despite the evolution of regulations protecting the animals, it is still quite difficult to get all the expected care and attention from public authorities and courts. In countries following Napoleonic code, the definition of ownership does not take into account the animals' rights.

Our approach is based on a modification of the 3 pillars of ownership: *abusus*, *usus* and *fructus*. The “*abusus*” is based on 3 rights: to consume the owned thing, to destroy it and the alienation of it. *Usus*, is the right to use it (positive *usus*), or not (negative *usus*). *Fructus* is the right to get the benefit of it during the ownership (e.g., get milk, eggs, wool, ...). None of those rights is creating concerns when the owned item is just material. On the contrary, such definition of property is unacceptable when speaking about living creatures.

This paper presents a project for a new Code, that will be presented to the French Parliament. In this new approach, the “*abusus*” will be removed from the “ownership of an animal” and the “*usus*” will be modified with the addition of an obligation to take care (no more negative *usus*). To remove the “*abusus*” will consist in transferring it to the national human community. To kill an animal will have to be justified by situations listed by the law and will be executed by appointed professionals. To get the *usus* and *fructus* of an animal, one will have to prove capabilities, for the species requiring special conditions and skills.

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OC-14

ASSESSMENT OF CONSEQUENCES OF A NEW FRENCH REGULATION PROHIBITING CASTRATION WITHOUT ANALGESIA AND LOCAL ANAESTHESIA ON PIGLETS' WELFARE

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A change in French regulation has banned surgical castration of piglets without anaesthetic of piglets since 1 January 2022 which was so far common for piglets under 7 days of age.

The new regulation allows surgical castrations on derogation, provided anaesthesia is ensured. Two pain management protocols have been made available by the Directorate for food of the French Agriculture Ministry, one of them based on an intra-testicular injection of lidocaine. The farmer is allowed to carry out this protocol after an online training course, which must be followed by a practical training provided by a veterinarian within the year.

The results of ten interviews with various professionals of the field (eg. Farmer, veterinarian, researcher, ministry staff, cooperative, technical institute...) will be presented. There is a concern about the misapplication of this new regulation. First, the fact that this type of protocol provide a full pain management is questionable. Secondly, farmers who often run out of time could have difficulties to apply this anaesthesia protocol. Training of the farmers could also be inadequate, that's why their skills should be assessed. A comparison of surgical castration with alternative practices (eg. Immunocastration, entire male production) should be carried out in regard with animal welfare and practicability.

An assessment of the regulation implementation could contribute to a better understanding of the consequences of French regulation change, which brings contrasting developments in terms of piglet welfare.

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OC-15

DEVELOPMENT OF A SCREENCAST-BASED FLIPPED CLASSROOM TO ENRICH LEARNING AND REDUCE FACULTY TIME REQUIREMENTS IN AN ANIMAL WELFARE MASTER'S DEGREE

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Introduction

A new distance learning Master of Science (MSc) degree in Animal Welfare Science, Ethics and Law was established in 2016 within the Centre for Animal Welfare at the University of Winchester, UK. It recruited students worldwide, with enrolments dramatically increasing. However, despite rapid growth, our MSc has had only one full-time equivalent faculty member. With further projected sharp increases in student numbers, significant programmatic change was required for the MSc to remain viable.

Methodology

After consultation with our students and program team, we decided to transition to a flipped classroom teaching model. Piloting a screencast-based flipped classroom in one course, our objectives were to provide a more enriched, engaging, and effective student learning experience and to increase student satisfaction while concurrently saving staff time in future years. We aimed to provide a series of enriched screencast videos of short (~20-minute) durations, with contents clearly signposted.

Results

The new teaching model was well received. Within our 2021 program survey, 100% of respondents expressed a wish to see our screencast-based flipped classroom approach continued, and 71%–86% wished to see it implemented in various additional courses.

Conclusions and implications

This model has greatly enriched students' learning experiences, increasing student engagement and satisfaction while also freeing staff time to engage in discussion fora and additional live sessions. Learning and achievement outcomes also appear positive. We plan to steadily integrate this model across additional courses, although initial time investment will be significant. Hence, this new model will be implemented over several semesters.

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OC-16

IMPORTATION AND USE OF FELINE BLOOD PRODUCTS IN THE UK

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Introduction

Growth in referral centres, progression of feline medicine techniques and client expectation have led to increased demand for feline blood products. The banking of canine blood has been established practice in the UK since the charitable Pet Blood Bank launched in 2007 and more recently increased ability to store feline blood has resulted in the emergence of a commercial company in Portugal (BSA Animal Blood Bank) offering banked feline blood to the UK market via a corporate veterinary practice.

Review

Ethical aspects of using these products is reviewed to include veterinary duty of care to donor and recipient, utility in cases of inappropriate product use and differing ethical views on donor cats (colonies, shelter or owned). Relevant legal frameworks including Royal College of Veterinary Surgeons guidance, Veterinary Medicines Directorate licencing, and the role of relevant legislation (Animals in Scientific Procedures Act, Animal Welfare Act, Veterinary Surgeons Act) are also considered.

Conclusion and Implications

Importation of banked feline blood to the UK appears to circumvent current legal frameworks and represents an exportation of welfare and ethical concerns beyond borders. This is similar to concerns raised in production animal welfare regarding trade agreements (RSPCA, 2022). Consideration of the welfare of donor cats and ethical perspectives on their instrumentalization as bioproduct producers raises important questions for clinicians choosing whether to use these products.

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OC-17

NORWEGIAN TURKEY FARMERS' BELIEFS AND PRACTICES REGARDING TURKEY WELFARE: A QUALITATIVE STUDY

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Introduction

Through a multidisciplinary approach, the project TURKEY-LATOR seeks to identify turkey welfare challenges and “best practice” management strategies for improved turkey welfare under Norwegian production conditions. The turkey industry in Norway faces challenges related to increased productivity demands, while simultaneously satisfying consumers’ expectations about animal health and welfare. Health problems associated with reduced animal welfare, such as skin and footpad lesions and air sacculitis, are commonly reported, also on farms that largely comply with the Norwegian animal welfare legislation. In this study, the main aim is to gain knowledge about whether and how turkey farmers in Norway succeed in their management of the welfare issues they experience in their turkey flocks.

Methodology

The turkey industry in Norway is small (< 40 farms), thus a qualitative approach was considered most appropriate. Turkey farmers (N = 9) were recruited through written information in emails from the researchers, with follow-up phone calls from the industry partner involved in the project (Nortura). The interview guide was inspired by Institutional Ethnography (IE), thus highlighting how the farmers practice animal welfare in their daily work, and how they interact with others in their role as turkey farmers. The nine farmers were more specifically asked to talk about their daily management practices, the turkey welfare issues they experience as most challenging, and their thoughts about possibilities and obstacles for improving turkey welfare.

Results, conclusions and implications

The coding and analysis of the interviews is currently ongoing, and the presentation will describe our main findings and conclusions.

OC-18

AN ETHICAL ANALYSIS OF THE RELATIONSHIPS HUMANS MAINTAIN WITH WILDLIFE IN SO-CALLED 'DEVELOPED' COUNTRIES

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In the context of the current biodiversity crisis, understanding the relationships between humans and wildlife is of utmost importance. In developed societies, human-wildlife relationships mostly rested on the dualism inherited from Cartesianism. This exploitative relationship resulted in a biological disaster, leading to "defaunation" which endangers not only wildlife but also humans (Young *et al.*, 2016).

Developed countries are becoming aware of this issue and are reacting. To our knowledge, the measures they are taking have not yet been comprehensively analysed in scientific literature. We thus studied their various conducts through a systematic review based on the keywords 'defaunation'; 'western societies'; 'human-animal interactions'; 'wildlife value orientations'; 'human dimensions of wildlife' and 'wildlife conservation'. We analyzed forty papers which highlighted their material or non-material (philosophical) relationships with wildlife. We demonstrated that they are behaving in an ambivalent way which does not make it possible to solve the crisis. On one hand, developed countries are still following a social and economic development model which consumes a lot of natural resources. Therefore, they seem deeply responsible for defaunation (Díaz *et al.*, 2020). On the other hand, they are making efforts to counter the damage they are causing (Seddon *et al.*, 2014; Jacobs *et al.*, 2018). Nonetheless, failure prevails (Barbour and Schlesinger, 2012; Yamakoshi and Leblan, 2013).

The results cannot be presented in a clear semiquantitative analysis as the situation is complex and tackles different disciplines such as biology, humanities, social sciences, economy, politics. Human-wildlife relationships should be reconsidered in a transdisciplinary perspective.

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OC-19

REDUCING MORAL STRESS IN VETERINARY TEAMS? EVALUATING THE USE OF ETHICAL DISCUSSION GROUPS AND ETHICAL DECISION MAKING TOOLS IN VETERINARY PRACTICE

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This study examines experiences of veterinary moral stress (Batchelor and McKeegan 2012) in charity veterinary practice. The study aims to qualitatively evaluate the role of ethical discussion groups (Wensley *et al* 2020) and ethical decision making tools (Grimm *et al* 2018) in reducing veterinary moral stress.

The data is drawn from 9 focus groups and 15 individual interviews with veterinary team members from 3 UK charity hospitals. The data was collected remotely via Zoom in 2021-2022. A semi-structured interview schedule guided an in depth exploration of 1) The causes and significance of veterinary moral stress 2) The use of veterinary ethical tools 3) Experiences of small group ethical discussion. With fully informed participant consent, the data was recorded, transcribed and anonymised before thematic analysis (Braun and Clarke 2006) using inductive and deductive techniques.

The study results identify both practical and relational barriers to ethical action as contributors to veterinary moral stress. Existing veterinary ethics tools are shown to be of limited value in charity veterinary practice, due to the complexity of veterinary relationships and ethical responsibilities (Ashall 2022). Finally, ethical group discussion is valued as a route to improved clinical decision making and may also help reduce veterinary moral stress, even where clinical outcomes are not altered.

In conclusion, the study identifies the significant impact of veterinary moral stress on charity veterinary teams. The results support the use of ethical discussion groups to reduce moral stress, but highlight the need for the further development of veterinary ethics tools.

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OC-20

THE IN-HABIT PROJECT: POLICIES AND ACTIVITIES TO ENHANCE HUMAN-ANIMAL BOND IN THE URBAN ENVIRONMENT

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In modern societies, life confined in built environments have increased the need for contact with nature and non-human beings; consequently, the presence of pets in urban environments is becoming increasingly important. The benefits of human-animal relationship (on both people and pets) are well documented in scientific studies, especially for the so-called companion animals; however, some disadvantages or issues can also arise. In an urban context, the human-animal relationship is particularly complex, due to the limitations of available room, the closeness of interactions, the possible conflicts of interest between different species/categories (e.g. pets versus wildlife as well as owners versus non owners).

The IN-HABIT project, funded by the European Commission (GA 869227), is aimed at mobilising animal resources and their interaction with people, to increase quality of life of local inhabitants and support less empowered ones; policies to make the relationship easier and further increase the respect of animals will also be implemented.

Through a bottom-up participative process, the project has designed infrastructures to facilitate interactions between people and animals, and it is working on innovative services involving pets to improve tourism, animal assisted interventions (carried out in public and in dedicated spaces), activities in schools, and more proposals that will come from the on-going participative process. All these solutions will be implemented through the identification and codification of experimental actions, and then evaluated (through surveys, focus groups, physiological measurements etc.), in order to assess their effectiveness and transfer them to other cities.

OC-21

THE UK ANIMAL WELFARE (SENTIENCE) ACT: WHAT CAN THE EU AND REST OF THE WORLD LEARN FROM BRITISH SENTIENCE POLICY?

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The UK voted to leave the European Union in 2016 and Brexit occurred in January 2020. The UK Government brought over EU animal welfare law via the EU Withdrawal Act. The recognition of animals as sentient, under Article 13 of the Treaty of Lisbon, as part of EU Treaty law was not carried over (S. P. McCulloch, 2018). This presentation analyses the development of sentience legislation in the UK post-Brexit and implications for policy in the EU and rest of the world. The Animal Welfare (Sentience) Act received Royal Assent in April 2022. The Sentience Act establishes an Animal Sentience Committee to scrutinise how government policy adversely affects animals. This is a key reform, as the UK did not have a formal mechanism to implement Article 13, i.e., to pay “full regard” to animal welfare. Furthermore, the EU and member states arguably do not have robust accountability mechanisms (S. McCulloch, 2021a). Sentient animals are defined within the Act as vertebrates, as well as cephalopods and decapod crustaceans. The presentation argues that animal welfare impact assessments are required to meet obligations under the UK Sentience Act, Article 13 of the Treaty of Lisbon, and sentience policy globally (S. McCulloch, 2021b). The UK Government rejected calls for the Animal Sentience Committee to report on positive, as well as negative welfare impacts. It is proposed that focusing on negative impacts of government policy should be the priority, but a wider scope to include positive impacts would be preferable for animal welfare.

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OC-22

VIRTUAL ETHICS ROUNDS FOR VETERINARY TEAM MEMBERS: A PILOT STUDY

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Introduction

Veterinary teams commonly encounter ethical challenges, a source of moral distress, in their work (Quain et al., 2022). Clinical ethics support services (CESS) are utilised in healthcare to improve patient outcomes, and address moral distress in healthcare workers (Fournier, 2016). We evaluated the impact of ethics rounds, one form of CESS, on veterinary team members.

Methodology

Veterinary team members were recruited to participate in virtual ethics rounds, a 90-minute discussion based on an established framework (Hobson-West and Millar, 2021), completing anonymous surveys before and after the session. The survey incorporated the Euro-MCD 2.0, an instrument designed to evaluate the impact of moral case deliberation (de Snoo-Trimp et al., 2020). Descriptive analyses were performed to understand the gender, role and age of participants. Ordinal logistic regression analyses were performed to determine factors associated with a change in the total Euro-MCD score. Paired t tests were performed to determine the degree of change for each Euro-MCD item. Free-text responses were subjected to reflexive thematic analysis to understand the types of ethical challenges encountered by participants, and their experiences of ethics rounds. The study received institutional ethics approval.

Results

In total 23 sessions were held, with 89/213 completing both surveys (response rate 41.8%). There was no statistically significant difference ($p < 0.05$) in total Euro-MCD score before or after ethics rounds, however there were significant improvements in 7/15 Euro-MCD items.

Principal conclusions: Ethics rounds shows promise in aiding veterinary team members in managing ethical challenges. Further studies are required to optimise ethics rounds in veterinary settings.

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OC-23

THE FOUR POLICY DOMAINS FOR LEADERSHIP IN FARM ANIMAL WELFARE

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Given the societal interest in animal welfare it is not surprising that politicians like to make claims about “world leading” animal welfare standards. Comparing legislative requirements, as used in the World Animal Protection Animal Protection Index, is one mechanism to evaluate national level claims. However, this approach does not take account of non-state actors, such as food retailers, which also have an important role in animal welfare (Toschi Maciel and Bock, 2013).

After consultation with industry, civil society and government organisations in UK, New Zealand and Ireland, we propose a framework, that defines the categories of policies and initiatives that can have positive impacts on farm animal welfare. The current draft of the framework has four domains; 1) Animal welfare standards or requirements (*species specific resources, outcome assessment, positive welfare, enforcement, higher welfare incentives*); 2) Animal welfare policy co-ordination (*participatory, leadership, human behaviour change, collaboration with trading partners*); 3) Consumer and supply chain initiatives (*market requirements, labelling, innovation support and education activity*); 4) Animal welfare knowledge and expertise (*advisors, farmer training, professional standards and research programmes*).

This framework could help government, civil society and industry bodies develop co-ordinated national animal welfare strategies (Main and Mullan, 2017) for maintaining social licence (Hampton, Jones and McGreevy, 2020) and evidence-based national level claims. A collaborative, continuous improvement process of developing this framework could also help deliver the obligations included in the Trade and Cooperation Agreement between the EU & UK to exchange information, expertise and experiences in the field of animal welfare.

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OC-24

SELF-REPORTED BEHAVIOURAL KNOWLEDGE AND HUSBANDRY OF PET REPTILE OWNERS IN PORTUGAL

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The ability to meet the needs of each species in captivity is at the heart of the ethical debate on the acceptability of keeping reptiles as pets. However, information about the ability of reptile owners to understand their pets' behaviour and to meet their welfare requirements is scarce (Azevedo et al., 2021).

This study reports data on behavioural knowledge and husbandry provision by Portuguese reptile owners (N=220) collected through an online survey. Owners were predicted to be unskilful at interpreting reptile behaviours and to fail to provide husbandry needs essential to the survival of pet reptiles.

Two-thirds of respondents (68%) had high behavioural knowledge scores indicating excellent knowledge of their reptile's behaviours. Conversely, only 15% reported providing all of the four survival-related husbandry needs included in our analysis (temperature, lighting, diet and refuge) and 43% met two or less. Snake keepers had higher odds of reporting better husbandry scores compared with chelonian keepers (OR = 14.05, 95% CI = 5.94–34.96, $p < 0.01$), which in turn did not differ from lizard keepers (OR = 1.34, 95% CI = 0.66–2.73, $p = 0.42$). Respondent age (OR = 1.06, 95% CI = 1.03–1.09, $p < 0.01$) and gender (OR = 1.89, 95% CI = 1.08–3.33, $p = 0.03$) also influenced husbandry scores, but behavioural knowledge did not.

These findings suggest adequate behavioural knowledge of Portuguese reptile owners, but support the prediction that many pet reptiles are not being provided with basic survival-related needs, and are likely to experience poor captive welfare.

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OC-25

DOES A FAMILY-MEMBER BOND PREDICT OWNER-REPORTED WELFARE, BEHAVIOURAL KNOWLEDGE OR HUSBANDRY PROVISION IN PET REPTILES?

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Recent studies suggest that most reptile owners perceive their pets as family members and as sentient beings (Azevedo et al., 2022). However, it remains unclear how this anthropomorphic human-reptile bond influences captive reptiles' welfare.

Data from an online survey of reptile owners in Portugal (N=220) was analysed using proportional odds and logistic regression models with stepwise variable selection based on likelihood ratio tests, to assess whether reporting a family member bond predicted respondents' knowledge of reptile behaviour, provision of survival-related husbandry needs, or self-reported welfare scores.

Most reptile owners (86%) considered their pets' welfare to be good or very good, but only 15% reported providing all of the four survival-related husbandry needs included in the analyses (temperature, lighting, diet and refuge). Owners reporting a non-family-member bond type had 61% lower odds (OR = 0.39, 95% CI = 0.17–0.90, $p = 0.03$) of reporting welfare as good/very good, but there was no evidence of an effect of bond type on behavioural or husbandry scores. Welfare and husbandry scores conflicted between reptile groups; lizard owners had the highest odds of reporting good or very good welfare but snake owners had the highest odds of actually providing adequate husbandry.

These results demonstrate that bond type can influence self-reported welfare assessments and that respondents believed that their animals fared well despite simultaneously failing to provide them with basic husbandry needs, thus signalling a pressing need to reset the norm for what is perceived as acceptable in terms of pet reptile welfare.

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OC-26

ANIMAL LOVE IS NOT ENOUGH: PROFESSIONAL SATISFACTION AND MOTIVATION IN SHELTER DOG VOLUNTEER

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Dog volunteers play a key role in shelter management, always growing in terms of official recognition and responsibilities. Notwithstanding their love for the animals, their work to promote dog adoption can be complex and hard (Menchetti et al., 2015). Still, this reality is poorly studied.

A questionnaire-based survey was developed to investigate the dog shelter volunteers' experiences aimed to gain knowledge of their perception of their role. The survey collected anonymously the following data: volunteer general information; personal and professional satisfaction; motivation; teamwork; activities performed. Questionnaires were distributed by email and social media.

In 2019, a total of 382 Italian dog shelter volunteers voluntarily participated in the survey. A multifactorial model (PROC FACTOR) was used to analyse the data (SAS®). The 68% of the total variance was explained by 15 factors with MSA=0.9 (Measure Sampling Adequacy). Besides the compassion toward the needy shelter dogs, findings show the great importance of the human social component in volunteer work. The First Factor named "*Volunteer satisfaction*" was positively correlated with team collaboration and communication (0.84), good leadership (0.72), and personal adequacy in the working skills (0.77). The Second Factor was mainly represented by the pleasantness of relation with the public and dogs' adoptive families (0.58). A trustful and emphatic leader was one of the most fundamental requirements to ensure a productive and positive working environment.

Certainly, the volunteer's role needs more attention to allow the implementation of efficient procedures aimed to improve the welfare of both humans and dogs in the shelter reality.

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OC-27

BREAKING TRADITIONAL METHODS OF LIVESTOCK GUARDIAN DOGS EDUCATION AND TRAINING THROUGH PRACTICE-DRIVEN INNOVATION

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Livestock guardian dogs (LGDs) remain the most effective non-lethal method to reduce losses to predators. However, despite the efficacy and widespread use of LGDs, many farmers still struggle to raise these dogs in an effective manner. A mismatch is often found between traditional literature and current problems (Liebenberg, 2017). Traditional methods of LGDs education that ignore behavioural needs of puppies (e.g. Coppinger and Coppinger, 1980) are still promoted worldwide leading to dramatic situations for dogs, livestock, and farmers. Recently, some LGD owners and breeders are promoting a more holistic and compassionate way to work with well socialized and balanced LGDs (Mauries 2016, Negri 2018).

Practice-driven innovation through the formation of network has a strong potential to foster changes in current farm practices, improving animal welfare and sustainability (van Dijk et al. 2019).

An innovation network was formed providing insights into the use of LGDs as work companions based on five core values: patience, compassion, respect, trust, and consistency. Critical points were identified: LGDs should come from working lines, be born among lambs, be highly socialized with other dogs and persons, should grow in an enriched environment together with their mother, should not be introduced alone to a new flock and should be trained through simple positive reinforcement techniques. Two pairs of 3-month-old puppies were introduced on two extensive farms and followed for 2.5 years. Both pairs became well balanced young adults LGDs, showing a strong attachment to sheep and being self-confident with no fearful or aggressive reactions towards humans.

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OC-28

IMPROVING PET WELFARE DURING INTERNATIONAL TRANSPORT BY AIR – DIFFERENT METHODS TOWARDS THE SAME GOAL

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Commercial international transport of acquired pets into Israel has increased over the years, from 1,193 in 2019 to 4,115 in 2021, especially following COVID-19. This increase raises concerns for the transported pets' welfare. The EU's COUNCIL REGULATION (EC) No 1/2005 concerning the protection of pets during transport, refers to the International Air Transport Association (IATA) guidelines. Welfare considerations were added to the Israeli legislation regarding animal import in 2015. However, enforcement is a complicated legal issue since complying with the Israeli legislation is the importer responsibility and it takes effect only after animal unloading. Thus, the animal's welfare has, potentially, already been compromised.

In case of an infringement, an enquiry is conducted to prevent repetition and take enforcement measures, according to Israeli legislation. In addition, our office initiated a cooperation approach in order to further improve pets' welfare - if welfare violation re-occurs or in severe incidences, the airline is contacted directly in order to investigate the cause of these violations.

Our experience is that airlines, though not obligated by Israeli law, conduct their own investigations in the ports of origin and take actions to prevent reoccurrence. This cooperation results in improved animal welfare, greater than the one accomplished by enforcement alone.

We suggest that creating international panels of enforcement agencies and airline representatives to encourage cooperation between the two, discuss animal welfare incidence and issues, combined with effective training and guidelines, may lead to better results, especially due to the problematic legislation enforcement regarding pets welfare during international transportation.

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OC-29

HORSE WELFARE ASSESSMENT TOOLS AND THEIR POTENTIAL FOR QUALITY OF LIFE ASSESSMENTS FOR CHRONICALLY ILL OR GERIATRIC HORSES

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Equine quality of life (QoL) is important for decision-making in veterinary medicine (Ireland et al., 2011b, 2011a; McGowan et al., 2012; Pollard et al., 2020). QoL is at the heart of veterinary palliative care (Shearer, 2019, p. 330), hence, also particularly relevant regarding chronically ill or geriatric horses.

Based on animal QoL theory (McMillan, 2000; Mellor, 2017; Taylor and Mills, 2007), we work with an understanding of equine QoL as an individual's subjective evaluation of their life. QoL is sometimes used interchangeably with welfare or wellbeing (McMillan and Yeates, 2020), raising the question of whether existing horse welfare assessment tools (HWATs) are suitable for assessing equine QoL according to our working definition.

A systematic literature search was conducted to identify publications on assessment tools for equine QoL, welfare or well-being, to analyse how their concepts are labelled, defined and operationalised and how these aspects relate to our working definition of QoL (publication in progress).

We analysed ten HWATs and one preliminary equine QoL tool. Using criteria derived from the working definition of QoL, we propose that HWATs that consider a horse's mental state, have the potential to serve as a basis for an equine QoL assessment tool. However, to better capture overall equine QoL these tools could benefit, in places, from adapting to geriatric or chronically ill horses, integrating measures into an overall score and extending the assessment period.

Overall, these findings suggest that HWATs can provide a basis for developing a QoL assessment tool for horses in palliative care.

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OC-30

PRELIMINARY RESULTS OF A SURVEY ABOUT HORSES' EUTHANASIA: THE POINT OF VIEW OF OWNERS

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This study aimed to evaluate the emotional impact experienced by owners following euthanasia of their horse. An online questionnaire has been administered to horse owners, including multiple-choice about the relationship with their animal and the acceptance of euthanasia. Data collected (numerical and categorical variables) were analyzed using an appropriate statistical software.

A total of 48 owners from Sicily (Italy) participated. 58.3% of participants ranged between 25 and 40 years were female. Causes of euthanasia were referable mostly to diseases associated with a poor prognosis or irreversible illness (72.9%; n=35). 66.6% (n=32) accepted and understood the reasons for euthanasia as reported in companion animals by other Authors (Bussolari et al., 2018). 95.83% (n=46) stayed with their animal during the procedure. Owners reported emotional disturbances after the euthanasia of their horse: 32.25% (n=15) showed crying fits after euthanasia, 22.9% tended to be alone (n=11), 20.8% had difficulty sleeping (n=10), 35.4% guilt-feeling (n=17), 22.9% felt depressed (n=11), 8.3% anxious (n=4) and 33.3% angry (n=17). A large part (68.75, n=33) presented nightmares. Only 39.58% (n=19) decided to resort to euthanasia with difficulty.

In most cases (60.41%, n=29) the respondent deepened his relationship with the horse and the veterinarian. The role of the veterinarian in euthanasia decision-making was fundamental in 56.25% of cases (n=27). 58.3% (n=28) reported that the veterinarian had explained in detail the procedure.

In conclusion, horse euthanasia is a difficult and distressing decision. Consequently, the veterinarian plays a central role in decision-making processes (Endenburg, Kirpensteijn, and Sanders, 1999; McGowan et al, 2012).

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OC-31

EXPLORING OWNER AND VETERINARIAN DECISION MAKING AND ITS IMPACT ON OLDER HORSE WELFARE

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The older horse population in the UK is a growing demographic, and rates of morbidity and mortality increase with horse age (Ireland et al., 2011a; Welsh et al., 2016). Yet presentation to a veterinarian for routine preventive health care has been found to reduce with increasing age (Ireland et al., 2011b). This study sought to explore the approaches of owners and veterinarians to older horse management, and to understand how their relationship impacts horse welfare.

Using a qualitative methodology this study drew upon data collected from open-access online equine community discussion forum threads (n=280 comments), individual in-depth interviews with 25 leisure horse owners and nine paired equine veterinarians. Data were analysed using a grounded theory approach.

Owners' relationships with their horse changed with age. This was often related to a horse's purpose and shaped perceptions of the role of veterinary care. Advice-seeking was influenced by past veterinary interactions, and important factors included; a veterinarian's communication style, interaction with the horse, their technical skills and knowledge. During consultations, the identification of welfare problems and solutions were shaped by an interplay of horse, human, environmental and social factors. For example, veterinary assessments were influenced by available time, questions asked by an owner and perceptions of socially acceptable care. The nature of these consultations impacted on uptake of veterinary advice and future advice-seeking.

Findings demonstrate the influence of human factors on older horse welfare. Being sensitive to this complexity can foster better veterinarian-owner communication and encourage veterinary involvement to improve equine welfare.

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OC-32

TWO PLAYING OR TWO NOT PLAYING, THAT IS THE QUESTION: DISTINCTION OF THREE TYPES OF INTERCAT INTERACTIONS USING BEHAVIOURAL ANALYSIS

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A common demand associated with interpreting intercat interactions is the need to define playful versus agonistic relationships. However, there is also a third option – acts of non-mutual intercat play: for example mutual social play is often terminated by non-reciprocated acts, which might include displays of aggression. This might occur even when there is a good social relationship between the actors involved.

In order to test this theoretical framework, we conducted behavioural observations of 105 videos of unique dyadic cat interactions (N=210 differentiated into “kitten” and “adult” cats); assessing the frequency and duration of six categories of behaviour. PCA with varimax rotation was used to reduce the dataset with component scores then used to describe the population using hierarchical cluster analysis. The validity of the clusters was determined from convergence between the average score of component factors and the prevailing opinion of four clinical behaviour experts, who had separately labelled the interactions as “playful”, “intermediate” and “agonistic”. Linear discriminant analysis and ordinal regression were then used to define the most important diagnostic features of our expert-labelled groups.

Substantial convergent validity occurred between cluster factor characteristics and expert-labelled groups. Wrestling, little or no vocalisation, overrepresentation of kittens and reciprocity were common features characterising playful interactions, while vocalisation and chasing were most distinctive characteristics of agonistic interaction. An intermediate group was characterised by attributes of both – playful and agonistic group – suggesting that recognising three categories of intercat interactions might be a theoretically and clinically relevant approach to characterising these interactions.

OC-33

DOPAMINE AND SEROTONIN LEVELS IN ADHD-LIKE DOGS

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ADHD-like have been extensively described in domestic dogs. These animals exhibit some behaviour problems related to impulsivity, inattention, hyperactivity and/or aggression (Bleuer-Elsner et al., 1991; Dinwoodie et al., 2019).

The aim of the present study was to assess the serotonin and dopamine serum levels in control and ADHD dogs. ADHD-like were established by presentation of hiperactivity, impulsivity or inattention symptoms. In addition, the dog's owners performed a series of scientifically validated questionnaires: C-BARQ (Hsu and Serpell, 2003), DIAS (Wright et al., 2011) and a questionnaire on inattention, hyperactivity and impulsivity (Vas et al., 2011). A total of 58 dogs were tested.

Blood samples (5 ml) were collected, centrifuged and frozen at -80 °C Dopamine and Serotonin were measured using two specific ELISA kits . A one-way ANOVA was performed for comparisons of means that followed a normal distribution and Mann-Whitney U-for those that did not.

Significant differences were found for animals with ADHD symptoms and blood dopamine (P=0,016) and serotonin (0,001) levels.

Regarding the results of the DIAS, significant differences were found in the serotonin levels for DIAS total score, (p= 0.004), factor "regulation of behavior" scores (p =0.034) and factor "aggressiveness and response to novel stimuli" (p=0.0041). Furthermore, animals with high scores in the impulsivity-hyperactivity factor have significantly lower levels of serotonin (p =0.012), and dopamine (p=0.011) for Vas et al., questionnaire.

In conclusion, the study carried out opens a line of research for the use of dopamine and serotonin as blood markers in patients with ADHD-like.

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OC-34

UK VETERINARIANS' ASSESSMENT OF DOGS PRESENTING WITH BEHAVIOUR PROBLEMS AND SIGNS WHICH COULD BE CONSISTENT WITH PAIN

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Pain is known to cause or contribute to behaviour problems in dogs (Mills *et al.*, 2020) but the extent to which this is recognised by veterinarians is unknown.

A questionnaire was distributed to UK veterinarians in order to investigate the hypothetical actions they would take when presented with dogs with behaviour problems. Vignettes of fictional cases were designed to cover a range of behavioural presentations including those that featured potential indicators of pain. A Likert scale was used to ascertain the likelihood of different actions being performed. Data were analysed using Kruskal Wallis with Dunn's post-hoc tests and linear mixed models.

Of the 201 participants, all agreed that pain can cause or contribute to behaviour problems in dogs and respondents selected more actions that were likely to reveal pain in the vignette featuring aggression with potential indicators of pain, than in the one featuring aggression only ($t=13.44$, $p<0.001$). However, respondents were less likely to perform a musculoskeletal examination for any of the behavioural presentations than for a lame dog (all $p<0.001$). Finally, they were significantly more likely to recommend castration ($p<0.001$) or euthanasia ($p<0.001$) for presentations involving aggression, regardless of the presence of potential indicators of pain.

Results suggest that veterinarians are aware of the role that pain can play in certain behavioural presentations, but that a standardised approach to the evaluation of dogs presenting with behaviour problems may be lacking. Further education on the importance of a thorough clinical examination (where possible), regardless of presentation, may be warranted.

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OC-35

MORAL DISTRESS IN COMPANION ANIMAL VETERINARIANS: A COMPARISON BETWEEN BELGIUM, CHINA, IRELAND, ITALY, PORTUGAL, AND TURKEY

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Introduction

Moral distress occurs when one cannot act in accordance with one's core moral values. This study focuses on experiences in companion-animal veterinary practice in different countries.

Methodology

Online (Lime-survey/Google Forms) questionnaire, with multiple-choice questions, accessed July 2020-2021 (during COVID-19/pandemic), targeting companion-animal veterinarians. Generalized Estimated Equations were conducted on 197 questionnaires (30/Italian, 37/Belgian-Flanders, 27/Irish, 30/Portuguese, 41/Chinese, and 32/Turkish).

Main results/findings

Respondents were mainly women (59.3%), practicing for more than 10 years (54.3%). 30% of respondents reported being unable to pursue what they believed to be the correct ethical/professional course of action in treating owned dogs/cats multiple times per/week. Respondents agreed that in their practice they were confronted with choices involving conflicting values (44%), lack of understanding/compliance by the owners/carers (57%), creating stressful situations. 55% of respondents reported that they were never/rarely asked to perform unjustified euthanasia, 31% animal dysthanasia, 27% other actions prioritizing owner/carers over animal/patient interests, and 10% never/rarely encountered genuine lack of finance for treatment. Country significantly predicted all previous variables ($p < 0.05$). 69% of respondents agreed that they felt free to act according to their conscience in treating animals, with differences due to gender ($p = 0.008$). 46% of respondents reported confronting refusal of life-saving treatment for dogs/cats for economic reasons at least once/weekly, with differences due to country ($p < 0.001$).

Principal conclusions and implications for the field

Given the importance for animal welfare of the targeted variables, further studies are needed to investigate and to identify strategies to mitigate these welfare issues, and to address moral distress in veterinary practice.

OC-36

BEAR BEHAVIOURAL RESPONSE TO TEST AND TRAINING WITH HUNTING DOGS AT TWO FACILITIES IN SWEDEN

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Dogs used for bear hunting in Sweden have to be trained for the purpose and are hence trained and tested on captive bears, where the dogs' reactions to the bears are being evaluated. How the bears react to the dogs has not been studied.

We observed six bears, for six days, in two facilities (A and B), representing all bears in Sweden used for this purpose, before, during and after dog exposure. Behaviours, e.g. activity (movement, foraging, exploring), passivity (standing, sitting, laying) stereotypies and charges were registered with scan sampling and frequency registration, using ethograms.

Bears were passive 89% of the observations at facility A, and 6% of the observations at facility B, where the bears spent 55% of the observations foraging. Stereotypic pacing was observed before and under dog exposure in three individuals at both facilities. Charges towards dogs were seen 32 times during 9 out of 17 training sessions (A) and 28 times during 14 of 23 tests (B) respectively. In facility A, bears were given the option to leave the enclosure during training, and a majority of bears left.

In conclusion, it is difficult to evaluate dogs' effect on the bears' welfare due to limited data. Charges towards dogs, leaving when given the option and occurrence of stereotypies may indicate that some bears find these activities aversive. Environmental conditions, time of exposure, habituation, possibilities to control the situation and perform natural behaviours seems to be important factors contributing to the bears differences in behaviours and welfare.

OC-37

OBSESSIVE COMPULSIVE DISORDER IN A DUTCH VIZSLA

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Signalment and history

A one-year-old intact-male Vizsla presented with a 6-month history of shadow-chasing.

Behaviour examination

A full behavioural history and observation of the dog in the clinical setting was conducted.

Physical examination

Although the dog appeared too thin, routine physical examination including bloodwork revealed no further abnormalities. As a precaution the dog was referred to an internist and no other abnormalities were found.

Diagnosis

The dog was diagnosed with an (Obsessive) compulsive disorder.

Treatment

Attention and relaxation exercises were commenced¹ and medication was prescribed in the form of the SSRI fluoxetine, an omega 3 supplement and probiotics.

Follow-up

The dog responded very well to therapy and could perform all behavioural therapy perfectly during a tele-consult with the veterinary nurse. Shortly following that, the dog was reassessed by the behaviour specialist and the initial treatment was deemed successful. Nevertheless, close follow-up was advised.

Discussion

Compulsive disorders are behaviours which seem abnormal because they are displayed out of context and are often repetitive, exaggerated, or sustained, and are usually brought on by conflict but subsequently shown outside the original context (Frank 2013). Whether or not there is an obsessive component is debatable (Frank 2013). Nonetheless, these behaviours can be seriously debilitating and severely compromise animal welfare.

Conclusion

This case highlights that even dogs with serious (obsessive) compulsive disorders can be readily treated using management, cognitive behaviour techniques and psychotherapeutic medication once other non-psychiatric medical disorders have been ruled out.

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OC-38

SEPARATION-RELATED PROBLEMS IN COMPANION DOGS: BEHAVIOURAL AND PHYSIOLOGICAL MEASURES OF ANXIETY

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Approximately 14%–20% of dogs (Landsberg et al., 2003) in general practice are affected by separation-related problems (SRP). Phenotyping the motivation of SRP, including normal and pathological anxiety (Tami & Gallagher, 2009) is controversial. Additionally, dog owners are unaware of mild signs of SRP (Mariti et al., 2012). Early diagnosis could be aided by specific measurable biomarkers for stress and/or anxiety in dogs (Pirrone et al., 2019).

In this study, we tested dogs with anxiety-related SRP (Cases, N=13) and with no problems (Controls, N=15). We analysed the behaviour and the concentration of salivary copeptin (CoP), a biochemically stable biomarker of stress, before, during, and after a separation from the owner. Data were analysed using generalized linear models (GzLM) for behaviours and a General Linear Model (GLM) with repeated measures for CoP concentrations.

Compared to controls, dogs with SRP had greater odds of presenting higher activity levels before the separation (OR=2.81, CI=1.37-5.73, p=0.005), reduced activity level during the separation (OR=0.36, CI=0.17-0.73, p=0.005), and higher stress-relief activities when reunited with the owner (OR=4.92, CI=2.20-10.99, p=0.001). Salivary CoP concentrations did not differ between the two groups at any time (all p>0.05). However, in the Cases, the overall frequency of activity increased with each pg/ml CoP increase (estimate=0.001, s.e.=0.0007, p=0.043), while it decreased in the controls (estimate=-0.002, s.e.= 0.0011, p=0.026).

These results indicate differential behaviour changes in the SRP and control dogs. Additionally, CoP behaves differently in the two groups, informing on the neurobiological phenotypes of RSP in dogs.

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OC-39

COMPARISON OF ANXIOLYTIC EFFECT OF PREGABALIN VERSUS NON-MEDICINAL PRODUCTS DURING TRANSPORTATION IN FINNISH CLIENT-OWNED CATS

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Anxiolytic effect of pregabalin 5 mg/kg dose in cats was evaluated in two clinical field studies in Finland. The results were compared to those of previously used non-medicinal products to reduce anxiety and fear associated with travel in the same cats.

Both clinical studies, one with a crossover design (n=11) and the other with two parallel groups (n=23), were randomised, blinded, placebo-controlled and included client-owned cats with history of anxiety and fear associated with travelling. Both studies had authority approval. A single dose of pregabalin or placebo was given as oral solution 90 minutes before starting transportation. Anxiolytic effect was evaluated by owners using 5-point rating scale (excellent, good, fair, poor, very poor) for pregabalin and with 4-point rating scale (improvement, mild improvement, no effect, worsening) for previously used non-medicinals. Dichotomised results (first two categories versus other) were evaluated descriptively.

Of 34 cats, 23 received pregabalin and 22 placebo. In total 17 cats (50%) had been given non-medicinals previously, of which 13 cats received pregabalin and 10 placebo. The most commonly used non-medicinals were pheromones (71%), valerian (24%), tryptophan (18%) and alpha-casozepine (12%). Anxiolytic effect was shown in 54% (7/13) of cats given pregabalin, 20% (2/10) given placebo and 0% (0/17) with non-medicinals. Clinical safety of pregabalin was good, with mild transient incoordination and tiredness as most commonly reported adverse events.

In conclusion, pregabalin oral solution dose 5 mg/kg was found to be clearly more effective than non-medicinals for alleviation of acute anxiety and fear associated with transportation in cats.

OC-40

COOPERATIVE CARE TRAINING AS A MEANS TO PREPARE DOGS (CANIS LUPUS FAMILIARIS) FOR A VETERINARY EXAMINATION: AN EVALUATION OF OWNER-PERCEPTION AND THE TRAINING PROCESS

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Veterinary visits can be challenging for dogs and their owners. Thus, we evaluated the effects of cooperative care training on dogs' compliance, behavioural, and physiological stress responses (e.g., heart rate variability (HRV)).

40 dogs (40.9% neutered females, 22.7% neutered males, 22.7% females, 13.6% males; 5.1±2.3 years of age) and owners (94.7% females) participated in the study, comprising two standardized veterinary examinations (examination_1, examination_2, 8–12 weeks apart). In between, 22 dog-owner pairs received cooperative care training (introducing a front paw target, desensitization/counter-conditioning of manipulations) and training instructions for use at home. In training diaries, 16/22 owners recorded, e.g., training location, treat quality, the dog's affective state, and whether the dog left the target during training. After examination 2, owners rated their perceived training success (completion rate at examination 2 and overall compliance). For statistical analysis, Mann-Whitney-U Tests and Spearman correlations were used.

Dogs which left the target more often during training at home appeared more tense during examination 2 ($r_s = -0.56$, $p = 0.024$). Dogs that received more training units on elevated areas (e.g., table) were more likely to complete examination 2 (29% vs. 8%). Furthermore, using higher quality treats at home correlated with a higher HRV during examination 2 and an increase in HRV from examination 1 to examination 2 ($r_s = 0.63$, $p = 0.028$; $r_s = 0.59$, $p = 0.044$; $N = 12$). Thus, cooperative care training seems to be a promising means to increase compliance and decrease the stress response of dogs during veterinary examinations.

OC-41

THE CAT APPEASING PHEROMONE (CAP) : A MESSAGE OF FRIENDSHIP BETWEEN CAT AND HUMAN

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Cats have developed communication strategies to cohabit with humans (Quaranta et al, 2020). However, owners of cats do not fully read into the behaviour of their own animal (Hargrave, 2018) which may lead to decrease positive interactions (Adamelli et al, 2005). A synthetic analogue of Cat Appeasing Pheromone (CAP) can be used to improve relationships between cats, reducing conflicts and increasing affiliative interactions (Cozzi et al, 2010, DePorter et al, 2019). This study aimed to investigate if CAP could promote cat-human positive interactions.

In a controlled (videorecorded) setting, 20 cats were involved in a 2*2 crossover blinded design with two groups of cats being tested CAP versus placebo (only one product was directly applied on the skin at T0, once, being either CAP or Placebo). Cats were tested for 10 minutes individually and encountered both familiar and unfamiliar person consecutively, in random order, with the possibility to interact or not. Each cat underwent the test at day2, day14 and day28 for each period of the crossover design. Parameters about cat behaviour and social interactions were evaluated by two independent observers.

Results showed that cats treated with CAP spent more time in roll lay with physical contact (Z=1.78 ; p=0.08) and spent less time hidden under shelves (Z=2.11 ; p=0.03). Cats treated with CAP showed less probability to gaze at the door (Z=2.44;p=0.01) and vocalised less than cats treated with placebo (Z=-1.93;p=0.05).

This study showed that CAP could be an interesting tool to increase the affiliation and promote cat-human social interactions.

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OC-42

AN ONLINE EASY-TO-ACCESS SCREENING TOOL TO ASSESS PROFESSIONAL QUALITY-OF-LIFE FOR VETERINARY PROFESSIONALS

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Introduction

Burnout and compassion fatigue seem to be very prevalent among veterinary professionals and most cases are often diagnosed and treated at a late stage of progression (Scotney et al., 2019). Primary and secondary prevention strategies, including anonymous easy-to-access screening tests, could be valuable to prevent compassion fatigue.

The prevention of work-related stress is one of the main objectives of Vetbonds, a project developed by the Psychiatry Department at the Autonomous University of Barcelona and AVEPA (Spanish Association of Companion Animal Veterinarians). Since 2021 Vetbonds offers veterinarians an anonymous online tool to assess their professional quality of life.

Methods

A modified and back-translated version of the ProQol (Professional Quality of Life Scale: Compassion Satisfaction and Fatigue version 5) was used with authorization. The scale includes 30 items divided into 3 sub-scales: compassion satisfaction, burnout and secondary stress (Stamm, 2012). The scale is freely accessible through the Vetbonds official website.

Results

A total of 195 responses have been already collected. According to the scoring scheme established by the authors of the original scale, 88% of participants showed moderate to low levels of compassion satisfaction. Only 9% of the sample reported low levels of burnout. Six per cent of participants indicate high levels of secondary trauma, a dimension which has been related to PTSD (Post-Traumatic Stress Disorder).

Conclusion

Anonymous easy-to-access screening scales seem to be valuable in the prevention of burnout and compassion fatigue among veterinary professionals.

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OC-43

THE USE OF THE CRATE IN BEHAVIOURAL INTERVENTIONS: SAFE HAVEN OR CAGE?

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House-soiling and separation anxiety are common behavioural problems in dogs (Cannas et al., 2018). Crate confinement is often recommended to prevent or treat these disorders.

In the USA, 49% of puppies are reported to be confined in crates at night. This may accelerate the house-training process by forcing them to hold back urine and faeces (Taylor et al., 2007).

In separation anxiety disorders, crate confinement is used to avoid anxiety-based eliminations and/or destructive behaviours in the owner's absence (Bennett, 2013). Most dog behaviour professionals who use the crate recommend a gradual introduction and a strong association with positive stimuli. The idea is that, by presenting the crate in a positive way, the dog will perceive it as a safe haven and will feel comfortable when the crate door is closed (RSPCA, 2022; APDT, 2017).

Although the crate may be a practical restraining tool, I argue that, when the crate door needs to be closed for it to be effective in behavioural modification interventions, it means it is no longer perceived as a safe haven, regardless of size, type, circumstances and implementation of an introduction program.

I further argue that more ethical approaches should focus on physiological, emotional and ethological aspects that drive the expression of undesired behaviours, as well as on raising owners' awareness of dogs' species-specific needs rather than trying to meet expectations incompatible with their nature. Finally, given its widespread use, I suggest more research is needed to understand the implications of crate confinement on dog welfare.

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OC-44

COGNITIVE BEHAVIOUR THERAPY IN DOGS; COPING WITH DISTRESS OF THE OWNER

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Introduction

Qualitative studies found that caring for an animal with behavioural problems can affect the owners in significant ways (Buller et al., 2020). The aim of this case report is to highlight the importance of addressing owners' negative emotional states while treating their companion animal as failure to do so could negatively affect progress and compromise both animal and human welfare.

Case history

The female owner of a 2-year-old intact male crossbred-dog diagnosed with impulse-control aggression and fear aggression towards family members and dogs, experienced feelings of anxiety and distress during the dogs treatment. Her anxiety was triggered especially when she started muzzle-training the dog. Her feelings of distress and anxiety were related to a traumatic incident where she witnessed the dog biting her husband which resulted in a bloody bite-wound.

In practice

The female owner was supported in coping with feelings of distress and anxiety by empathetic listening. Multiple options for trauma therapy were given.

By discussing the owners' personal feelings and listen to them empathetically, the veterinarian-client relationship can be positively affected (Spitznagel et al., 2022).

Counseling and caregiving

Collaboration between veterinarians and human mental health professionals could lead to a better outcome for both animal and client (Buller et al., 2020). Treating a companion animal with behaviour problems should involve discussing the quality of life of their owners, understanding how they are managing the situation and offer additional (professional) help when wished or needed such as individual or group counseling or visiting a human mental health professional.

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OC-45

VEGAN VERSUS MEAT-BASED PET FOODS: OWNER-REPORTED PALATABILITY BEHAVIOURS AND IMPLICATIONS FOR CANINE AND FELINE WELFARE

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Introduction

Vegan pet foods are rapidly developing. However, some claim these may be less palatable, or may compromise animal welfare.

Methodology

We surveyed 4,060 dog or cat guardians to determine the importance to them of pet food palatability, and the degree to which their animals displayed specific behavioural indicators of palatability at meal times. Guardians were asked to choose one dog or cat that had been within their household for at least one year, and not on a prescription or therapeutic diet.

Results

Of 3,976 respondents who played some role in pet diet decision-making, palatability was the third most important among 12 factors cited as important when choosing pet diets. For 1,585 respondents feeding meat-based diets, who stated they would realistically consider alternative diets, palatability was the fourth most important among 14 desired attributes. For the 2,308 dogs included, reported observations of 10 behavioural indicators of palatability at meal times reliably indicated significant effects of increased reports of appetitive behaviour by dogs fed raw meat, as opposed to conventional diets. There was no consistent evidence of a difference between vegan diets and meat-based diets. For the 1,135 cats included, reported observations of 15 behavioural indicators indicated that diet made little difference to food-oriented behaviour.

Conclusions

Based on these owner-reported behaviours, our results indicate that vegan pet foods are generally at least as palatable to dogs and cats as conventional meat-based diets, and do not compromise their welfare, when other welfare determinants, such as nutritional requirements, are adequately provided.

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OC-46

POSITIVE PET-CARE PRACTICES: DON'T WORRY - BE HAPPY. REVIEWING THE EVIDENCE

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Research into positive, pet-friendly, pet-care practices (Cat Friendly Practice[®], Fear Free[®], Low Stress Handling[®]) has produced a broad and growing body of scientific evidence corroborating the positive impact on the the pet, owner, pet-owner bond, and veterinary personnel. However, research also clearly demonstrates the significant negative consequences associated with fear, anxiety, stress and pain (FASP) during travel and veterinary care on the physical and emotional health of pets and their caregivers and on the quality and frequency of veterinary care. This study examines the scope of current scientific literature documenting the risk factors and prevalence of veterinary fear and aggression, the detrimental effects of FASP on the medical and behavioural well-being of the pet, pet owner, and veterinary team (Mariti et al. 2017; Mariti et al. 2016; Couture et al. 2022; Stellato et al. 2021), and the efficacy of positive care protocols and practices in preventing, alleviating, and treating FASP. These include but are not limited to carrier training, preventive counseling, owner education, gentle handling, enticing motivators, environmental management, behaviour modification (desensitization, counterconditioning and cooperative care), and the use and benefits of both pre-visit medications such as alpha-2 agonists, gabapentinoids, and trazodone and in-clinic injectable drugs. Barletta and Raffe (2015); Moody et al. (2018); Kim et al. (2022); van Haaften et al. (2018) A calm and considerate approach to both the social and physical environment together with protocols for preventing, monitoring, managing, modifying and medicating FASP in pets can positively affect the welfare of pet patients and their caregivers.

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OC-47

THE APPLICATION OF THE CANINE FRUSTRATION QUESTIONNAIRE IN A CLINICAL SETTING

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Frustration is a negative emotional state involved in various behaviour problems. The Canine Frustration Questionnaire (CFQ) was developed and validated as a psychometric tool to assess frustration tendencies in dogs based on owner report, (McPeake et al., 2019; 2021). However, the clinical utility of the CFQ has not been described.

A behaviour referral caseload was retrospectively reviewed. 31 cases where the CFQ was completed by owners as part of the initial behaviour consultation were followed up to complete the CFQ a second time and rate treatment success. Clinicians were asked to independently rate treatment success, plus comment on the degree to which CFQ scores reflected the role frustration played in the presenting problem(s).

Paired CFQ responses were obtained for 26 owned dogs. Dogs were grouped based on whether clinicians assessed frustration to be present ('frustration group (FG), n=19) or absent ('non-frustration group' (NFG), n=7) in the presenting problems. CFQ overall questionnaire scores (OQS) at initial assessment were significantly higher ($U= 20.0$, $z=-2.693$, $p=0.006$) in the FG (Mdn 0.70) than NFG (Mdn 0.52). Within the FG, for the 16/19 owners who rated treatment as successful there was a significant median reduction of CFQ OQS of 0.09 across time points ($W = -3.105$, $p =0.002$). There was no significant difference between owner and clinician ratings of treatment success ($W = -0.447$, $p=0.655$).

This illustrates the clinical utility of the CFQ as an aid to the diagnostic process for assessing frustration tendencies in dogs, and as a tool to monitoring response to treatment.

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OC-48

REPETITIVE TRANSCRANIAL MAGNETIC STIMULATION IN HEALTHY BEAGLES: A MULTIPLE NEUROIMAGING STUDY

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Introduction

Repetitive transcranial magnetic stimulation (rTMS) has been used in human medicine and recently in veterinary medicine. However, the neurobiological mechanisms are not unraveled yet. To this goal, functional imaging modalities may provide a valuable contribution. This study aims to evaluate the effects of rTMS over the left frontal cortex in healthy beagles on brain function, metabolism, and the dopaminergic and serotonergic neurotransmitter systems, using single photon emission tomography (SPET) and positron emission tomography (PET).

Methodology

Neuroimaging data, using SPET and PET, was obtained at baseline, 24h, 1-month, 3-month post rTMS:

1. **HMPAO-SPET (cerebral perfusion):** 8 beagles (1-day active rTMS);
2. **DASB-PET (serotonin transporter density):** 22 beagles (1-day active rTMS (n=10), 4-day active/sham rTMS (n=8/4));
3. **FDG-PET (brain metabolism):** 24 beagles (1-day active/sham rTMS (n=8/4), 4-day active/sham rTMS (n=8/4));
4. **DaTSCAN-SPET (dopamine transporter density):** 13 beagles (1-day active/sham rTMS (n=9/4)).

Results

A significant increase in regional cerebral blood flow (HMPAO-SPET) was observed in the left frontal cortex 24h post 1-day rTMS (Dockx R, 2018). The serotonin transporter (DASB-PET) binding attenuated in the subgenual anterior cingulate cortex (sgACC) 1-month after 4-day rTMS (Xu Y, 2022). 1-day rTMS increased glucose metabolism (FDG-PET) in the left frontal cortex after 24h (Xu Y, 2022). 1-day rTMS provoked decreased binding in the striatal area (DaTSCAN-SPET), and lasted to 1-month. No significant change was found in sham group in any study.

Conclusion

We evaluated the effects of different rTMS paradigms in healthy beagles. These findings could provide important insight into neurobiological mechanisms of rTMS in dogs.

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OC-49

EVIDENCE OF RISK ASSESSMENT FACTORS TO CONSIDER IN DOG BITE

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Introduction

Breed specific legislation includes, in France, a behavioural assessment of one's dog bite hazard. This work aimed to identify the literature evidence to carry a risk analysis.

Methodology¹

Based on keywords to appreciate the bite risk (probability of hazard occurrence: BE-bite emission and EB-exposure to a bite) and its consequences, a literature search followed by a critical analysis (papers' quality, biases) extracted 132 papers to be in-dept considered as regards 12 potential intrinsically linked BE-factors (dog's characteristics, animal welfare, health, environment, human interactions) and 8 potential EB-factors (victim age and gender, profession, bite environment, dog's lifestyle, human communication knowledge).

Mains findings

Results showed 9 BE and 8 EB possible risk factors, and 5 types of consequences.

(BE)-A dog likely to bite is an adult male, early weaned, with late human contacts, in poor mental/physical health and living conditions, with negative human interactions. But no or contradicting evidence is observed concerning aggressive temperament (even if individual variations are acknowledged), reproductive status (castration) and dog's breed.

(EB)-Everyone in contact with a dog is potentially exposed to the risk of being bitten, in particular males, children (lethal bites), canine professionals, in private or public locations, by his/her own dog, with wrong/poor communication skills or inappropriate human behavior.

Consequences of a dog bite on a person are physical, psychological, infectious, posttraumatic, social.

Conclusions

As BE and EB factors are often inseparable, dog bite risk assessment must consider them all, in its occurrence context, and with information about bite consequences. Veterinarians must therefore adapt to each case.

In this bite risk assessment, the danger is any bite on human and the context might include the following potential factors 1) that are related to the dog (Bite Emission): impact of interaction patterns and human-dog relationships (human-dog relationship, emotional and cognitive skills, education), well-being and health (unmet needs and expectations, mental and physical health), individual characteristics (breed, temperament, sex and reproductive status, age, developmental conditions) and 2) that are related to humans: groups of people at risk (age, gender, occupation/practices), lifestyle of the dog/close proximity to humans, abilities in communication and recognition of canine signals, dogs of particular functions, bite emission surroundings.

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OC-50

PHYSIOLOGICAL AND BEHAVIOURAL DIFFERENCES BETWEEN SECURELY AND INSECURELY ATTACHED DOGS IN THE STRANGE SITUATION PROCEDURE (SSP)

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This study aimed at investigating behavioural and physiological differences in dogs classified as either secure or insecure during a Strange Situation Procedure (SSP).

Thirty-three dog-owner pairs participated in a SSP. Dogs' behaviour (F=22/ M=11, mean age: 5.4 years) was analysed for attachment style (Riggio et al., 2021) and coded using a modified version of the 7-dimension scoring system originally created for children (Ainsworth et al., 2015). Saliva was collected before and after the test to measure cortisol concentrations. Dog's blood pressure, heart rate and rectal temperature were collected after the test. Mann-Whitney U test and GLM repeated measures were used to compare, respectively, physiological parameters and cortisol concentrations between secure and insecure dogs.

Insecure dogs had higher cortisol levels compared to secure dogs before ($p=0.019$) and after the test ($p=0.038$), and tended to have a higher mean heart rate ($p=0.074$) after the test.

As for behaviour, 20 dogs were assessed as securely and 13 as insecurely attached. Insecure dogs scored significantly higher on Avoidance and Resistance in both episodes of reunion with the owner (Avoidance: $p=0.011$ for episode 4 and $p=0.001$ for episode 7; Resistance: $p=0.010$ and $p=0.038$) compared to secure dogs. Secure dogs tended to score higher on Proximity/Contact seeking ($p=0.071$) and Play ($p=0.079$) in episode 4, as well as on Distance Interactions in episode 7 ($p=0.071$).

Like in humans, dog's insecure attachment may be linked to altered cortisol reactivity (Pietromonaco et al., 2015) and to a greater degree of conflict in the interactions with their owners.

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OC-51

SIGNS OF FELINE COGNITIVE DYSFUNCTION ARE PREDICTED BY COGNITIVE TESTING AND SERUM PARAMETERS: PRELIMINARY DATA

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Veterinary care for companion cats is continuing to improve and progress. As a result of this and the increase in owners' home care, there may be an increase in the prevalence of age-related cognitive conditions in senior cats.

In this multi-centric study, clinically healthy senior cats underwent a cognitive test for spatial memory (Azadian et al., 2020; Piotti et al., 2017) requiring the cats to recall multiple times the location of a baited container. The cats were also assessed for cognitive decline through a semi-structured interview (Bellows et al., 2016) and received a routine clinical exam and blood work (CBC, biochemistry, metabolic function).

Blood parameters were within the normal range for the age of the cats. An ordinal regression with a cognitive dysfunction score (frequency x severity of signs) as outcome, was calculated on preliminary data from 17 cats (MdnAge=10 years, range=7-15; Females=8) including age, the number of correct memory test trials, and the blood parameters WBC, ALT, ALP as fixed factors (AIC=114.17, Chisq(5)=14.62, p=0.012). The results indicated that a better performance in the memory test (estimate=2.84+/-1.16, p=0.014) and higher concentration of ALT in the serum (estimate=0.12+/- 0.04, p= 0.005) predicted better cognitive function in the group.

These findings suggest that the memory test and at least one of the considered biochemistry parameters may be good predictors of the decline in the cognitive function. Further data are being collected to better understand what parameters may be associated with the early signs of cognitive decline in cats.

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OC-52

DOUBLE-BLIND, PLACEBO-CONTROLLED TRIAL OF VENLAFAXINE TO TREAT BEHAVIOURAL DISORDERS IN CATS: A PILOT STUDY

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Venlafaxine, a specific inhibitor of noradrenaline and serotonin (Howell et al., 1994), is used in human medicine to treat depression, anxiety and social phobia (Gu et al., 2018). Its formulation in small granules renders it interesting to test on cats, which are usually reluctant to take medication. Venlafaxine was administered at 1 mg/kg for 60 days, using a double-blind, placebo-controlled protocol, to cats aged ≥ 6 months exhibiting aggressiveness, fear or house-soiling.

After one cat's withdrawal, 21 cats were included in the study. Three consultations were conducted, on day 0, day 30 and day 60. Each visit consisted of (1) veterinarian- and owner-based scoring of the cat's behavioural improvement; (2) scoring of the cat's compliance; and (3) owner scoring of the ease of administration and recording of the potential adverse effects of the treatment.

Improvement was significantly higher in the venlafaxine group; as early as day 30, according to the veterinarian scoring ($p = 0.022$), and at day 60, according to both the veterinarian and owner scoring ($p = 0.003$). In contrast, neither the removal nor the manipulation scores were significantly different between the two treatment groups. Venlafaxine improved all three studied signs, as early as day 30 for fear and aggressiveness, and at day 60 for housesoiling. All cats tolerated the treatment well during the 60-day period.

These results suggest that venlafaxine is efficient in treating several behavioural problems and is easy to administer. More studies should be conducted to explore its effects at different dosages on specific diagnoses

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OC-53

OWNER DESPAIR: IMPULSE-CONTROL AGGRESSION IN A FRENCH BULLDOG

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Signalment and presentation

A 5-year-old male neutered French Bulldog presented with increasing aggression towards his owners.

Behaviour history

The dog's owners reported numerous (attempted) bite incidents, mostly involving the male owner, targeted at his moving hands or arms or while attempting to access the living room. Concomitantly the dog showed signs of arousal and ambivalent behaviour.

In addition, the patient also exhibited aggression towards other dogs and towards his owners when thwarted. Aside from the obvious animal welfare issue, the situation was grave as the male owner was very wary and despaired of the dog, the owners could no longer show physical affection to each other and their relationship with each other and the dog was compromised.

Medical history

No relevant history other than successfully treated skin conditions.

Behaviour observation

No relevant abnormalities.

Physical examination

No relevant abnormalities in physical, blood- and urine examination.

Diagnosis

- Impulse-control aggression towards familiar people
- Fear-related aggression towards unfamiliar dogs and familiar people
- Redirected aggression towards familiar people

Treatment and follow up

Treatment was initiated with fluoxetine (gradually altered towards 1 mg/kg), omega-3 fatty acids and probiotics. Further recommendations regarding the use of cognitive behavioral techniques (Overall, 2013) and appropriate management were made.

The dog showed marked improvement both indoors and outdoors, leading to satisfying results within 2 months of treatment initiation.

Discussion

This case highlights that even cases where owners have little or no hope, where the human-animal bond has been severely damaged, can often successfully be managed with appropriate treatment recommendations.

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OC-54

ASSOCIATIONS FOUND BETWEEN OWNER REPORTED AGGRESSION IN DOGS AND LOWER LEVELS OF OFF-LEASH TIME, SOCIAL INTERACTION WITH CONSPECIFICS AND TRAINING WITH THE OWNER

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When owners perceive their dogs' behaviour as problematic, it can negatively influence the dog-owner relationship and the welfare of both dog and owner. Several previous studies have looked into canine behaviour problems, but to our knowledge, only one other study has to date done so in a representative sample of dog owners (Howell, Mornement and Bennett, 2016).

We investigated owner-reported behaviour problems in a representative sample of Danish dog owners. Participants (n=570) completed an online survey. We grouped reported behaviour problems under four non-exclusive variables: 1) fear-related, 2) aggression-related, 3) problems with other dogs, 4) lack of obedience, and examined associations between these variables and factors related to the dog, the owner and management practices.

Using multivariable logistic regression, we found that several behaviour problems were associated with management practices, particularly the frequency with which owners engage their dogs in different activities. For instance, aggression-related problems were negatively associated with off-leash experience ($r=-0.16$, $p<0.001$), social interaction with conspecifics ($r=-0.17$, $p<0.001$), and training with the dog at home ($r=-0.16$, $p<0.001$). For the first two activities, the causal order is unclear, as problematic behaviour could prompt the owner to restrict the dog's freedom. For the latter activity, it seems reasonable to conclude that training dogs at home on a regular basis can lead to fewer problems with aggression. Another interesting finding was that owners of neutered dogs reported a higher proportion of fear related problems (OR=1.8, $p=0.013$). Demographic factors related to the owner were not associated with any behaviour problems.

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OC-55

FLUOXETINE IN THE CAT: RESULTS AND FOLLOW UP IN 62 CASES

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Fluoxetine is a serotonin selective reuptake inhibitor (SSRI) widely used in psychiatry for its beneficial effects on depression and anxiety disorders (Stahl, 2014). It has been described for treatment in dogs for separation anxiety (Simpson and Luescher, 2007) and compulsive disorders (Sherman and Mills, 2008). In cats it's well documented for urinary spraying (Mills et al., 2011), and there're case reports for other disorders such territorial aggression (Bennett, 2014) and petting intolerance (Denenberg, 2015). Despite this, it's widely prescribed for behavioral problems such as elimination behaviours, anxieties, aggression, dermatologic/overgrooming and other compulsive disorders (Kaur et al., 2016).

This work aim's test the use and results of fluoxetine in a behavioral medicine referral service.

We present data collected in cats treated with fluoxetine from January 2017 to February 2022. It was prescribed in 62 of 217 cases attended (28,5%) for the following groups of problems: aggression (intra and/or interspecific) 41 cases, repetitive behavior (including hyperesthesia) 13 cases, house soiling 10 cases, excessive vocalization 2 cases and flight from familiar persons 2 cases. We observed positive evolution in 96% of the cases followed, used alone, or combined with gabapentin when improvement was partial. The only side effect observed was transient hyporexia and in no case did it have to be withdrawn for this reason.

Conclusions and implications for the field:

In our experience fluoxetine is safe and effective in a wide variety of anxiety-based behavioral problems in cats and can be combined with gabapentin to increase its efficacy while maintaining safety.

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OC-56

CONVERGENT VALIDITY BETWEEN FOUR DOG PSYCHOMETRIC INSTRUMENTS IN ITALIAN AND ENGLISH

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Psychometric scales can help evaluate dogs' motivational (Reinforcement Sensitivity Theory, RST; Piotti et al., 2018) and emotional (Positive and Negative Activation Scale, PANAS; Shepherd & Mills, 2001; Canine Frustration Questionnaire, CFQ; McPeake et al., 2019) predispositions, and behavioural control (Dog Impulsivity Assessment Scale, DIAS; Wright et al., 2011). The predispositions measured by these scales are not independent, but relationships between constructs remain largely unexplored.

We collected 1091 responses from adult Italian- or English-speaking dog owners (Dogs aged >4 months; F:M=1:1, neutered=66%), comprising the four scales above in English and Italian ($N_{IT}=677$, $N_{EN}=414$).

Confirmatory factor analysis of Italian and English data indicated adequate fit for the original scale structure. One RST and two PANAS items were removed due to their "no response" rate. Pearson's correlations (cut-off $r > 0.3$, all Bonferroni corrected $p < 0.001$) showed that the DIAS overall score (high impulsivity tendency) had a strong positive correlation with the PANAS NA, (negative activation, high sensitivity to aversive stimuli, $r = 0.54$) and the CFQ overall score (low frustration tolerance, $r = 0.63$). The PANAS NA also had a moderate positive correlation with the CFQ ($r = 0.47$). The PANAS PA (positive activation, high sensitivity to potentially rewarding stimuli) had a similar positive correlation with the RST BAS, Behavioural Activation System (high motivation for approaching appetitive stimuli, $r = 0.46$), with a weaker negative correlation with RST BIS, Behavioural Inhibition System (high sensitivity to motivational conflict, $r = 0.31$).

The results of this study suggest that the scales could be reliably used in their Italian translation and demonstrate expected convergent validity between them.

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OC-57

FACTORS ASSOCIATED TO DESTRUCTIVE CHEWING AND PROVISION OF CHEWING MATERIAL IN DOGS

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Destructive chewing is a fairly common problem in pet dogs. A wide range of chewing materials is available to alleviate this issue, yet there is no comprehensive analysis of all factors connected to this behaviour. The aim of this study was to explore factors (owner/dog characteristics, management) associated with destructive chewing behaviours and chewing material provisioning.

Data of 431 dog owners participating in an online-survey were analysed in a model averaging approach to determine influential factors (null-full model comparisons, GLM, $F < 0.05$). Factors are seen as relevant with an importance rating (IR) > 0.7 and confidence intervals not ranging over 0.

More frequent destructive chewing was associated with younger dogs (IR=1), higher provisioning of chewing materials (IR=1), living with children younger than 10 years (IR=1), and owners less satisfied with their dog's health (IR=0.94). The factors influencing destructive chewing match the provisioning of chewing materials in some aspects: they are provided more often to younger dogs (IR=1), dogs showing more destructive chewing (IR=0.74), and by owners rating chewing as important (IR=1). A lower provision of chewing material was reported when children younger than 10 (IR=1) or multiple dogs lived in the same household (IR=1).

While dogs with destructive chewing behaviour receive more chewing materials, and dogs with higher chewing material provisioning display more destructive chewing, we cannot determine cause-effect in this context. Presence of children younger than 10 years in the household could increase destructive chewing by lowering provision of materials to chew.

OC-58

THE ROLE OF NON-VETERINARIAN ANIMAL BEHAVIOUR THERAPISTS AND VETERINARIANS IN ANIMAL BEHAVIOUR THERAPY IN THE NETHERLANDS

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Animal behaviour problems can pose serious animal welfare problems (Overall, 2013) which may be readily resolved by certified animal behaviour therapists. This leads to improved welfare as unresolved animal behaviour problems can result in harsh treatment of the animal and even euthanasia or relinquishment.

Nevertheless, not all behaviour problems can be resolved by therapists and there appears to be a lack of consensus on how these professionals are deemed qualified (van Schuur *et al.*, 2019, Jonckheer-Sheehy & Kaat, 2021).

Behaviour problems may be caused by psychiatric illness which is a medical condition. By law in the Netherlands, only veterinarians may diagnose and treat medical conditions. Nonetheless, non-veterinarians apparently diagnose and treat psychiatric problems in animals (Jonckheer-Sheehy, 2022).

There appears to be a grey area between the work of non-veterinarian animal behaviour therapists, veterinarians and veterinary behaviour specialists (van Schuur *et al.*, 2019, Jonckheer-Sheehy & Kaat 2021).

Due to the above and as there is an apparent lack of consensus between different animal behavioural therapy organisations in the Netherlands, and non-veterinarian animal behaviour therapists could possibly be challenged by Dutch law if seen practicing veterinary medicine, the authors call for it to be written into codes of conduct for non-veterinarian animal behaviour therapists in the Netherlands to:

1. Advise clients to refer animals to a veterinarian if they think the animal may be suffering from a medical condition, psychiatric or otherwise.
2. Refrain from diagnosing medical conditions in animals.
3. Refrain from advising veterinarians or others on medicating animals.

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OC-59

THE BENEFIT OF INTERDISCIPLINARY COLLABORATION IN CASE SUCCESS AND PATIENT WELFARE

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Many disease processes have interactions with multiple systems and biological processes. This is potentially most prevalent in Behavioural Medicine as the influence of emotional over physical health (Chang et al, 2010; Lamers et al 2011 ; Larson and Larson, 2003) is widely discussed but poorly understood.

An expert is defined as “a person who is very knowledgeable about or skilful in a particular area” (Oxford Languages, 2022). Expert assessment therefore involves more limited knowledge of disease processes, diagnostic options and treatment protocols outside of that specific discipline. In cases with comorbidities, what impact does this have on case success and patient welfare? Can this be addressed? Multidisciplinary rounds (MDR) have been shown to offer one route to success in human medicine (Der, 2009; Dutton et al, 2003; O’Mahony et al, 2007).

In 2020 Clare Rusbridge and Sarah Heath set up a monthly, virtual, MDR in which one case each month is presented and the diagnostic approach and treatment plan debated. These rounds typically involve between four and six active participants each meeting. The individuals present include ECVS boarded specialists in Behavioural Medicine, Neurology, Anaesthesia and Analgesia, residents of those specialties, Animal Welfare residents and an ACPAT (Association of Chartered Physiotherapists in Animal Therapy) registered physiotherapist currently seeing both human and animal cases.

The experiences of MDR participants will be presented; benefits to their cases and knowledge. Case examples will be used to show the influence MDR have on particular patients.

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OC-60

DIFFERENCES IN PERCEIVED GRIEF OF DOMESTIC DOGS (CANIS FAMILIARIS) FOLLOWING THE LOSS OF A CONSPECIFIC: UK AND ITALY COMPARED

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Dogs show grief-like behavioural changes following death of a conspecific. Reports of these changes from UK (227) and Italy (428) are compared to identify predictors of a dog's reactions using the Mourning Dog Questionnaire (Uccheddu *et al.*, 2019, 2022). Data were analysed using t-tests for comparisons between countries, and logistic regressions as prediction models (SPSS).

Behavioural changes were extensively observed for more than 6 months in 1/4 of the Italian and 1/3 of the UK population. ~83% of UK dogs vs 57% of Italian dogs were euthanised. In Italy, owners had a higher animal rights orientation and felt more guilty after that loss ($p < 0.05$).

In both countries, the surviving dog was more likely to play less and to exhibit increased fearfulness ($p < 0.05$) if they had a parental relationship with the deceased dog; among UK dogs, these changes were also less likely if the two dogs had an agonistic relationship ($p < 0.01$). In UK, the owner's grief also predicted playing less ($p < 0.05$) and increased fearfulness ($p < 0.05$), while in Italy an owner's anger predicted the latter ($p < 0.01$). In Italy, eating less ($p < 0.05$) was positively predicted by both parental and friendly relationship between the dogs, and by the owner's grief. In UK, no predictors emerged for eating less.

Dogs in both countries exhibited similar patterns, but predictive factors varied. This may reflect cultural differences possibly linked to people's attitudes towards non-human animals and conceptualisation of the human-animal bond.

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OC-61

COGNITIVE BEHAVIOR THERAPY IN DOGS; A FAMILY MATTER

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Introduction

This case report highlights the importance of addressing how chronic behaviour problems affect client QoL and impede treatment.

Case history

The owner of a 4-year-old neutered male Podenco Campanero diagnosed with generalised anxiety disorder and noise phobias experienced psychological difficulties in coping with her dog.

Companion animal caregiver burden

Owners of companion animals diagnosed with behaviour problems may encounter a burden of caretaking, impaired physical and psychological welfare, feelings of grief, anxiety and/ or depression. Treating a companion animal with behaviour problems should also involve discussing the quality of life of their owners, how they are managing the situation and offer (professional) help when necessary (Buller et al., 2020).

In this case it became abundantly clear early in the therapy that the owners had a different point of view on how the dog's behaviour affected their day-to-day lives and influenced the human-animal bond. The female owner expressed difficulties in bonding with this dog, and expressed how this was negatively affecting her psychologically. She experienced feelings of distress and powerlessness when it came to handling and managing the dog. The male owner didn't experience this.

Progress

By discussing the owners' personal feelings and listen to them empathetically, the veterinarian-client relationship can be positively affected (Spitznagel et al., 2022). The female owner experienced recognition of her feelings resulting in psychological relief and a positive clinical outcome for her dog.

Conclusion

Taking care of the client helps to synonymously take care of the companion animal leading to a positive outcome for both.

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OC-62

HOUSE-SOILING AND AGGRESSIVE BEHAVIOUR TO OTHER HOUSEHOLD CATS IN A BENGAL CAT

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Signalment and history

A four-year-old castrated male Bengal cat presented with a 6-month history of “urinating outside the litterbox, being dominant and hunting the other household cats”.

Physical examination, routine haematology & serum biochemistry, urinalysis, urine culture and an abdominal ultrasound scan had revealed no physical abnormalities.

A non-veterinarian certified animal behaviour therapist had advised treatment with painkillers, amitriptyline and clomipramine which failed. She subsequently advised physical examination of the cat’s penis however, the veterinarian referred the case to an EBVS_ European Veterinary Specialist in Behavioural Medicine.

Behaviour examination

A full behavioural history and observation of the cat in the clinical setting was conducted.

Physical examination

No abnormalities were detected.

Diagnosis

- Anxiety disorder
- Noise sensitivity,
- Firework anxiety,
- Impulse control aggression, and
- House-soiling in the form of urinating outside the litterbox and vertical urine-spraying.

Treatment

- Behaviour therapy in the form of cognitive behavioural techniques,¹
- Environmental modifications, and
- Paroxetine, omega-3 supplementation and pheromotherapy.

Follow-up

The cat responded very well to therapy. There was a significant reduction in all behaviour problems and positive social interactions between the cats increased.

Discussion

Behaviour problems in cats are a well-known reason for the euthanasia or relinquishment of cats and house soiling problems are the most common behaviour problem in cats (Overall, 2013), which is why house-soiling problems in cats need to be promptly diagnosed and treated.

Conclusion

This case highlights the complexity of behaviour problems and the importance of prompt referral to veterinarians who are specialised in behavioural medicine when indicated.

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OC-63

WHAT ASPECTS OF EVERYDAY BEHAVIOUR CORRELATE WITH PERFORMANCE IN A VISUOSPATIAL MEMORY TEST BY OLDER DOGS?

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Introduction

A study was designed to assess the relationship between everyday behaviour and visuospatial memory in older dogs.

Methods

The visuospatial memory of 57 8+ year old dogs was assessed with a test developed by Piotti et al (2017). Owners completed a 111 item questionnaire, with yes/no responses, on the dog's everyday behaviour and capabilities.

Analysis with projection to latent structures with orthogonal signal correction (OPLS) was used to model the relationship between the questionnaire data and mean memory test score. Items were deleted stepwise until a shorter set of behaviour items was created, with the exclusion criterion being a variable importance to projection (VIP) value of <1.

Results

After two rounds a robust predictive model with 10 items remaining was created ($R^2Y=0.58$, $Q^2=0.43$, and $p=3.2 \times 10^{-7}$), which included "it is very easy to motivate my dog", "my dog always knows where to look to find his toys", "it is easy to train my dog to do new things", "my dog can easily jump into a car" and "my dog has good eyesight". Spearman rank correlation between memory score and the 10-item score was 0.66 ($p < 0.0001$).

Principal findings

Multivariate statistical analysis of everyday behaviour data provides an insight into functional characteristics that are associated with a visuospatial memory test, that enables us to better understand the meaning of such tests for ageing companion dogs.

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OC-64

THE INFLUENCE OF ADAPTIL CALM® ON STRESS AND WELL-BEING OF DOGS DURING CONSULTATION

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This study aimed at investigating if Adaptil Calm®, the synthetic analog of the Dog Appeasing Pheromone (DAP), might influence the behaviours and behavioural postures of dogs (G. Landsberg et al., 2013; Mariti et al., 2017) during consultation as well as assessing whether it reduces dogs' stress and increases their well-being (Amaya et al., 2020; Mills et al., 2006).

A triple-blind, randomised, placebo-controlled clinical trial that included 79 dogs was made. Two identical diffusers identified by the letters A and B were tested, one containing Adaptil Calm® and another with a placebo solution. Consultations were video recorded and later analysed. The frequency of behaviours and the behavioural postures of the dogs was assessed by an experienced observer based on an ethogram with 31 behaviours and 6 body postures.

The interobserver (K= 0,87; P<0,01 for behaviours and K= 0,71; p<0,01 for postures) and intraobserver (K= 0,85; p<0,01 for behaviours and K= 0,77; p<0,01 for postures) reliability was checked. Results showed that dogs in the presence of the DAP explored more the environment (p<0,05), had their tail less tucked in (p<0,05), were less hypervigilant (p<0,05), but had more inhibition (p<0,05). These dogs also had more relaxed (p<0,05), more alert (p<0,05) and less crouched postures (p<0,05).

This study suggests that the use of Adaptil Calm® can be an interesting tool for practitioners to add to their consultations in order to decrease stress of their patients, contributing for a better handling and collection of physiological data from the dogs being examined.

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OC-65

QUALITATIVE BEHAVIOURAL ASSESSMENT OF DOGS USING FACIAL FEATURES FROM VIDEOS

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Faces are a common source of emotional expression and identifying the emotion underlying problem behaviours is central to implementing efficient treatment plans. Qualitative Behavioural Assessment (QBA) involves the quantification of people's personal interpretations and has been used to assess the emotional states of many species from whole-body evaluations, including dogs. The aim of this study was to examine the potential of QBA to describe emotional expression in dogs, from just their face.

Behaviourists experienced with dogs described the expressions of dogs from facial videos using a Free Choice Profiling methodology (i.e. using their own descriptors/adjectives). 20 participants generated 50 terms from 10 videos, but were blind to the video context and its previous validation as expressions of fear and frustration.

Generalised Procrustes Analysis revealed a significant inter-observer reliability (63%, $p < 0.01$) suggesting consistent patterns in the description of facial emotions. Three Principal Components explaining 62% of data variance were extracted and appeared to represent emotional valence, attentiveness/focus and anticipation.

Participants generally assigned the videos to two groups consistent with their *a priori* emotional definition, suggesting they recognised the different emotions. There was strong consensus for the emotional content of the fear videos, with similar adjectives used by participants. For the frustration videos, participants agreed that these videos differed from the fear videos (as they were separated by valence, focus/anticipation and emotion) but there was less consensus in the adjectives used. This suggests that value can be extracted from the subjective description of the face of dogs expressing these two emotions.

OC-66

CANINE CHRONIC ENTEROPATHIES AFFECT DOG QUALITY OF LIFE AND BEHAVIOUR

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Quality of Life (QoL) is based on positive and negative aspects of an animals' life, that make it better or worse, referred to that specific animal. Its evaluation can be relevant in the euthanasia choice process or in the evaluation of both therapy and necessity of intervention, especially in ill animals. This research aimed at assessing the impact of canine chronic enteropathies on dogs' QoL and behaviour.

A group of dogs suffering from primary chronic enteropathies (n=44; 59.3±45.0 months of age) were assessed on the first visit with a veterinary gastroenterologist and on the first follow-up visit using: a 1–10 visual scale to evaluate dogs' QoL; the Canine Chronic Enteropathy Clinical Activity Index; and the Canine Behavioral Assessment and Research Questionnaire. They were compared to a control group of healthy dogs (n=49; 64.0 ±44.9) using Mann–Whitney U-test. Correlations between scores were evaluated using Spearman's test.

Enteropathic dogs on the first visit had a lower QoL than healthy dogs ($p<0.001$), and dogs with a clinically insignificant–mild illness dogs had a statistically higher QoL than moderate-to-very severely ill dogs ($p=0.001$). The reduction of severity on the follow-up visit was associated with an improvement in dogs' QoL ($p=0.004$). QoL was negatively associated with sensitivity to touch at the first visit ($r=-0,314$; $p=0.038$) and severity was negatively associated with aggression towards familiar dogs at follow-up ($r=-,505$; $p=0.020$).

Chronic enteropathies seem to have a strong negative impact on the quality of life, as well as on the behaviour, of affected dogs.

OC-67

USE OF GABAPENTIN TO ATTENUATE FEAR RESPONSES IN SHELTER CATS: CASE STUDIES

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Adequate housing and environmental enrichment, nutrition, health care and social contact are fundamental to maintain cat welfare in shelters (Rehnberg et al., 2015; Foreman-Worsley and Farnworth, 2019; Houser and Vitale, 2022). Extremely fearful and anxious cats are more likely to reduce their activities, hide and avoid social interactions (Vojtkovská, Voslášková and Večerek, 2020). The behaviour medication gabapentin has been reported to be beneficial in fearful and anxious cats (van Haaften et al., 2017; Denenberg and Dubé, 2018; Pankratz et al., 2018; Erickson et al., 2021).

Sixty-two cats presenting signs of extreme fear and avoidance in RSPCA Animal Centres from September 2020 to March 2022 were referred to the RSPCA clinical behaviour team and assessed by clinical animal behaviourists. All cats received behaviour support, management advice, environmental modification and gentling. Twenty-one of these referred cats, aged 1-8 years were diagnosed with anxiety and were prescribed Gabapentin to reduce their fear and anxiety in the cattery environment, to facilitate the introduction into foster homes or adoptive homes (Gabapentin 25-50 mg/cat q12h), or as situational treatments before veterinary examinations (50-100 mg/cat). All cats showed reduced fearful and avoidance behaviours. Fosters and adopters reported that all cats adapted to their new environment and reported exploration and use of enrichment within the first week after they moved to their new home. No adverse events were reported.

This case series shows that the combination of environmental optimization, cat gentling and gabapentin are beneficial for the treatment of fear related behaviours in shelter cats.

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OC-68

METHODOLOGICAL CONSIDERATIONS WHEN USING SALIVARY CORTISOL TO MEASURE THE EQUINE HYPOTHALAMIC-PITUITARY-ADRENAL AXIS RESPONSE

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Salivary cortisol is a useful variable for assessing the physiological stress response in horses undergoing veterinary care (VC). However, variations between ELISA assays makes comparisons between studies almost impossible. The aim of this study was to measure the salivary cortisol of horses undergoing VC using both an ELISA and LC-MS/MS (liquid chromatography tandem mass spectrometry), and to determine which factors influenced its concentrations in this environment.

A convenience sample of cases presenting to an equine hospital were recruited (n=32, 63% geldings, 37% mares, mean age 12.9 years (SEM 0.81) across a variety of breeds). Saliva was collected with a large cotton swab on arrival, at times points 0, 5 and 15 minutes following an intervention and every 15 minutes when resting. Saliva was analysed for cortisol concentrations via both an ELISA and LC-MS/MS. Mixed effects linear regression were performed in R Studio to determine relationships between independent variables.

There was a positive relationship between the two methods of salivary cortisol measurement, but the ELISA concentrations were significantly greater than those from LC-MS/MS (estimate 6.00, CI 5.1-6.9, P<0.001). Variation in cortisol concentrations occurred when horses had been recently transported, underwent VC or were given access to a molasses-based treat, these results will be presented in full at the conference due to limited word count.

LC-MS/MS provides an accurate measure of salivary cortisol that will allow comparisons to be made between different studies. The factors that influence salivary cortisol levels should be accounted for in study design.

POSTER Presentations



P-01

ANALYSIS OF RESTING BEHAVIOUR USING A COMPUTER VISION SENSOR AS A WELFARE INDICATOR IN PIGS

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Resting is important when assessing animal welfare and sensor technology can allow continuous on-farm monitoring of resting behaviour. The aims were to study resting behaviour over a three-month-period with a sensor, and to investigate the factors that may affect this behaviour. Four nursery pens (100 pigs/pen) and four fattening pens (13 pigs/pen) were followed. The total number of resting pigs within a pen was collected by a computer vision sensor (Peek Analytics, Copeeks SAS, France) fixed on the wall approximately every 2 hours. Resting is considered when the pig is lying on the floor. A day was divided into three time periods: 1:00-8:00 (Period A), 9:00-16:00 (Period B), and 17:00-24:00 (Period C). The response variable for statistical analysis was the number of resting pigs, and the explanatory variables were production stage, month, and time period. The results showed that the number of resting pigs was affected significantly by production stage, month, and time period (all $P < 0.01$). On average, the total number of resting pigs approximately every 2 hours were 4.89, 2.07, and 1.83 during fattening; and 10.72, 4.91, and 4.36 during nursery in Period B, C, and A, suggesting that more resting pigs occurred in Period B in both stages ($P < 0.05$). Resting pattern changes during the day and is affected by several parameters. Ongoing analysis incorporates the environmental parameters, including temperature and air quality, and the preferred area to rest within the pen, in order to understand resting behaviour as a welfare indicator in pigs.

P-02

WHAT MOTIVATES PREVENTION OF TAIL BITING ON PIG FARMS?

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We conducted two rounds of semi-structured interviews of farmers and farm workers on 15 pig farms during 2021 to assess motivation factors to prevent tail biting. Three of these were pair-interviews, and the interviewees included 4 women and 14 men. Data is currently analyzed using Behaviour change wheel (Michie et al. 2011) guided content analysis and Atlas.ti software. We present primary results from the first interview round.

We asked which three incentives would motivate increased work to prevent tail biting. Some economic factor emerged in every interview. 7/15 mentioned subsidy for and/or image advantage of raising long-tailed pigs (6/15). 5/15 mentioned improvements in pigs' welfare and/or preventing escalation of the problem, which would increase workload or be mentally burdening.

"...the economy side and of course animal welfare and the fact that it [tail biting] does not go ahead, get worse, spread." – farmer

When asked to rate how serious a problem tail biting is from different viewpoints, 9/15 interviewees valued tail biting as a more serious welfare problem than an economic problem, while only two valued tail biting as a more serious economic than welfare problem. The seriousness of tail biting from an economic viewpoint resulted in the highest range of responses (range 1,5-7 on scale 1 = not a serious problem; 7 = really serious problem).

Economic perspectives, pig welfare, image of meat industry and effect on workload were connected with motivation to prevent tail biting. However, how the relative importance of these factors was ranked varied greatly.

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P-03

RELATIONSHIP OF ANIMAL WELFARE AND ANIMAL HANDLING ON HUNGARIAN LARGE-SCALE DAIRY FARMS

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Objectives

Human-animal interactions get inevitably depersonalized during intensive dairy management. The farmers with more positive attitudes toward livestock have better production results than farmers with negative attitudes (Kielland et al., 2010). Cows remember the abuse and try to evade the rough handlers (Pajor et al., 2000; Munksgaard et al., 1997). Cows with more “anxiety” produce less milk (Hedlund and Løvlie, 2015). Our objectives were to find associations between animal handling and welfare indices on large-scale dairy farms.

Material & Methods

We performed Welfare Quality assessments on ten Hungarian large-scale dairy farms. We simultaneously studied direct animal handling during these assessments according to our list of specific aspects like methods, tools, and farm infrastructure used for animal herding.

Results

There was a vast deviation of flight distance results (directly depicting the human-animal relationship) between the dairy farms. Animals expressed less fear toward humans on those farms where no use of prodding tools or shouting was allowed. We found no written or other instructions on certain farms concerning animal handling. On these farms, the use of prodding tools, hitting or shouting was far more common. Cows living on farms where financial or other consequences followed rough handling expressed less fear.

Conclusion

Based on our findings, we may conclude that animal handling (and therefore animal welfare) is better on farms with written or oral animal handling instructions or rules that handlers follow and respect.

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P-04

THE IMPACT OF HOT-BLADE AND COLD-BLADE BEAK TREATMENT ON TURKEY TOM: BEHAVIOURAL AND OXIDATIVE STRESS RESPONSES

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Beak treatment (BT) is a common practice used in the poultry industry to control feather pecking and it is associated with several welfare concerns (Struthers et al., 2022). Infrared BT is considered the gold standard, but its use in small to medium size turkey farms is limited due to cost and access. Therefore, traditional BT methods like hot(HB) and cold blade(CB) are more common in developing countries. Vitamin C is a well-known antioxidant (Saiz del barrio et al., 2020). This pilot study aimed to investigate the behavioural and physiological responses after HB and CB treatments, in comparison with vitamin C supplementation to ameliorate secondary stress due to HB (HBV) and CB(CBV). 80 Nicholas tom turkeys were randomly allocated in each group (n=20/group). The vitamin C (Laboratorio-Atisa) was provided in water ad libitum for 4 days prior BT. Basal blood samples and 5 min, 24 h post-BT samples were collected. There was a significant increase in the glutathione response at 5 min post-BT in HB and CB groups, compared to HBV and CBV groups ($0.028061 \pm 0.002 \mu\text{mol}$, $0.025385 \pm 0.002 \mu\text{mol}$ vs. $0.023712 \pm 0.0005 \mu\text{mol}$, $0.024334 \pm 0.002 \mu\text{mol}$, $p=0.002$, respectively), suggesting that vitamin modulated the acute stress effect. However, CB and CBV treatments presented a shorter latency to preening (4.8 ± 3.6 , 5.5 ± 6.2 , respectively, vs. 8.3 ± 6.2 in HB) and it was observed in one bird with HBV, likely secondary to the continuous bleeding and discomfort post-CB. CB treatments had poor acute welfare and prolonged recovery time compared with HB. Alternative BT solutions including vitamin support should be considered for small-size flocks.

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P-05

THE USE OF A SYNTHETIC ANALOGUE OF THE RABBIT APPEASING PHEROMONE ON RABBITS EXPERIENCING THE ARRIVAL IN A NOVEL ENVIRONMENT: A PILOT STUDY

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For domestic rabbits (*Oryctolagus cuniculus*) the arrival in a novel environment is a challenging event (Conour, Murray and Brown, 2006). A study on laboratory rabbits associated the relocation to elevated cortisol levels (Peric *et al.*, 2017).

The synthetic analogue of the Rabbit Appeasing Pheromone (RAP) has a calming message (Bouvier and Jacquinet, 2008; Pageat, 2004).

This study aimed to investigate the effects of RAP on 16 New Zealand White rabbits arriving at the facility. Rabbits were segregated into two rooms (RAP group, n=8; Control (CON) group, n=8). Treatments were applied topically to the nuchal skin area of rabbits and renewed every 48h. Throughout the experimental period (22 days), the daily feed intake, weight, blood neutrophil/lymphocyte ratio and health conditions were assessed; behavioural observations were performed through open-field tests (Trocino *et al.*, 2019).

Results showed that the average feed intake was higher for RAP rabbits compared to CON rabbits and a statistical trend was observed for the treatment effect (RAP μ =144.731 \pm 1.996 gr vs. CON μ =125.206 \pm 1.446 gr; GLMM; DF=1: F=2.94; p=0.087). The probability of entering the arena was 23% lower for CON rabbits compared to RAP rabbits but this difference was not significant (frailty shared model; Wald χ^2 =0.096; p=0.757). For the parameter describing an immobile state, a trend for the interaction "treatment x period" (GLMM; DF=2; F=3.15; p=0.058) was found with CON rabbits remaining immobile longer.

These preliminary results may suggest that RAP helps rabbits cope better with environmental changes. Further research is needed to improve knowledge about RAP, especially on behavioural parameters.

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P-06

RELATION OF FAECAL MICROBIOTA TO MANIPULATIVE BEHAVIOUR IN PIGS

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Manipulative behaviour (MB), such as tail and ear biting is common in pigs. It reduces pig welfare, causes injuries, and reduces farm income. We compared the faecal microbiota of manipulator and control pigs.

Rectal faecal samples from 45-day-old pigs (n=210) were collected and stored at -80°C until analysis. From the day following faecal sampling, the behaviour of the pigs was analysed (66 active min/pig over a period of 3 days) from video recordings. Pigs were defined as manipulators (at least 2 observations of MB on at least 2 days) or controls (no observations of performed or received MB) according to results based on a one-zero protocol of performing and receiving MB. Manipulator and control pigs were matched to 15 case-control pairs. Faecal microbiota composition was determined with 16S-amplicon sequencing with Illumina platform.

Manipulative behaviour in laying hens has previously been linked to alterations in microbial composition in the gut (van Staaveren *et al.* 2020). We characterized microbial variation between manipulator and control pigs, where alpha diversity did not differ between groups (Shannon index, p=0.25 and Chao1 index, p=0.28). Beta diversity (p=0.30) showed visually similar shifts in microbiota between groups for half of the pairs.

No significant differences in faecal microbiota were found between manipulator and control pigs. We suggest that by focusing more specifically on certain microbial groups, and with more reliable recognition of controls, sampling during an ongoing tail biting episode, and a bigger sample size, a link between total faecal microbiota and development of MB may be clearer.

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P-07

IS NO-SUFFERING WELFARE FOR FRENCH MILITARY WORKING DOGS?

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The French Army use working dogs to search and neutralize enemies, or detect weapons and ammunition. They are housed in kennels, which can be stressful and lead to repetitive behaviors that can cause injuries. This study aimed to investigate the effects of an enrichment protocol to improve their welfare. Military dog handlers were distributed a questionnaire designed to bring out candidates for the study. The behavior of the kenneled dog was recorded for three days without enrichment. The next week, the enrichment protocol was applied by the dog handler and the dog was recorded for another three days. The enrichment protocol consisted in adding daily intra-specific and inter-specific interactions, alimentary enrichment and auditory and olfactory stimulation. The behavior of the kenneled dog was recorded for three days without enrichment. The next week, the enrichment protocol was applied by the dog handler and the dog was recorded for another three days. The enrichment protocol consisted in adding daily intra-specific and inter-specific interactions, alimentary enrichment and auditory and olfactory stimulation.

Out of the 150 filled questionnaires, twelve dogs and handler were selectionned for the study. Dogs rarely show repetitive behaviors without a triggering factor. The dogs were interested in the objects used for enrichment: BoomerBall®, Kong®, buffalo horns and stag antlers. They had positive interactions during intra-specific enrichment. These enrichment are attractive for military dogs and their use should be widened. Intra-specific interactions should be encouraged. Classical music could be played and lavender oil diffused in the kennels.

P-08

SURVEY OF PAIN SCORING AND PAIN MANAGEMENT METHODS AMONG FINNISH VETERINARIANS

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The recognition of pain assessment protocols and alternative treatment methods are important to achieve successful analgesia (Sneddon et. al 2014). Objective of the survey was to collect descriptive data of the baseline awareness of the treatment methods of chronic pain (Question 1) and pain evaluation methods (Question 2) among Finnish veterinarians apart from their field of practice. Respondents wrote their view freely in the response field.

An online survey was conducted in social media website, which has approximately 2000 veterinarians as followers. The survey was completed by 77 veterinarians, licensed in Finland.

Question 1: What kind of pain management you would use or recommend for treatment of chronic pain?

Pain killers were mentioned by 66 % of the respondents. Acupuncture was mentioned by 55 % and physiotherapy by 44 %. The use of other methods such as massage, laser, exercise, rest and osteopathy, was considerably lower with 1- 23 % mentioning them.

Question 2: Mention pain assessment protocols you would use or are familiar with?

The use of pain faces was mentioned by 39 % of the respondents, 29 % mentioned the behaviour in general. Some, that is 9 % of the respondents, trusted their intuition or expertise only. Other symptoms, such as appetite, posture and reactivity were mentioned by < 6 % of the respondents. Peer reviewed pain scales were used by 4- 16 %

As a conclusion pain assessment methods are not widely known or in use by Finnish veterinarians. Alternative treatment methods are used narrowly.

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P-09

FOCUSING ON ANIMAL WELFARE IN TWO COMPULSORY OFFICIAL HEALTH VISITS IN FRENCH REGULATION CONCERNING VETERINARY PUBLIC HEALTH

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In France, an official system exists allowing private practitioners to receive a sort of “government authorization” called either “habilitation” or “mandate” to perform some missions in order to assist official veterinarians who are civil servants (5; 2; 3).

An assignment for veterinarians working with farm animals is to carry out an official health visit every two years. (7). These official health visits allow the veterinary services to know what is going on in farms, to maintain a system of epidemio-surveillance and to support a network of rural veterinarians in the field (1). The appointed veterinarian is compensated by the state; this is a necessary condition to preserve the network and acts as an incitement for professionals to settle in the countryside.

Apart from verifying that conditions are satisfactory on the farm (drugs, breeding register, health of the cattle) there is each year a specific topic that is investigated during this visit. The species concerned are cattle, pigs, sheep and goats, horses, poultry and bees. Among the themes recently studied are biosecurity, resistance to antibiotics and correct use of the breeding register.

In 2019, for the first time the bovine official health visit was about welfare (sensibilisation of breeders to pain in procedures like disbudding, castration, caesareans and knowledge of rules of transportability for cattle) (6). In 2022 the topic of the official health visit for horses is welfare in general (4).

This presentation describes the methodology of these two visits, detailed in two official memorandums (2019, bovine and 2022, horses).

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P-10

CASE REPORT: ANIMAL HOARDING BY A SHELTER IN ISRAEL IMPACTING HUMAN & ANIMAL WELFARE

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Animal hoarding is a mental disorder (APA, 2013), with implications for both human and animal health & welfare. These cases are often characterized by the hoarder's primary good intentions to help animals by rescuing and caring for strays, but ultimately becoming overwhelmed and unable to care for them, resulting in neglect and unintentional cruelty (Patronek et al., 2006).

In 2015, a private-owned animal shelter was founded in Israel, taking in stray animals. Routine inspections by the Veterinary Services between 2015-2017 saw a continuous rise in the number of animals entering the shelter, gradually deteriorating housing conditions and neglect of both the animals and the shelter's owners themselves. Several mitigation attempts were made by assisting the owners with veterinary care, proper documentation of the animals and advice on a maximal number of animals that could be managed, but with little compliance. Finally, in 2018, 48 dogs and 77 cats were seized from the shelter. Upon examination, all were found to be infected with leishmaniasis, along with other pathologies associated with neglect and poor sanitation (e.g., skin and intestinal parasites, oral and eye infections etc.). Consequently, 27 animals either died or were euthanized due to their condition and the shelter was shut down.

This case demonstrates the need for a holistic collaborative approach for dealing with animal hoarding. Since the disorder affects both human and animal welfare, it requires intervention from a variety of stakeholder agencies, working together to better the lives of all involved, in light of the One Welfare paradigm.

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P-11

ANIMALS ELEVATED TO LEGALLY PROTECTED VALUE IN ITALY: THE RECENT AMENDMENT OF THE CONSTITUTIONAL CHART

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The European Union (EU) with article 13 of the Treaty on its functioning re-defines the legal position of animals so that they are considered sentient beings and stipulates full regard should be paid to animals' welfare requirements (EU, 2012).

While animal sentience and welfare are mainly dealt with at the EU level, they do not fall within its exclusive competence being also the responsibility of EU countries at a national level.

It is only recently that Italy recognizes animal dignity by introducing the protection of animals in its Constitution with the amendment of Article 9 (Anon, 2022).

The amendment places animals in a new position. They are considered no longer an 'object' to be protected for the sake of human wellbeing and the tool or resource of mankind but to be protected as an asset in itself. Therefore, animals become bearers of constitutional rights. Moreover, due to the particular asset of regional government in Italy, the amendments introduced by the approved constitutional law establish a safeguard clause for the application of the principle of animal protection in the special Statutes of the Regions of Sardinia, Sicily, and Valle d'Aosta and the Provinces of Trentino-Alto Adige and Friuli Venezia Giulia.

Authors perform a narrative review of the article contents and underline as this innovative change represents a milestone and concrete tool toward effective protection of animals at a legislative and jurisdictional level, allowing Italy to align with other European countries that have already included environmental and animal protection in their Constitution.

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P-12

DOG REGULATION IN FLANDERS (BELGIUM)

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Introduction

Dogs may be considered family members. However, they tend to be categorized legally as property rather than as sentient beings, limiting their protection. This study aims to summarize municipal dog regulations in Flanders (Belgium).

Methodology

Between July-October 2021, the regulations from 300 Flemish cities and municipalities were identified and examined for dog-related legislation/regulations.

Results

Dogs are banned in 61 (20.3%) of the regulations from public buildings in cities/villages, and from accessing public playgrounds in 100 (33.3%). 253 (84.3%) of the cities/villages sanction loud barking, 82 (27.3%) mention odor nuisance and 266 (88.7%) forbid dogs defecating in public areas. In 183 (61%) cities/villages, dogs must be controlled in public places and have access to public areas only when on a leash in 196 (65.3%).

94 (31.3%) regulations forbid dogs in public canals, rivers, or ponds. A ban on dogfights, is mentioned, in 166 (55.3%) regulations. 23 (7.7%) cities/villages forbid keeping dogs on a chain, and 73 (24.3%) require mandatory zoonosis reporting.

Implications for the field

The issues addressed in the legislation/regulations, vary widely between municipalities, including social regulations (e.g., access to public places); interactions between dogs/dogs and humans/dogs (e.g., dog bites); animal welfare (e.g., transportation, dogfighting), and sanctions. Considering the importance of animal welfare when considering regulations in relation to dog control and human/dog safety, it would be preferable to amend such regulations to enable them to be applied with ease, facilitating individuals to abide by municipal legislation/regulations and raising overall dog welfare in Flanders.

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P-13

POTENTIALLY STRESSFUL SITUATIONS IN VETERINARY PRACTICE THAT CAN AFFECT ANIMAL WELFARE: IS PRACTICE WITH SHELTER ANIMALS DIFFERENT FROM THAT WITH PRIVATELY OWNED ONES

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Introduction

Veterinarians are often faced with stressful welfare situations, in which doing their professional moral duty by their patient conflicts with owners' interests/reality constraints. We investigated whether some of these situations were experienced differently when practicing with privately-owned versus shelter pets.

Methodology

An anonymous international online survey included two analogous sections, split for those practicing with privately owned and with shelter pets, with questions such as "How often do you experience the caretaker of the pet having "a genuine lack of funding to finance the treatment". Answers were in a Likert scale format (from complete disagreement/never = 1, to complete agreement/always = 5). Wilcoxon-rank tests were run on eighty-two questionnaires from veterinarians practicing with both categories of patients in Portugal.

Results

When practicing with owned pets, veterinarians were more often faced with stressful lack of understanding/compliance on the part of the owners/carers of the animal ($p < 0.001$), unjustified euthanasia requests ($p < 0.001$), other situations where the owner/carer asked the veterinarian to act in a way that privileged the owner/carer over the animal's interests ($p = 0.006$), lack of compliance from the owner/carer of the pets not due to financial constraints ($p < 0.001$), and less often with difficulties in handling the animal ($p < 0.001$), and sub-optimal animal management situations where the complaint carried the risk that alternatives would worsen the condition of the animal ($p = 0.008$).

Principal conclusions and implications for the field

Studies investigating similar potentially stressful welfare situations should consider the interaction between the veterinary practice, client and animal.

P-14

EFFECT OF AN AVOIDANCE SEMIOCHEMICAL ON CAT'S INTEREST IN GARBAGE CAN: A PILOT STUDY.

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Stray cats can lead to cohabitation issues with humans, especially in urban environments. A nuisance reported by the inhabitants is garbage scattered (Ash and Adams, 2003; Van Patter *et al.*, 2019). To avoid lethal solutions to manage these problems, the use of a semiochemical composition derived from male cat anal glands was tested to evaluate if it could deter cats from garbage cans. This study was approved by the ethics committee (CE_2021_01_CEMSO5).

In a controlled setting, a 4-fold repeat study of five cats was conducted (male: 1 neutered, 1 entire; female: 3 entire), and a choice test was performed for 10 minutes. Two equivalent attractive garbage cans were placed in a room, one sprayed with the treatment and one with the control (60% ethanol, 40% water). Lateralisation was controlled in statistical analysis. The time spent exploring and in proximity with the garbage was explored, as well as the latency to approach and the first choice.

Results showed that cats explored less (GLMM; DF=1; F=14.23; p<0.0001) and stayed less time in proximity (GLMM; DF=1; F=13.25; p<0.0001) with the treatment garbage. Besides, they tended to take longer to approach the treatment garbage (Frailty model; DF=1; X²=3.49; p=0.0610), but no significant difference was found for the first choice (GLMM, DF=1; Z=-0.63; p=0.5300).

This pilot study showed that this semiochemical could be an additional tool in the management of urban cat issues, to improve humans-cats cohabitation. However, further research would be needed in real conditions as this was a pilot study in controlled conditions.

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P-15

HABITUATION AND MEDICAL TRAINING TO VETERINARY CARE IN DOGS VIA TUTORIALS: TOWARDS POSITIVE EMOTIONS FOR DOGS AND OWNERS?

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Introduction

Veterinary care for dog owners can be challenging, especially for stressed, painful dogs or dogs sensitized to handling or specific cares. In particular, for chronic dermatological cares, one limit of treatment observance relies on the ability of owners to undergo treatment at home. In the context of the pet friendly approach and medical training (1,2), we aimed to create tutorials for owners to habituate and train dogs at home with positive reinforcement.

Methodology

Eight tutorials (shampoo care, ear care, paw manipulation, claw cut, muzzle wear, rectal temperature exam, injection, mouth exam) were designed for owners through simple texts and videos. In addition, a survey was conducted on 51 dog owners to evaluate their motivation to follow such a program.

Results

67% of owners were motivated to follow tutorials, with owners who already followed education courses more interested ($p = 0,009$). This highlights the relevance of introducing medical training lessons in educational programs. 39% of owners who confirmed to be interested, followed the tutorials. They were satisfied by the quality of the tutorials, with videos especially appreciated. Owners indicated that their dogs were less aggressive, less stressed, and more cooperative during home care after training sessions. The use of objective criteria in the veterinary context remains necessary to confirm these results.

Conclusion. Medical training for pet animals seems a promising perspective to improve animal welfare in veterinary structures. Sensitization of dog owners to positive reinforcement to undergo care at home seems promising, especially for those motivated by canine education.

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P-16

FACIAL EXPRESSIONS TO EVALUATE FATIGUE OF HORSES DURING EQUINE ENDURANCE COMPETITIONS

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Introduction

Equine endurance competitions are highly demanding for horses' organisms. During a race, veterinarians perform horse inspections based on physical criteria, to eliminate fatigued horses before any serious health problems occur. We investigated whether facial expressions (1,2), useful to assess the level of pain, were altered in horses fatigued or even exhausted by endurance racing.

Methodology

Facial expressions scores (1,2) based on 516 horse video recordings were obtained at vet-gates on four different endurance races and were analysed based on individual and clinical data.

Results

The Horse Grimace Scale (HGS; 8 criteria, maximal score of 16) score increased throughout the race. At the third veterinary inspection (after 90 to 100 km), the HGS score was higher for eliminated horses than for classified ones (t-test, $p=0.007$). The HGS score did not appear to be influenced by horse's age, breed or speed on the track (t-tests, $p>0.05$). However, statistical analyzes did not reveal any significant relationship between HGS score and clinical criteria reflecting fatigue (heart rate or recovery time). Despite a good repeatability (scores from the same observer) and an acceptable reproducibility (scores from two different observers), the lack of precision of the HGS score, the limited numbers of horses and favorable environmental racing conditions may explain these results.

Conclusion

Further studies including a refined scoring criteria for facial expressions and a better training of observers will be necessary to determine if the HGS may be used as an indicator of fatigue to evaluate fitness of endurance horses at veterinary inspection.

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P-17

THE NUTRITIONAL SOUNDNESS OF MEAT-BASED AND PLANT-BASED PET FOODS

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Introduction

Global trends such as population growth, increasing competition for protein sources, environmental degradation, and farmed animal welfare concerns, are all driving plant-based pet food development. However, lack of evidence of nutritional sufficiency is inhibiting their uptake. This interferes with the ability of some consumers to adopt pet foods more aligned with their values, and of the pet food sector to fully realise the potential of this emerging market, whilst concurrently reducing its environmental footprint. Yet, no systematic study has been published examining the prevalence of steps taken to ensure the nutritional soundness and quality of pet foods, and whether plant-based diets have lower standards in these respects.

Methodology

Accordingly, during 2020 we surveyed pet food manufacturers producing 19 meat-based and 10 vegan, almost vegan or vegetarian pet foods. We requested information about a single dog or cat diet intended as a main diet, excluding veterinary prescription or therapeutic diets. Our survey covered company and respondent demographics, product formulation, ingredient sourcing, quality control during and after manufacturing, storage and shipping, and communication of information to wholesalers, retailers and consumers.

Results

Although there were limited areas in which practices could be improved, most manufacturers had acceptable or superior standards at nearly all stages studied, throughout the design, manufacturing, transportation and storage phases, with plant-based diets slightly superior to meat-based diets overall.

Conclusions and implications

A range of best practice steps should be implemented by companies and regulators, and appropriate communication modalities implemented, to inform consumers about the nutritional soundness of products.

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P-18

DEVELOPMENT OF A PREDICTIVE MODEL TO DETERMINE THE AGE OF DOG PUPPIES: A VARIABLE IMPORTANCE APPROACH TO TEETH DEVELOPMENT

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Age determination of dog puppies is important in forensic medicine to fight illegal puppy trade. The most widely used method for assessing young dogs' age is teeth examination. However, its forensic validity is limited due to lack of standardization and the variability factors that influence dental development (Roccaro and Peli, 2020). This study aims to develop a predictive model to determine the age of dog puppies.

Ninety-one privately owned puppies (40 males, 51 females) of ten breeds of different size and morphological type were examined every fortnight. A score (0-5) was assigned to each tooth according to its development stage. A predictive model to determine whether a puppy is 6 or 8 weeks old was developed using a random forest classifier (Breiman, 2001). Breed, size, morphological type, sex, and variables indicating each tooth's development stage were included as independent variables.

Firstly, the measures of variable importance were explored. Breed emerged as the most important variable, obscuring the others and entering into all variable interactions. A second forest was grown excluding breed; the most important variables were deciduous premolars eruption, incisors wearing, but also dog's size and morphological type ($p < 0.01$). The out-of-bag error rate estimate was 13.19%.

Our results prove that teeth development is inhomogeneous among dog breeds. However, a standardized age estimation method, valid at least for breed groups, to be used in forensic scenarios is highly needed. Having identified the most important variables, the next step will be to fine-tune a predictive model to determine young dogs' age.

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SHELTER AND STRAY DOGS' MOVEMENT FROM SOUTHERN TO NORTH ITALY FOR ADOPTION. A FIRST APPROACH

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In Southern Italy, dogs' abandonment is still a serious problem that feeds the population of strays (Leney and Remfry, 2000; Høggåsen et al, 2013; Levi, 2019; Smith et al, 2021). We are so witnessing the phenomenon called "relay" (staffette), which aims to move dogs from Southern to North for adoptions. A number of 30 vans and 1000 dogs per week is estimated (Letizia, 2021). Ethical dilemmas arise regarding animal welfare during transportation and adoptions' quality (Normando et al, 2006; Troughton, 2015). The aim of this study is to explore relays' organisation and adopters' satisfaction with the quality of the process and animal welfare status.

An ad hoc questionnaire was developed and administered by social networks.

3463 adopters from North Italy answered the questionnaire. Most of respondents found the dog online; 30% were shelter dogs, 24% were stray dogs. Most of dogs were transported by van, mostly unauthorized. 57% of owners paid a fee for the relay. Adoptions were followed-up only by telephone in most cases (61%). Although most dogs had no behavioural problems, fear was the main one reported by owners. Half of respondents turned to a specialist in dog behaviour, as veterinarians and dog trainers. 7% of dogs showed clinical problems at the arrival. 21% of owners wouldn't make the same choice for adoption.

Relays is a huge phenomenon not regulated in terms of animal health and welfare. This pilot study is a preliminary step to better understand this Italian reality.

Further research will be address to deepen dogs' adaptation, behavioural problems, and animal welfare implications.

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P-20

SMALL CHANGES MAKE GREAT IMPROVEMENTS - ENVIRONMENTAL ENRICHMENT IN SHELTER DOGS

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This study aimed at investigating how different types of environmental enrichment affects the behaviour and cortisol of dogs housed in kennels.

Eight dogs from the kennel of Évora were included. The study had three phases: a period of 10 days with no changes to their prior condition, a period of 14 days in which interaction with humans and other dogs was added, and a period, equal to the previous, with addition of sensory stimulation using rosemary branches. Throughout the study the dogs were filmed for later assessment of frequency and duration of their behaviours using an ethogram that included behaviours that indicate well-being and stress, that were later divided in “Desirable”, “Intermediate” and “Stress” categories (Dalla Villa et al., 2013). At the end of each phase saliva was collected through the use of Salivette® and analysed with Salimetrics® Cortisol Enzyme Immunoassay and Glomax Promega®.

From the first to the last phase the behaviours considered as “Desirable” had a statistically significant increase in their duration ($p=0.002$), “Intermediate” behaviours had no statistically significant differences and there was a statistically significant decrease in both frequency ($p=0.012$) and duration ($p=0.018$) of “Stress” behaviours. Regarding the salivary cortisol, although there was a decreasing trend between phases 1 and 3, there were no significant changes between the different phases ($p=0.226$).

Social interaction and physical exercise were the main contributors to the improvement in the welfare of kenneled dogs. The inclusion of simple environmental enrichment can positively interfere with the quality of life of dogs in kennels.

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P-21

TIME AS AN ANIMAL WELFARE INDICATOR DURING BIRD RINGING

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Introduction

In Sweden 300 000 birds are captured annually in mist-nets and ringed to assess bird migration patterns, abundance and lifespan. During captivity and handling, animal welfare is at risk from stress, injuries and interruption of normal activities (e.g., feeding, resting). Duration of captivity is important because exposure to animal welfare risks and energy consumption increase the longer the bird is held. In line with the 3Rs, bird ringing may be refined by shortening time in captivity. In a pilot study, we investigated duration of different activities in bird ringing and identified activities where time may be reduced without compromising bird ringing.

Methodology

We observed five bird ringers processing 372 birds of 32 species at six locations in autumn 2020, focusing on time during the overall bird ringing event and the handling at actual bird ringing, respectively.

Results

The average (mean) bird ringing event took 40 minutes. We identified reduced distance between ringing table and mist-nets as a mean to reduce time. The actual ringing and data collection (e.g., sex, age, wing length, weight) of a bird took on average 64 seconds. Recording of data by an assistant and reducing display and photography of birds will shorten time.

Conclusions

Above all, time savings are related to the overall bird ringing event. Obviously, the actual ringing process is shorter, but likely very stressful due to close human contact and handling. Further research is needed to understand birds' reactions to different activities and to determine feasible activities for time reduction.

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THE EFFECT OF COVID-19 CONFINEMENT ON THE BEHAVIOURAL PROBLEMS OF DOMESTIC CATS IN ITALY

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By changing people's routine, Covid-19 confinement affected the social and physical environment of domestic cats, with possible repercussions on their behaviour.

The effect of the Italian lockdown on cats' behaviour was assessed through a modified version of Bowen et al.'s (2020) survey, which comprised questions on owner and cat's demographics, as well as on the impact of the lockdown on cat behavioural problems – e.g. intraspecific and interspecific aggression, noise fear, house-soiling, destructiveness. Five hundred and forty-eight cat owners completed the questionnaire (F=86.1%, M=13.9%; median age range=36-45 years). Their cats (F=51.8%, M=48.2%, median age=6 years) were mostly neutered (95.1%).

For all behaviours, most of the cats (from 90.9% for inappropriate elimination to 98.5% for aggression towards other household cats) had either never manifested the problem or their behaviour has not been affected by the lockdown. For all behaviours, except noise fear, the percentage of cats improving during lockdown was higher than that worsening. The effect of demographic variables on cat behaviour was analysed with ANOVA. Post-hoc comparisons revealed that aggression towards family members was more likely to worsen in spayed females compared to castrated males ($p=0.003$) and if some family members were not allowed to go out compared to families in which nobody had such restriction ($p=0.042$). Finally, aggression towards household cats was more likely to worsen if the house was perceived to be too small for all family members ($p=0.041$).

In accordance with previous findings, Covid-19 confinement did not seem to have a strong impact on cats' behaviour.

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P-23

THE IMPACT OF CHRONIC KIDNEY DISEASE ON DOGS' QUALITY OF LIFE AND GUARDIANS' RELATIONSHIP TOWARDS THEIR DOGS

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This study was aimed at evaluating the impact of chronic kidney disease on the quality of life (QoL) and on the relationship of guardians towards their dogs.

Seventeen dogs with a chronic kidney disease, and a control group of 50 healthy dogs, were enrolled. QoL and severity of the disease were assessed by the owner using a 10-point visual scale; the impact of the disease was evaluated using a modified version of Noli et al. (2010); and owner-dog relationship using the C-DORS (Riggio et al. 2021). Data were compared using the Mann Whitney test and correlations were evaluated using Spearman's test ($p < 0.05$).

QoL of dogs with chronic kidney disease was lower than for healthy ones (7 versus 9; $p = 0.01$). A negative correlation between QoL and severity of disease was found ($r = -0.596$; $p = 0.012$). The C-DORS revealed a higher emotional closeness score towards dogs with kidney disease ($U = 285.0$; $p = 0.042$), although the level of interactions was higher with healthy dogs ($U = 213.0$; $p = 0.002$). The disease had a negative impact on daily life of guardians, especially on their psychological stress levels and on financial costs, whilst no difference was observed between owners of ill and healthy dogs for the perceived costs assessed through the C-DORS, that includes also costs other than financial ones ($U = 386.5$; $p = 0.578$).

Chronic kidney diseases were found to have a remarkable impact on the dogs' QoL as well as on the guardians' stress, although the high emotional closeness positively affect the perception of costs related to their dog.

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P-24

ONLINE SURVEY ABOUT EDUCATIONAL DIFFICULTIES IN DOGS IN FRANCE

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Since dog relinquishment is mostly associated with behavioural troubles linked to educational difficulties, the aim of this study based on an on-line questionnaire was to evaluate the prevalence and the nature of behavioural troubles together with the difficulties encountered by owners during their dog's education.

Data were collected about 379 dogs from 79 breeds or racial types (54% males). Neutering rate was 41% for males, 58 % for females. Age ranged from 8 weeks to 15 years.

Most dogs were adopted as puppies (72% before 3 months); 41% came from a breeder, 31% from a private owner, 20% from an association. The majority (90%) of owners get informed about dog education: 73% before adoption, 59% after adoption, 35% because of troublesome behaviours. Internet was the most frequent source of information (58% of owners). Housebreaking was the most easily taught behaviour: 60% of dogs learnt it "very easily" vs 39 % and 37% for solitude and socialization. The "sit" and "lie down" commands were the most easily assimilated, contrary to the recall, stay still, walking on a leash and "calm down". The most common behaviour problems reported by owners were aggressions toward dogs or humans (12%), lack of obedience (10%), difficult to manage agitation (9%), barking (9%), fearful reactions (7%), difficulties to stay alone (6%) and predation (6%).

This study highlights that more than half of owners struggle with their dog education. The need of an assistance from a canine professional is therefore required as a prevention of relinquishment.

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P-25

STRESS ASSESSMENT IN CATS UNDERGOING CLINICAL EXAMINATION IN DIFFERENT EXPERIMENTAL SETTINGS

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Reducing cats' stress during veterinary visits could have considerable benefits for their health and welfare, helping avoid stress-related behaviours and ameliorating owners' compliance, thus the frequency and the efficacy of the clinical examinations (Carlstead et al., 1993; Quimby et al., 2011; Rodan et al., 2011; AAFP, 2015).

This work aims to assess cats' behavioural and physiological stress reactions in three different experimental settings during a standardised clinical examination.

Twenty cats were visited three times in three settings (University of Milan Ethical Committee approval n. OPBA_32_2021): with feline pheromone analogue (FFPA), a catnip extract, and no olfactory modification (control setting). During clinical examination, cats' behaviour was filmed, and clinicians were asked to fill in a questionnaire describing behaviours during the exam. Salivary cortisol was assessed seven times for each subject: at home (basal) and before and after the three visits.

No statistical difference in behaviour was found among the three experimental settings. Questionnaires' analysis showed that "seek interaction" behaviour was significantly higher in FFPA setting compared to the other ones ($P \leq 0.05$).

Baseline cortisol was significantly lower than pre- and post-visit ones ($P \leq 0.05$). In FFPA and Catnip settings, pre-visit cortisol was higher than post-visit one, while in the control setting, the pre-visit cortisol was lower than post-visit one ($P \leq 0.05$). No statistically significant difference was found in post-visit cortisol in the three settings.

Olfactory environmental enrichment does not seem to affect cats' behaviours during a clinical examination, and more data are needed to understand its influence better.

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THE BEHAVIOUR OF DOGS AND CATS IN CONSULTATION BEFORE AND DURING THE PANDEMIC RESTRICTIONS IN PORTUGAL – THE VETERINARIAN PERSPECTIVE.

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This study aimed to assess whether the COVID-19 pandemic restrictions applied to veterinary practices in Portugal (OMV, 2020) changed the behaviour of dogs and cats.

We asked 88 Portuguese Veterinarians to compare the behaviours shown by these two species in consultation before and during the restrictions, using an online survey that included ethograms and images of relaxed and fearful dogs and cats (G. Landsberg et al., 2013). The answers given for both timelines were compared.

There were no significant differences in the behaviours selected in the ethograms of dogs ($p=0,73$) and cats ($p=0,93$) before and during the restrictions. In both cases the behaviours selected most frequently indicate a negative emotional state. As for the most characteristic image, there was a significant difference for dogs ($p=0,009$) for which appeasement postures and relaxed facial expressions were more frequently chosen and avoidance and full body relaxed postures were less frequently chosen. No difference was found for cats ($p=0,88$). For 54% of the vets, dogs showed improved behaviour and for 57%, cats did not change their behaviour.

Although the majority of Veterinarians reported that dogs' behaviour improved during the restrictions, their choices in the ethogram and images do not corroborate this and are even contradictory. This may indicate that the changes in dogs' behavioural responses from less avoidant to more appeasing were wrongly interpreted as being more relaxed (Herron and Shreyer, 2014) and that both species still experience negative emotions, as reported by other authors (Lind et al., 2017; Mariti et al., 2016).

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P-27

TREATMENT OF PSYCHIATRIC ILLNESS IN A DOG WITH CHRONIC KIDNEY DISEASE.

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Signalment and presentation

A 2.5-year-old crossbred intact male rescue dog presented for biting children.

Behavioural history

Careful history taking revealed aggression towards familiar and unfamiliar people and unfamiliar dogs. The dog also barked at moving objects and had a fear of noises. The problems gradually developed from about 1 year of age.

Medical history

This dog was previously diagnosed with (congenital) kidney malfunction, which was monitored regularly with blood and urine check-ups and treated with an ACE inhibitor. The dog had a variable appetite and the owners reported the dog being more reactive during periods of sickness.

Behavioural observation

The dog settled down quickly during the observation in the clinic.

Physical examination

Not performed.

Diagnosis

- Fear-related aggression towards unfamiliar and familiar people and unfamiliar dogs.
- Aggression related to a medical condition.
- Redirected aggression towards familiar people.
- Noise reactivity.

Treatment and follow-up

Treatment was initiated with fluoxetine, pheromones and omega-3 fatty acid supplementation. Further recommendations regarding the use of cognitive behavioural techniques and management were made¹. The dog responded very well to therapy and remained under close supervision, including regular blood- and urine check-ups.

Discussion

In this case the coexistence of a non-psychiatric disease is a potential contributing factor in the development of the behavioural problems. This case highlights the need to treat veterinary patients suffering from chronic non-psychiatric medical conditions who codevelop psychiatric illness, with prudent use of psychopharmaca (when indicated) and other treatment modalities to optimise their quality of life and safeguard their welfare.

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P-28

HAEMATURIA IN THE CAT: IS IT STRESS, IS IT URINARY TRACT DISEASE OR IS IT SOMETHING ELSE?

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Introduction

Haematuria in the cat may have different causes such as stress, urinary tract disease or other non-urinary tract related physical problems (Forrester, 2004; and Dowers, 2009). Accurate diagnoses of the problem is paramount if treatment is to succeed.

Signalment and presentation

A 7.5-year-old neutered female Domestic Shorthair cat with a 7-month history of haematuria was referred for further diagnostics and treatment to a soft-tissue surgeon.

Medical history

The cat had:

1. a 7-month history of haematuria and bacteriuria,
2. cystitis 10 months, and
3. obstipation and bacteriuria 2 years prior to presentation.

Repeated blood and urine testing (including culture) and a negative abdominal ultrasound had been performed. The surgeon wished to perform a new medical work-up but did not want to cause unnecessary distress to the cat who proved ethically impossible to handle without sedation. Thus the cat was referred to a veterinary behaviour specialist for a same-day emergency consultation.

Behavioural history

No stressors were found.

Plan

It was decided to send him home for a few days on gabapentin and pheromone therapy and then re-attempt the physical work-up.

Follow-up

The cat returned 2 days later, was sedated intramuscularly and an ultrasound scan revealed multiple abnormalities in the urinary tract (a left ureteral stone (not causing visible obstruction), signs of chronic nephropathy in the right kidney and echogenic material in the bladder). This patient will be subsequently further-worked up and treated as per usual.

Conclusion

This case highlights the potential merit of a multidisciplinary approach to the diagnosis of haematuria in the cat.

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P-29

RELATIONSHIP BETWEEN SIGNS OF MEDICAL CONDITIONS AND COGNITIVE DECLINE IN SENIOR DOGS

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Canine cognitive dysfunction syndrome (CCDS) is a progressive age-related neurodegenerative disorder of dogs that is diagnosed after excluding other medical conditions, which are common in this age demographic (Landsberg, 2012).

The relationship between medical comorbidities and signs of CCDS are poorly understood. Therefore, a cross-sectional study was performed through an online questionnaire completed by dog owners, which included the Canine Cognitive Assessment Scale (CCAS; Stylianaki et al., 2020) and questions about signs of medical conditions as observed by the owners.

A total of 1374 questionnaires were completed, but only responses for dogs in the last 25% of their predicted lifespan (calculated with the formula: $13.620 + (0.0276 \text{ height cm}) - (0.1186 \text{ weight kg})$; Greer et al., 2007) were included in the analysis (N=804). Exploratory factor analysis grouped the signs of medical conditions in four body systems: musculoskeletal-neurological, digestive, metabolic, and dermatological. An overall health score (OHS) was calculated the sum of the body system scores. Spearman rank correlations indicated that the CCAS score had a strong positive correlation with OHS ($r=0.71, p<0.001$) as well as the musculoskeletal-neurological system ($r=0.69, p<0.001$), moderate positive correlations with the digestive ($r=0.31, p<0.001$) and the metabolic system ($r=0.36, p<0.001$), and a weak positive correlation with the dermatological system ($r=0.27, p<0.001$).

This study highlights the strong link between signs of medical conditions and those of cognitive decline. It stresses the need to screen dogs for medical disease when diagnosing CCDS and to monitor those dogs who have health conditions for the onset of cognitive decline.

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P-30

PERCEPTION OF VETERINARIANS ON THE CLINICAL APPLICATION OF PSYCHOTROPIC DRUGS FOR BEHAVIOURAL PROBLEMS IN PETS: A SURVEY

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Introduction

Due the lack of information regarding the use of psychotropic drugs to solve behavioural problems in pets, this study aimed at evaluating the awareness of Portuguese veterinarians towards this type of approach.

Methodology

An online questionnaire (27 questions) was used and analysed through the IBM Statistical Package for the Social Sciences version 28 program using Kruskal-Wallis tests and Chi-square tests. Being a veterinarian and resident in Portugal were the criteria for inclusion.

Results

The sample consisted of 51 veterinarians, of which the majority were female (90.2%). Among these, 23.53% studied psychotropic drugs applied in behavioural changes during academic studies, a higher percentage than the expected, while 82.92% think they have a low to median knowledge on the subject. 58.82% prescribed these drugs one to three times per month, and gabapentin is the most prescribed drug. To reduce fear and anxiety in acute situations, veterinarians mainly choose the transmucosal dexmedetomidine gel (15.7%) for dogs and gabapentin (47.1%) for cats. To reduce aggressiveness, injectable anaesthetic protocols (39.2%) in dogs and gabapentin in combination with these protocols (43.14%) in cats stand out. Finally, despite the actual guidelines discourage the use of phenothiazines, a considerable percentage (19.61%) still accept their use.

Conclusions

With this work it is possible to conclude that a lack of information of the veterinarians still exist on the use of these drugs, and this could change by promoting behavioural medicine among general veterinarians and increasing the formation in this area during their graduation.

P-31

COLLABORATION BETWEEN DOG TRAINERS AND VETERINARY BEHAVIOURIST IN FRANCE: CURRENT SITUATION AND PROSPECTS

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In France, unlike other countries, owners typically reach out more to dog trainers than veterinarians for help when they encounter behaviour troubles.

As the profession of behavioural veterinarian is still yet to be generalized, dog trainers find it difficult to refer to them. The objectives of this study were to investigate whether dog trainers in France collaborate with behavioural veterinarians and why.

An online questionnaire was distributed via social media and after a call to several dog trainers. Descriptive statistics were applied.

87 completed surveys (study still in progress) revealed that 69% of the respondents were behaviour dog trainers but that they were not all qualified. 64% were already collaborating with a veterinarian but only 45% of them with a veterinary behaviourist. Collaborations between veterinarians and trainers are rather new (73.2% began less than 5 years ago). Most of the time (62.5%), the veterinarian is the one seeking for help from dog trainers. Usually (57.1%), dog trainers still considered that association as necessary. Amongst the 35% of dog trainers who were not collaborating with a vet, 10% had a bad experience with one (50% were listening issues). 78% of dog trainers considered the medication essential for dogs with some behaviour trouble and had to use it.

The results of this survey show that dog trainers tend to collaborate more often with vets and are more likely to see the benefit of medication. Many collaborations between these two professions remain problematic, which highlights the need of organizing trainings and meetings.

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P-32

PICA AND DESTRUCTIVENESS IN A ROTTWEILER

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Ronnie, a six-year-old, 43 kg, intact male Rottweiler, was presented for ingestion of non-food items and destructiveness resulted in several emergency surgeries. Ronnie has always suffered from intermittent diarrhea and he underwent cruriate surgery at the age of 3 years.

Faecal and blood exams (including cortisol and gastrointestinal profile) were unremarkable. Gastrointestinal consult, ultrasound, and endoscopy, pointed out only a minor lymphoplasmacytic gastroenteritis leading the referral veterinarian to initially consider Ronnie's pica to be inexplicable from a gastroenterologist point of view. The behavioural visit revealed frequent hyperactivity bouts, high arousal level while on walks, conflicts and resource guarding.

Pica, pain, generalized anxiety, conflict related aggression, resource guarding, were diagnosed. Pica can be linked to behavioural problems (Overall and Dunham, 2002; Riva *et al.*, 2008; Masson *et al.*, 2021) neurological, oral and gastrointestinal diseases (Overall, 2003; Benedetti *et al.*, 2015). Behavioural and gastrointestinal problems usually overlap, and it is not always possible to hold a line between them.

Fluoxetine 1 mg/kg SID and behavioural advice (e.g. safety rules, consistent owners-dog communication and interactions, mental stimulation and enrichment) prescribed as treatment. The behavioural treatment resulted in an improvement of conflict behaviour and reactivity, but the pica disorder and diarrhoea were unchanged and slowly got better only when a specific diet and gastroenteric treatment including budesonide were added. These behaviours are challenging and require a close collaboration between specialists that, in addition to clinical results, should always take into account the role of hidden and subjective pain and suffering of the animal.

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P-33

A COMPLEX CASE OF “AUTISM” IN AN AUSTRALIAN KELPIE – OR IS IT?

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Signalment and presentation

A 5-year-old female neutered Australian Kelpie presented for “autistic behaviour”.

Behavioural history

Careful history taking revealed that the dog had a progressive 4-year history of chasing lights, herding moving objects, hypervigilance and hyperreactivity. Abnormal object licking behaviour and excessive barking at other dogs commenced after 2 years of age.

Medical history

The patient also had a long history of intermittent gastrointestinal symptoms, which were successfully managed with a hypoallergenic diet. Routine haematology and biochemistry had revealed no abnormalities.

Behaviour observation

The dog showed hypervigilance, prolonged restlessness (panting, pacing) and aggression towards people (snapping). The dog was unable to keep his focus when attempts were made to use cognitive behaviour techniques (Overall, 2013).

Physical examination

A limited physical examination showed no abnormalities.

Diagnosis

- Anxiety disorder.
- Hyper-reactivity disorder.
- (Obsessive) compulsive disorder.
- Fear-related aggression towards unfamiliar dogs.

Treatment and follow up

Treatment was initiated with gabapentin and fluoxetine.

Recommendations were made including appropriate management and the use of cognitive behavioural methods (based on the Protocol for Deference (Overall, 2013) and operant counter-conditioning towards moving objects). The dog responded very well to the treatment and reached satisfying results within 2 months of treatment initiation.

Conclusion

This case highlights the need for a structured, objective clinical work-up when veterinarians are presented with owner-diagnosed dogs, particularly in relation to the behavioural history and gaining clear phenotypic descriptions of behaviours in different contexts.

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P-34

SAFEGUARDING THE WELFARE OF A CAT POSTOPERATIVELY

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Introduction

Post-operative cage rest frequently poses challenges. Few guidelines are available and there are limited adequately evidence based clinical studies supporting the use of medication to facilitate this in cats.

Signalment and history

The owner of a 3-year-old intact male Domestic Shorthair cat with a 2-day history of making violent attempts to break-out of his dog crate, in which he was being confined for medical reasons post-operatively, consulted a veterinary behaviour specialist. The cat had undergone right-sided achilles tendon repair surgery with temporary fixation of the talocrural joint 2 days previously, cage-rest was paramount to the successful management of the case and the cat was receiving meloxicam for pain management. The owner expressed great distress about the plight of her cat.

Behaviour history

The cat was an outdoor cat and lived with his intact full brother. The two occasionally fought. Otherwise the cats had no behaviour problems. The cat had been miaowing extensively for the past few days, typically beginning in the early afternoon. The cat began to make violent attempts to escape out of his crate and was at risk of exacerbating the surgical site or otherwise injuring himself.

Treatment

- Behaviour therapy in the form of cognitive behavioural techniques,
- Environmental modifications, and
- Gabapentin.

Follow-up

The cat responded very well to therapy. There was a significant reduction in the behaviour and the owner was highly satisfied.

Conclusion

This case highlights the potential merit of gabapentin in combination with environmental management and cognitive behavioural therapy post-operatively in the cat.

P-35

MULTIDISCIPLINARY APPROACH IN A DOG PRESENTED FOR FLY CATCHING SYNDROME

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Fly catching syndrome (FCS) is characterized by sudden episodes of biting the air occasionally accompanied by jumping, licking, swallowing (Wrzosek M, 2015). In behavioral medicine, FCS has been defined as hallucinatory, locomotory, or oral compulsive disorder (Luescher A, 2002). Differential diagnosis for this disease include neurological conditions of central nervous system, visual anomalies, neuropathic pain and gastrointestinal diseases (Frank D, 2012; Wrzosek M, 2015).

We describe history, neurological, behavioral and imaging findings of a dog affected by FCS. A 4-years old male, French Bulldog was referred for a 2 days history of multiple episodes of abnormal behavior characterized by fly-catching associated with jumping, swallowing imaginary objects and air snapping. Neurological examination revealed cervical rigidity and magnetic resonance imaging of the head and cervical spine showed mild, focal dilation of the dorsal subarachnoid space at the level of the cisterna magna and cervical syringomyelia. Cerebrospinal fluid was normal.

Behavioral evaluation was compatible with oral-compulsive disorder, anxiety-related aggression and generalized anxiety.

Ophthalmic examination was normal.

A treatment with Gabapentin was started, at initial dose of 10 mg/kg every 12 hours that was increased to 20 mg/kg every 8 hours. At the same time the dog received a behavioral therapy associated with a nutraceutical with L-theanine. Clinical signs improved; the episodes of fly catching were reduced by more than 80% within a period of three months treatment.

FCS is a complex condition and a multidisciplinary approach should be considered to identify the concurrent etiologies of this pathology and to define the appropriate treatment.

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P-36

THE IMPACT OF SATISFACTION ON THE ADOPTION PROCESS OF PETS AND CHILDREN

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It is well known that living with pets increases both the physical and psychological person's well-being. The choice to adopt a dog has an impact on the quality of life of the adopter: it can bring joy, love, but also discouragement and failure, can change family rhythms, habits, expenses, and therefore affect the degree of happiness and perceived personal life satisfaction[1]. The disappointment of unfulfilled expectations is one of the reasons that push the adopter to return or abandon the dog[2]. Interestingly, dissatisfaction is also one of the most common causes of interruption of the relationship in the children's adoption process[3,4].

With this review we investigated what are the main factors that determine satisfaction in dog adopters and if there are similarities with those determining satisfaction in children adoption[5].

Literature data suggest that the failure of adoption does not depend only on a single factor but rather is the product of the interaction between the characteristics of the adopter and the adopted animal or child, the quality of the pre- and post-adoptive support services and the relationship that is created between the adoptive family and the newcomer[6–8]. Having a high degree of education, a low income, children in the home, not having support from relatives or friends or adoptive services, are the main factors of vulnerability in the adoptive process of both dogs and children[2,9].

Suggestions for future research include new approaches to achieving high levels of satisfaction in adoption and how to improve pre- and post-adoption support services.

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P-38

HOW RELIABLE IS MY DOG? FACTORS INFLUENCING THE CARETAKERS' PERCEPTION OF THEIR WHIPPET'S OR ITALIAN GREYHOUND'S RELIABILITY

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Introduction

How much a dog is perceived as reliable by their caretaker is an important feature of the relationship, being deemed especially important e.g., for dogs involved in animal-assisted interventions (Filugelli et al., 2021). The present study aimed at investigating possible predictors of the reliability score caretakers assigned to their dogs.

Methodology

An online survey was spread among Italian greyhound and/or whippet caretakers. Dog's reliability was investigated using a Generalized Estimation Equation (GEE) where dog reliability was the target variable, dogs' breed, and sex, some features of owner lifestyle, and the presence of 11 possible behavioral complaints (predatory behavior, aggression toward people, or other dogs, fear of people or other animals, non-social fear, shadowing, separation distress, house soiling, unwillingness to cooperate, other annoying behaviors) were used as predictors. Alpha was set at 0.05.

Results

257 caretakers responded to the questionnaire, each one for one dog (133 Italian greyhounds, 124 whippets). The presence of "out of context aggressive behavior toward people" ($p=0.016$), "unwillingness to cooperate" ($p=0.015$), and "house soiling" ($p=0.044$) decreased the given reliability score, whereas the other variables had no significant effect.

Principal conclusions and implications for the field

Perceived reliability can be an important feature in the dog-caretaker relationship; thus it is important to improve knowledge about factors linked to caretakers perceiving their dogs as reliable.

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P-39

STUDY OF BEHAVIOURAL TRAITS IN CAN DE PALLEIRO (GALICIAN SHEPHERD DOG)

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The Can de Palleiro (CP) was employed as herding and guarding dogs. The aim of the present study was to evaluate the breed's behaviour and temperamental traits to obtain a deeper understanding of CP and detect any potentially problematic behaviour.

Behavioural information was obtained from 377 dogs (177 CPs and 200 general population (GP) dogs) using the C-BARQ (Hsu and Serpell, 2003). Additionally, 32 dogs were enrolled to perform the SAB test (19 CPs and 13 GP dogs) (Planta, Meester, 2007).

The results from the CP were compared with those obtained from the GP. C-BARQ was examined by applying the Kruskal–Wallis test and SAB using the Fisher exact test. Afterwards, ordinal regression models were fitted to assess the effect of breed on the C-BARQ score for the different traits. Our results indicated that CP dogs had a lower tendency to show aggressiveness towards their owners (0.18 times lower, $p = 0.033$), fear of other dogs (by 0.43 times, $p = 0.001$), non-social fear, separation-related problems, and excitability (by 0.42, 0.35 and 0.48 times, respectively; $p < 0.001$, $p < 0.001$ and $p = 0.002$) when compared to GP dogs. Conversely, CP had increased odds of showing chasing behaviour (3.81 times higher, $p < 0.001$) and higher trainability levels (2.56 times higher, $p < 0.001$).

The current research represents a starting point for the study of the behaviour of CPs, which appear to be a working breed, with guarding (Serpell and Duffy, 2014) and, especially, herding characteristics (Sommese et al., 2021).

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P-40

A TRAUMATIC DOG BITE TO A FEMALE CROSSBRED DOG: PTSD?

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Signalment and presentation

A 4.5-year-old crossbred neutered female dog presented on owners suspicion of PTSD following a recent bite incident.

Behavioural history

Careful history taking revealed that the patient began to show anxiety-related behaviours towards unfamiliar dogs which started around puberty, with a sudden increase in aggressive behaviour after being attacked by an unfamiliar dog when she was 4 years of age.

Medical history

No relevant abnormalities.

Behavioural observation

During the observation in the clinic the dog showed normal behaviour, however she reacted anxiously to the owner by vocalising when the owner showed signs of distress (crying).

Physical examination

No abnormalities were previously found by the owner (who was a veterinarian).

Diagnosis

- Fear-related aggression towards unfamiliar dogs.
- Anxiety disorder.

Treatment and follow-up

Treatment was initiated with fluoxetine, probiotics, pheromones and omega-3 fatty acid supplementation. Further recommendations regarding the use of relaxation and deference techniques and management were made.¹ Operant counter-conditioning (using positive reinforcement) whilst walking with another dog in anti-parallel formation was initiated during the check-up consultation.

The dog showed marked improvement over a period of 4 months.

Discussion

This case highlights the importance of a complete behavioural work-up to understand the ontogeny and correctly diagnose and treat the patient. In this case the dog showed signs of anxiety-related behaviours prior to the potential traumatic event, which were improving slightly even after the event. This does not meet the diagnostic criteria of PTSD as described by Overall (2013).¹ Accurate diagnosis is necessary to allow adequate treatment.

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P-41

ATTACHMENT STYLE CLASSIFICATION IN THE INTERSPECIFIC AND INTRASPECIFIC BOND IN DOGS

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The Ainsworth Strange Situation Test (ASST) has shown that adult dogs establish attachment bonds towards human beings; ASST used to study the bond between two adult dogs showed less similarities with the caregiver-child one. The aim of the study was to compare the interspecific and intraspecific attachment bond focusing on attachment styles.

The ASST was used to analyse the behaviour of 14 dogs (8 females and 6 males) tested twice: once with the owner and once with a cohabitant dog, in a counterbalanced order. Frequency and duration of 22 behaviours were measured and compared using the Wilcoxon test ($p < 0.05$). Dogs were also classified as either securely or insecurely attached.

When tested with the conspecific, dogs spent more time in “vocalizations” ($p = 0.001$) and “proximity to door” ($p = 0.001$), while during the interspecific procedure they spent more time in “contact” ($p = 0.016$), suggesting a higher level of stress for dogs tested without their owners.

Regarding the attachment style we found 57.1% of dogs as securely and 42.8% as insecurely attached towards the conspecific, while for the interspecific procedure 78.6% dogs were secure and 21.4% insecure. No agreement was found between the two procedures (Cohen’s kappa = -0.089).

The results on attachment style classification suggests that, in dogs as in infant-caregiver dyads, the secure attachment is the most represented, both for the interspecific and intraspecific procedures, although marked differences have been observed in the two tests. This might be related to the fact that the relationship between two dogs is less similar to that of infant-caregiver.

There are no references in the abstract, references from the whole article are more than 250 words.

P-42

GROOMING BEHAVIOR IN CATS: HAIR LENGTH DOES NOT INFLUENCE THE BEHAVIOR WHILE CAT WELFARE DOES

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Introduction

Although grooming is a major activity for cats, this behavior remains poorly studied (1,2). Besides, in case of poor welfare, it can be expressed as a repetitive behavior, with self-induced alopecic lesions (3). In this context, we aimed to study patterns of grooming sequences in owned house cats.

Methodology

Using videos recorded at the owners' home (15,3 ±0,8 min.), we compared four groups of cats: healthy cats with different hair length (long :10, short: 11, no hair: 9) and 9 cats diagnosed with self-induced alopecia (from 1 to 12 years, 20 females, 19 males, 8 different breeds). Four behavioral units were analyzed (Boris software): licking, biting, rubbing, scratching, for nine body regions (from head to perineal zone).

Results

In 80% of cases, grooming was followed by rest. The succession of grooming sequences did not change with hair length (Friedman $p>0.05$ for each group), but durations were variable between individuals. While licking, rubbing, scratching durations were not different (Anovas; $p>0,40$), biting duration was higher for hairless cats (Kruskall-Wallis; $p=0,002$). For cats diagnosed with alopecia, grooming sequences were similar to healthy cats, but biting activity was more expressed, with more time spent grooming hind legs (Friedman for ill cats, $p<0.05$). Using a cat welfare score (3), we observed poor welfare conditions.

Conclusion

Grooming behavior is variable between individuals and seems to be influenced by cats living conditions rather than hair length. Self-induced alopecia has to be related to poor welfare conditions, but studies are still needed to better evaluate grooming determinants.

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P-43

REDUCING FELINE STRESS IN THE VETERINARY PRACTICE: INVESTIGATING THE EVIDENCE

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Towel wraps are suggested to minimise stress in cats during handling in the veterinary practice (Yin, 2009). The objective of this study was to determine the difference in stress response in cats using two types of fixation techniques: without a towel (FT₁) and with a towel scarf wrap (FT₂).

In this study, with a cross-over design, cats (n=19, 9 males and 10 females) were restrained to simulate blood sampling from the cephalic vein using FT₁ or FT₂. Behavioural data were collected from video recordings for 30 seconds starting when the cats were correctly fixated. Frequency and/or duration of ear and tail position, vocalisations, lip licks, escape attempts and pupil dilatation were measured and an overall Cat Stress Score was assigned (CSS, modified from McCune, 1994). Heart rate (beats per minute) was measured using a stethoscope. Videos were analysed by two independent observers.

FT₂ cats showed longer tail lashing bouts (GLMM; DF=1; F=6.21; p=0.027) and shorter extended tail bouts (GLMM; DF=1; F=10.49; p=0.007). A trend of longer vocalisations was also found (GLMM; DF=1; F=3.18; p=0.098). Frequency of escape attempts was higher with FT₁ (GLMM; DF=1; X²=4.35; p=0.037). There was no significant treatment difference in CSS or heart rate.

There was no consistent difference in measured stress between FT₁ and FT₂ but we found indications that FT₂ could be perceived as more stressful. Escape attempts indicate FT₂ might be safer to use from the viewpoint of staff members. Veterinarians can take these results into account during their feline consultations.

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P-44

CONCURRENT USE OF TASIPIMIDINE AND CLOMIPRAMINE - AN INTERACTION STUDY

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The objective of the study was to evaluate pharmacokinetics of tasipimidine alone and in combination with clomipramine, and to study clinical effects of the combination on functional alertness and cardiovascular parameters (blood pressure (BP), heart rate (HR) and ECG) in dogs equipped with telemetry devices.

The study was performed in 3 Phases. Pharmacokinetics and functional alertness were studied after a single dose (Phase 1) and after the four days repeated twice daily dosing of tasipimidine 30 µg/kg and clomipramine at approximately 1 mg/kg, alone and in combination (Phase 2). In Phase 3, the combination was studied with a reduced dose of tasipimidine (20 µg/kg) as single and repeated dosing.

The dogs were dosed orally by a treatment administrator twice a day (Phases 2 and 3) and the clinical assessments were made by a person blinded to the treatment. The wash-out period between the phases was 7 to 10 days.

Dogs' alertness was slightly reduced by combination of tasipimidine at the dose of 30 µg/kg with clomipramine. Decreasing tasipimidine dose to 20 µg/kg in the combination caused less reduction in alertness.

Tasipimidine alone and in combination with clomipramine was well tolerated and safe in respect to cardiovascular effects (BP, HR and ECG). The exposure levels of tasipimidine increased dose-proportionally and were similar alone and in combination with clomipramine. Slightly slower absorption of clomipramine was observed when dosed concomitantly with tasipimidine.

The effect on functional alertness supports the use of lower dose of tasipimidine (20 µg/kg) when combined with clomipramine 1.0 mg/kg.

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