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Preface

We are excited to invite you to the AVA Spring Meeting 2025, which will be hosted at the iconic **Schönbrunn Palace** in Vienna, Austria!

Vienna, the Austrian capital, is a city rich in cultural heritage. Known for its stunning baroque architecture, classical music legacy, and vibrant arts scene, Vienna is the perfect setting for this year's congress. From strolling along the Ringstraße to visiting world-renowned museums, historic cafés, and the famous Vienna State Opera, the city offers endless opportunities for exploration and enjoyment.

Our venue, **Schönbrunn Palace**, is one of Vienna's most treasured landmarks. This former summer residence of the Habsburg emperors is a UNESCO World Heritage site and a masterpiece of baroque design. With its grand interiors, beautifully landscaped gardens, and panoramic views, Schönbrunn offers an inspiring and elegant atmosphere for the congress. Don't miss the opportunity to visit the palace grounds, including its famous **Tiergarten Schönbrunn**, the world's oldest zoo, and the stunning Gloriette with its view of Vienna.

With Tiergarten Schönbrunn in close proximity, the first day will center on **wildlife immobilisation**, with sessions addressing the unique challenges of safely and effectively anaesthetizing animals in diverse and often unpredictable field conditions. The second day's focus on **education in veterinary anaesthesia** will explore innovative teaching methods, modern curricula, and ways to enhance student engagement, reflecting AVA's commitment to fostering expertise across generations. Cooperating with the Messerli Research Institute of the Vetmeduni Vienna the final day will turn to **ethics and animal welfare**, engaging participants in discussions about the humane practices, ethical considerations, and evolving policies that define compassionate care in veterinary anaesthesia today.

In the evenings, Vienna's vibrant nightlife and dining scenes await. Enjoy a traditional meal at a historic Viennese tavern or discover local wines at one of the city's wine bars. Stroll through the Naschmarkt for unique bites, or unwind at Prater Park, where you can ride the famous Riesenrad Ferris wheel for a stunning view of Vienna by night.

We invite you to join us in this unforgettable setting, where the charm of **Vienna** and the grandeur of **Schönbrunn Palace** will enrich the experience of the **AVA Spring Meeting 2025** and foster inspiring exchanges among veterinary anaesthetists from around the world!

We would like to thank our sponsors, exhibitors and cooperation partners for their support:

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Program | Pre-congress Day, May 14: Wildlife Immobilisation

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<tr><td colspan="2">Group A</td><td colspan="2">Group B</td></tr>
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Dr. Aleksandr Semjonov, PhD
Chairs: Nina Küls | Adrian Wong</td><td rowspan="5">09.15–12.00</td><td rowspan="5">Workshop practical session

– Species Specific Drug Doses & Volume Calculations
– Drug Delivery Methods - Projectors (blow-dart, pistol and rifle, CO_2, air and cartridge powered)
– Dart Labs – how to fill a dart
– Blow-dart practice
– Telemetry practice</td></tr>
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Dr. Nigel Caulkett, DVM, MVetSc., Dipl.ACVAA
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<tr><td>11.15–12.00</td><td>Comprehensive safety considerations during chemical immobilisation
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Program | Pre-congress Day, May 14: Wildlife Immobilisation

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Program | Day 1, May 15: Education

08.00–08.45	Registration
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09.00–10.00	**Undergraduates' self-regulated learning and stress at the workplace** *Dr. Evelyn Steinberg*
10.00–10.30	**Development of a Ventilation Lung Simulator: An Innovative Training Tool for Veterinary Anesthesia** *Christian Remus* *IMT Analytics* ***Chairs:** Isabelle Iff	Renata Pinho*
10.30–11.00	Coffee break, poster viewing, visit exhibition area
11.00–12.00	**Paradigm Change in Anaesthesia Training – From Hands-Off to High-End Professionalism** *Prim. Dr. Michael Hüpfl* ***Chairs:** Isabelle Iff	Anna Szewczyk*
12.00–12.30	**Introduction to round table: First day skills of veterinary students and new Diplomates** *Univ.-Prof. Dr.med.vet. Martina Mosing*
12.30–13.30	Lunch break, poster viewing, visit exhibition area
13.30–15.00	Round Table: First day skills of veterinary students and new Diplomates
15.00–15.30	Coffee break, poster viewing, visit exhibition area
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19.00	Gala Dinner & Welcome of new ECVAA Diplomates

Program | Day 1, May 15: Abstract Presentations

15.30–17.00	Teaching and ventilation: Room **MARIA THERESIA** ***Chairs:*** *Moriz Klonner	Zita Szabo* **Abstracts here**	Exotics and large animals: Room **SOPHIE** ***Chairs:*** *Julia Deutsch	Desiree Ferrari* **Abstracts here**
15.30–15.45	Perianesthetic dose calculation errors by veterinary students during a live animal teaching laboratory *Pinho	Robinson	Pang	Pang*	Differences in distribution of ventilation between lateral and sternal recumbency in common Hippopotami measured by Electrical Impedance Tomography *Kuek	Lindeboom	Pohlin	Raath	Laubscher	Semjonov	Mosing*
15.45–16.00	Burnout among Veterinary Anaesthesia Diplomates and its worklife determinant factors *Tayari	Auckburally	Flaherty	Bennett	Dugdale*	Challenging the Anecdotal Concerns of Peripheral Nerve Block in Wildlife – A Case Series in Large Felids Undergoing Hindlimb Fracture Repair *Purwin	Pohlin	Kadwa	Blignaut	Grace	Basson	Zeiler*
16.00–16.15	Survey of teaching methods for small animal anaesthesia to undergraduate veterinary students in Australia and New Zealand *Musk	Smith	Raisis	Davis	Mosing*	Evaluation of the effects of Pregabalin for the management of hospitalized feral cats *Laguardia	Piemontese	Bruno	Polvere	Albrizio	Gernone	Staffieri*
16.15–16.30	Respiratory monitoring using electrical impedance tomography (EIT) with and without an endotracheal tube during recovery from anesthesia in mesocephalic and brachycephalic dogs *Biber	Wong	Mosing*	Comparison of three scoring systems for assessing induction quality of general anaesthesia in horses *Villalba-Díez	Benavente-Sánchez	Bustamante	Santiago-Llorente	Villalba-Orero*
16.30–16.45	Investigation of heart and lung interactions in response to varying levels of continuous positive airway pressure (CPAP) in healthy sedated Beagle dogs *Albano	Araos*	Influence of adding detomidine to a lidocaine paravertebral anaesthesia on proinflammatory cytokines in cows undergoing laparotomy *Ringer	Bühlmann	Foucras	Hartnack	d'Anselme*
16.45–17.00	Comparison of Volume-Controlled and Pressure-Controlled Ventilation in Horses undergoing vitrectomy *Wilm	Wittenberg-Voges	Kästner*	Assessment of sedation and recovery following subcutaneous injection of midazolam and two doses of flumazenil in bearded dragons (Pogona vitticeps) *Pinho	Teng	Reed	Chapman	Pang*

2025 AVA Vienna Meeting
Oral presentations
THURSDAY 15.5.2025
ROOM MARIA THERESIA

Time	Abstract ID	Title	Authors
15:30 – 15:45	370	Perianesthetic dose calculation errors by veterinary students during a live animal teaching laboratory	Pinho | Robinson | Pang | Pang
15:45 – 16:00	367	Burnout among Veterinary Anaesthesia Diplomates and its worklife determinant factors	Tayari | Auckburally | Flaherty | Bennett | Dugdale
16:00 – 16:15	373	Survey of teaching methods for small animal anaesthesia to undergraduate veterinary students in Australia and New Zealand.	Musk | Smith | Raisis | Davis | Mosing
16:15 – 16:30	374	Respiratory monitoring using electrical impedance tomography (EIT) with and without an endotracheal tube during recovery from anesthesia in mesocephalic and brachycephalic dogs	Biber | Wong | Mosing
16:30 – 16:45	365	Investigation of heart and lung interactions in response to varying levels of continuous positive airway pressure (CPAP) in healthy sedated Beagle dogs	Albano | Araos
16:45 – 17:00	384	Comparison of volume-controlled and pressure-controlled ventilation in horses undergoing vitrectomy	Wilm | Wittenberg-Voges | Kästner

ID370

Perianesthetic dose calculation errors by veterinary students during a live animal teaching laboratory

Pinho R.H.[1], Robinson A.R.[2], Pang J.[3], Pang D.S.J.[1,2]
[1]Faculty of Veterinary Medicine, University of Calgary, Calgary, Alberta T2N 4Z6, Canada
[2]Department of Clinical Sciences, Faculty of Veterinary Medicine, Université de Montréal, Saint-Hyacinthe, Québec J2S 2M2, Canada
[3]Alberta Veterinary Dentistry, Calgary, Alberta T2H 2M5, Canada

Performing drug dose calculations is a fundamental skill in veterinary medicine. Calculation errors and errors in filling a syringe are the greatest contributors to medication errors in veterinary anesthesia (Pinho et al. 2024). This study aimed to evaluate the incidence and characteristics of drug dose calculation errors made by veterinary students during a live animal spay-neuter teaching laboratory session.
A prospective observational study during a spay-neuter teaching laboratory session with third-year veterinary students (n = 53) was performed. A deferred informed consent process was employed to minimize bias associated with prior knowledge of the study's objectives. Anesthesia protocols prepared for 83 dogs and cats were analyzed. For each protocol, students selected and calculated doses for drugs used in premedication, anesthetic induction and maintenance, analgesia, antimicrobial therapy, local anesthesia, and cardiovascular support. A supervising anesthetist reviewed the selected drugs, doses, and volumes, identifying and correcting any errors before drug preparation. Data were analysed descriptively to determine the incidence of drug dose calculation errors, the drugs involved, and the magnitude and direction of errors (overdose or underdose).
A total of 686 drug doses were calculated for 83 dogs and cats. Twelve dose calculation errors were identified across nine anesthesia protocols, resulting in a protocol error rate of 10.8% (9/83) and an overall drug dose calculation error rate of 1.8% (12/686). The drugs involved were ephedrine (33.3%; 4/12), glycopyrrolate (25%; 3/12), dexmedetomidine (16.7%; 2/12), acepromazine, lidocaine, and midazolam (8.3%; 1/12 each). Most errors (83.3%; 10/12) would have resulted in overdoses, while two errors (16.7%; 2/12) would have caused underdoses.
Drug dose calculation errors are common during the planning of anesthetic protocols by veterinary students and may pose significant risks to patient safety. These findings highlight the importance of implementing strategies to reduce error rates, such as independent double-check of calculations before drug preparation.

Acknowledgments
The authors thank the participating students. Funding was provided by the Zoetis Investment in Innovation Fund, the University of Calgary (Clinical Research Fund), Alberta Graduate Excellence Scholarship (AGES) International and Eyes High International Doctoral Scholarship.

Reference
Pinho RH, Tscheng D, Cheema JS, Pang DSJ (2024). Incidence and type of voluntary reported perianesthetic medication errors in community veterinary clinics in Calgary, Canada. Am J Vet Res 85, 1–8.

ID367

Burnout among Veterinary Anaesthesia Diplomates and its worklife determinant factors

Hamaseh Tayari H.[1], Bennett R.[2], Auckburally A.[1], Flaherty D.[1], Dugdale A.[3]
[1]Anaesthesia Department, Southern Counties Veterinary Specialists, Ringwood, UK
[b]Wimborne, UK
[c]Ellesmere Port, Chester, UK

Burnout, a work-related phenomenon, is experienced by 42.6% of veterinary anaesthesia Diplomates (Tayari et al. 2024). This study investigated worklife areas that might be predictive of Diplomates' burnout.
Using a cross-sectional internet-based survey, 530 veterinary anaesthesia Diplomates were canvassed, 286 responded. The survey included: a socio-demographic questionnaire, the Maslach Burnout Inventory-Human Service for Medical Personnel, and the Areas of Worklife Survey (AWS). The AWS includes 28 questions, each scored on a 5-point Likert scale, which quantifies the alignment between an employee and six worklife areas - workload, control, reward, community, fairness, and values. AWS scores were analysed using uni- and multi-variate linear regression ($p < 0.05$) to determine their impact on the three domains of burnout: emotional exhaustion (EE), depersonalisation (DP) and personal accomplishment (PA). Free-texts from an open-ended question "Please enter your views on any aspect of your workplace" were analysed.
All worklife areas affected Diplomates. However, their impact differed according to whether Diplomates were at high risk of burnout (EE scores ≥ 27/54 & DP scores ≥ 10/30) or achieved the criteria for burnout (as above plus PA scores ≤ 33/48). The six worklife areas had a strong significant collective effect on the burnout domain of EE ($R^2 = 0.53$, $p < 0.001$), a moderate effect for PA ($R^2 = 0.47$, $p < 0.001$), and a weak effect on DP ($R^2 = 0.28$, $p < 0.001$). Free-text analysis results are displayed in Fig. 1.
Burnout among American and European Diplomates is driven by modifiable worklife factors; many of which (as exemplified in the word cloud) can be mitigated by a change in organisational policies.

Figure 1 Word cloud gathered from 110/286 responders (34%). Font size is proportional to frequency of word or phrase used by responders.

References
Maslach C, Leiter MP (1997) The Truth About Burnout: How organizations cause personal stress and what to do about it. San Francisco, CA: Jossey-Bass.
Tayari H, Flaherty D, Dugdale A, et al. (2024) Burnout among veterinary anaesthesia specialists: time to “rock the boat” (Part 1). Veterinary Anaesthesia and Analgesia. https://doi.org/10.1016/j.vaa.2024.10.139

ID373

Survey of teaching methods for small animal anaesthesia to undergraduate veterinary students in Australia and New Zealand

Musk G.C., Smith K., Raisis A.L., Davis, J., Mosing, M.
School of Veterinary Medicine, Murdoch University, Perth, Australia

Teaching veterinary anaesthesia skills to undergraduate veterinary students varies within and between institutions. The aim of this study was to document and describe the approaches to teaching certain veterinary anaesthesia skills in eight Australian and New Zealand veterinary schools.
An anonymous online 55 question survey was distributed to educators at these schools to collect data on the methods of teaching selected subjects. The questions were related to (1) appropriate selection and use of anaesthetic breathing systems, (2) methods of endotracheal intubation and manual ventilation, (3) intra-operative monitoring and (4) management of hypotension during anaesthesia. Data were analysed in Microsoft Excel and reported as descriptive statistics.
Twenty-three unique responses were received (64% from specialists in veterinary anaesthesia, 20% from people who have completed a specialist training program, 12% from anaesthesia membership holders and 4% from those with no formal post graduate training in veterinary anaesthesia). The most clinically relevant responses in the four subject areas were: (1) 36% taught that non-rebreathing systems suit animals <5 kg and 36% did not have a rigid rule, (2) 100% taught the use of laryngoscopes for intubation and 68% use mannikins for training (3) 54% taught that Doppler values represent systolic blood pressure and 46% taught that the value is the mean, 50% choose capnography as the highest priority monitoring device (4) the initial management of intra-operative hypotension consistently involved assessment of depth of anaesthesia, increasing the heart rate and administering fluid therapy. 44% of respondents reported that their institution lacked a standardised approach to teaching these skills.
These results highlight a need to establish a consistent teaching framework, thus ensuring competency in veterinary graduates. These data can be used as a resource for identifying areas with discrepancies, which will guide development of a standardised curriculum for teaching anaesthetic skills.

ID374

Respiratory monitoring using electrical impedance tomography (EIT) with and without an endotracheal tube during recovery from anesthesia in mesocephalic and brachycephalic dogs

Biber L.[1], Wong A.[2], Mosing M.[1]
[1]Anaesthesiology and Perioperative Intensive-Care Medicine, Department of Companion Animals and Horses, University of Veterinary Medicine Vienna, Vienna, Austria
[2]School of Veterinary Medicine, University of Murdoch, Perth, Western Australia, Australia

This study aimed to compare lung ventilation before and after extubation in spontaneously breathing brachycephalic and mesocephalic dogs during anesthesia recovery using electrical impedance tomography (EIT).
A total of 20 client-owned dogs were enrolled into two groups: brachycephalic (French Bulldogs [n = 7], Pugs [n = 3]) and mesocephalic (n = 10). Dexmedetomidine 1 µg kg hour^{-1} CRI was administered to all dogs 15 minutes before and throughout the recovery period. After EIT belt placement, dogs were positioned sternally with the head elevated. Extubation was performed when swallowing was observed. Inspiration time (t_i), tidal variation (TIV) as surrogate for tidal volume, respiratory rate (f_R), and minute ventilation (VE_{EIT}) were retrospectively calculated at three timepoints: T_{pre} (1 minute pre-extubation), T_{post} (1 minute post-extubation), and T3 (3 minutes post-extubation). Data were analysed using a mixed model for repeated measures ANOVA, with $p < 0.05$ considered significant.
The t_i significantly increased in brachycephalic dogs from T_{pre} (0.9 ± 0.3 s) to T_{post} (2.3 ± 1.3 s), compared to mesocephalic dogs (T_{pre} and T_{post}: 1.4 ± 0.5 s and 1.5 ± 0.8 s, respectively; $p = 0.026$). Brachycephalic dogs showed a decrease in VE_{EIT} from pre- (8.6 ± 5.5 AU) to post-extubation (4.9 ± 3.5 AU) ($p = 0.008$), while mesocephalic dogs showed an increase in VE_{EIT} from T_{pre} (6.1 ± 2.5 AU) to T_{post} (8.1 ± 5.2 AU). No significant differences were observed in TIV and f_R between the groups. No significant differences were found in any variable between groups at T3.
Brachycephalic dogs demonstrated significant changes in respiratory variables in the immediate post-extubation period, suggesting a greater susceptibility to hypoventilation compared to mesocephalic dogs.

ID365

Investigation of heart and lung interactions in response to varying levels of continuous positive airway pressure (CPAP) in healthy sedated Beagle dogs

Albano V., Araos J.
Cornell University, USA

Continuous positive airway pressure (CPAP) can improve lung function in dogs but may induce clinically relevant hemodynamic effects. This study aimed to characterize the hemodynamic consequences of different CPAP levels in healthy, sedated Beagles.
Seven healthy research Beagles were sedated with IM dexmedetomidine (2 µg kg^{-1}) and morphine (0.1 mg kg^{-1}) and maintained on an IV propofol infusion (0.1-0.3 mg kg^{-1} min^{-1}). A veterinary-specific CPAP helmet was used to generate increasing levels of continuous pressure (5 cm H_2O [CPAP5], 8 cm H_2O [CPAP8], and 12 cm H_2O [CPAP12]), compared to baseline (0 cm H_2O [CPAP0]). Transthoracic echocardiography was used to assess left ventricular function (stroke volume [SV, mL], cardiac output [CO, L/min], and ejection fraction [EF, %]), right ventricular function (systolic myocardial velocity of the tricuspid annulus [S', m/s]), and right pulmonary artery distensibility (rPAD, %) at each CPAP level. Invasive arterial blood pressure was continuously monitored. Outcomes were compared between CPAP levels using linear mixed models, with $p < 0.05$ considered significant.
Dogs tolerated all CPAP levels. Heart rate increased significantly at CPAP12 (85 ± 16) compared to CPAP0 (61 ± 11). Left ventricular EF and CO remained unchanged, while SV decreased significantly at CPAP12 (11 ± 2) compared to CPAP0 (14 ± 2). rPAD decreased significantly at CPAP8 (36.3 ± 7.4) and CPAP12 (32.8 ± 7.4) compared to CPAP0 (42.7 ± 5.5), while right ventricular S' increased significantly only at CPAP12 (0.12 ± 0.02) compared to CPAP0 (0.09 ± 0.02). There were no significant effects on arterial blood pressure.
In healthy dogs, higher CPAP levels stiffened the pulmonary vasculature, leading to a compensatory increase in right ventricular systolic function. However, left ventricular stroke volume decreased, underscoring the complexity of heart-lung interactions during CPAP therapy. Future studies should assess these effects in dogs with lung and cardiac disease.

References:

Stabile, M., Lacitignola, L., Piemontese, M.R., et al. (2021). Comparison of CPAP and oxygen therapy for treatment of postoperative hypoxaemia in dogs. *Journal of Small Animal Practice*. 62, pp.351–358. doi:https://doi.org/10.1111/jsap.13295
Visser, L.C., Im, M.K., Johnson, L.R. and Stern, J.A. (2016). Diagnostic Value of Right Pulmonary Artery Distensibility Index in Dogs with Pulmonary Hypertension: Comparison with Doppler Echocardiographic Estimates of Pulmonary Arterial Pressure. *Journal of Veterinary Internal Medicine*. 30, pp.543–552. doi:https://doi.org/10.1111/jvim.13911.
Visser, L.C., Scansen, B.A., Schober, K.E. and Bonagura, J.D. (2015). Echocardiographic assessment of right ventricular systolic function in conscious healthy dogs: Repeatability and reference intervals. *Journal of Veterinary Cardiology*. 17, pp.83–96. doi:https://doi.org/10.1016/j.jvc.2014.10.003.

ID384

Comparison of volume-controlled and pressure-controlled ventilation in horses undergoing vitrectomy

Wilm J.[1], Wittenberg-Voges L.[1], Kästner S.[1,2]
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[2]Clinic for Small Animals, University of Veterinary Medicine Hannover Foundation, Hannover, Germany

Mechanical ventilation is essential when neuromuscular blocking agents are used. This study compares the cardiopulmonary effects of pressure-controlled (PCV) and volume-controlled ventilation (VCV) during vitrectomy in horses.
Sixty horses were enrolled in the study. Horses were premedicated (acepromazine 0.05 mg kg^{-1} IM, xylazine 0.8 mg kg^{-1} IV) and anaesthetized (ketamine 2.5 mg kg^{-1} IV, diazepam 0.05 mg kg^{-1}IV). Anaesthesia was maintained with isoflurane in 100% oxygen and xylazine infusion (0.6 mg kg^{-1} $hour^{-1}$). After positioning in lateral recumbency, placing of an esophageal pressure probe was attempted. Atracurium boli (0.1 mg kg^{-1} IV) were administered to facilitate ocular immobilisation. The horses were randomly assigned to PCV (inspiratory pressure: 22.5 cmH_2O) or VCV (VT: 12.5 ml kg^{-1}) with a ^{f}R of 6 (breaths $minute^{-1}$) adjusted in cases of hypo- or hypercapnia. Data collected included HR, MAP, PaO_2, $PaCO_2$, VT, esophageal pressure and airway pressures (GE Healthcare CARESCAPE; Horse-lite spirometer). Transpulmonary pressure, dynamic total and lung compliance and VE were calculated. Data were analyzed using descriptive statistics and two-way ANOVA ($p < 0.05$).
No statistically significant differences were found between the groups.

Parameter*	**VCV**	**PCV**
MAP [mmHg]	86.6 ± 5.9	93 ± 7.6
VE [ml]	35910 ± 205	35178 ± 485.2
PaO_2 [mmHg]	409.6 ± 28.4	358.1 ± 33.8
$PaCO_2$ [mmHg]	46 ± 0.9	47.2 ± 0.5
Transpulmonary pressure [cmH_2O]	8.5 ± 3.8	9.8 ± 3
Dynamic total compliance [ml cmH_2O^{-1} kg body $weight^{-1}$]	0.6 ± 0.01 (*n*: 25)	0.6 ± 0.02 (*n*: 24)
Dynamic lung compliance [ml cmH_2O kg^{-1} body $weight^{-1}$]	1.2 ± 0.5 (*n*: 12)	1.1 ± 0.4 (*n*: 11)

* Sum of means for each time point divided by number of time points

With overall excellent pulmonary function in this population, no differences in ventilation modes appeared. For vitrectomies in lateral recumbency both PCV and VCV are equally suitable.

2025 AVA Vienna Meeting
Oral presentations
THURSDAY 15.5.2025
ROOM SOPHIE

Time	Abstract ID	Title	Authors
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15:45 – 16:00	378	Challenging the anecdotal concerns of peripheral nerve block in wildlife – A case series in large felids undergoing hindlimb fracture repair	Purwin | Pohlin | Kadwa | Blignaut | Grace | Basson | Zeiler
16:00 – 16:15	363	Evaluation of the effects of Pregabalin for the management of hospitalized feral cats	Laguardia | Piemontese | Bruno | Polvere | Albrizio | Gernone | Staffieri
16:15 – 16:30	357	Comparison of three scoring systems for assessing induction quality of general anaesthesia in horses	Villalba-Díez | Benavente-Sánchez | Bustamante | Santiago-Llorente | Villalba-Orero
16:30 – 16:45	382	Influence of adding detomidine to a lidocaine paravertebral anaesthesia on proinflammatory cytokines in cows undergoing laparotomy	Ringer | Bühlmann | Foucras | Hartnack | d'Anselme
16:45 – 17:00	369	Assessment of sedation and recovery following subcutaneous injection of midazolam and two doses of flumazenil in bearded dragons (Pogona vitticeps)	Pinho | Teng | Reed | Chapman | Pang

ID372

Differences in distribution of ventilation between lateral and sternal recumbency in common Hippopotami measured by Electrical Impedance Tomography

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Current studies in large land mammals show preferential ventilation of the non-dependent lung in lateral recumbency (Mosing et al., 2020). This study aimed to determine the distribution of ventilation in immobilised common Hippopotami (*Hippopotamus amphibius*). The Centre of Ventilation (CoV) was evaluated in 2 sub-adult and 2 adult hippopotami in left lateral and sternal recumbency, measured by Electrical Impedance Tomography (EIT). The hippopotami were immobilised for relocation purposes. Each animal was darted with a combination of butorphanol, azaperone, and medetomidine (0.12mg kg^{-1}, 0.05mg kg^{-1}, 0.05mg kg^{-1} respectively), with body weight estimated visually. Ketamine (1mg kg^{-1}) was administered IM once recumbent, thus safe to approach. After placing the EIT belt around the thorax, the hippopotami were repositioned twice in each recumbency in randomised sequences, with 10-minute intervals between changes. After two recumbencies, ketamine 0.5mg kg^{-1} was administered IM to maintain immobilisation. Measurements of the CoV from right-to-left (CoV_{RL}) and ventral-to-dorsal (CoV_{VD}) were analysed over the last two minutes in each position, presented as median (range) in percentages.
The CoV_{RL} in lateral recumbency was 59.82% (45.87-61.42) and 49.69% (44.77-59.82) in sternal recumbency. In lateral recumbency, the majority of ventilation occurred in the dependent lung in three hippopotami, whilst in one, ventilation was predominantly observed in the non-dependent lung. In sternal recumbency, the CoV_{RL} was located centrally except in one animal, where ventilation was more in the left lung. The CoV_{VD} was in the centro-dorsal aspect for both recumbencies: lateral 64.00% (61.78-67.09) and sternal 61.63% (59.62-63.05). Two animals showed a dorsal shift in ventilation when in lateral recumbency.
In three out of four hippopotami, lateral recumbency is associated with preferential ventilation of the dependent lung, differing from previous findings in terrestrial animals. In sternal recumbency, ventilation was found in the centro-dorsal areas of the lung.

References

Mosing, M. *et al.* (2020) 'What hinders pulmonary gas exchange and changes distribution of ventilation in immobilized white rhinoceroses (*Ceratotherium simum*) in lateral recumbency?', *Journal of Applied Physiology*, 129(5), pp. 1140–1149. Available at: https://doi.org/10.1152/japplphysiol.00359.2020

ID378

Challenging the anecdotal concerns of peripheral nerve block in wildlife – a case series in large felids undergoing pelvic limb fracture repair

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Peripheral nerve blocks (PNB) are increasingly used in small animals undergoing orthopaedic surgery. In wildlife, PNBs are underutilised due to limited species-specific information on local anaesthetic pharmacology and block techniques (Quesada et al. 2022). Wildlife veterinarians have expressed concerns regarding iatrogenic nerve injury and self-inflicted trauma, particularly in feline species (Geoge et al. 1986). However, PNBs are safe and effective in domestic cats (Vettorato and Corletto, 2016). This case series extends these findings to wild felids:
A five year old, 200 kg, male lion (*Panthera leo*) underwent surgical repair of a tibial and fibular fracture (case A1); the implant was removed three months later due to limb swelling (case A2). A five year old, 55 kg, male cheetah (*Acinonyx jubatus*) required surgical repair of a tarsal calcaneus fracture (case B), and a six year old, 9 kg, female caracal (*Caracal caracal*) underwent femoral fracture repair (case C).
Following immobilisation, transport, and induction of general anaesthesia, a femoral-saphenous (inguinal approach, cases A1, A2, B; lateral pre-iliac approach, case C) and ischiatic (lateral approach) PNB were performed using ultrasound in cases A2 and B, a peripheral nerve-stimulator in case C, and both techniques in case A1.
Ropivacaine was used in cases A1 (0.25 mg kg^{-1}, 0.04 ml kg^{-1}, 7.5%) and B (0.5 mg kg^{-1}, 0.04 ml kg^{-1}, 7.5%), while lidocaine was administered in cases A2 (1 mg kg^{-1}, 0.05 ml kg^{-1}, 2%) and C (2 mg kg^{-1}, 0.2 ml kg^{-1}, 2%).
No intraoperative nociception was observed, monitored vital parameters remained stable, and no rescue analgesia was required. Recovery was uneventful, with no contralateral limb paralysis, neurological complications, or self-mutilation.
Conclusively, pelvic limb PNB was safely performed in these wild felids, challenging anecdotal concerns. While objective pain scoring was challenging, observational assessment suggested that the PNB contributed to a smooth recovery.

References

Geoge PO, Cheeran JV, Jalaluddin AM, et al. (1986) Treatment of wounds on the forelimb of a lion (Panthera leo) under general anaesthesia. Indian Vet J. 63, 952–953.
Quesada N, D'ovidio D, Read M, et al. (2022) An observational survey study on the use of locoregional anaesthesia in non-conventional species: current practice and potential future developments. Animals. 12, 1448.
Vettorato E, Corletto F. (2016) Retrospective assessment of peripheral nerve block techniques used in cats undergoing hindlimb orthopaedic surgery. J Feline Med Surg. 18, 826–833.

ID363

Evaluation of the effects of pregabalin for the management of hospitalized feral cats

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*Equally contributed to the study

Feral cats hospitalization may be challenging. The study aims to evaluate the behavioral, sedative, and analgesic effects of pregabalin in hospitalized feral cats. Pregabalin (10 mg kg^{-1}) was administered orally twice daily, for two days. Clinical parameters, Demeanor Scoring System (DSS) (Zeiler et al. 2014), Feline Grimace Scale (FGS) (Evangelista et al. 2019), and Global Sedation Score (GSS) (Carvalho et al. 2019) were assessed at the admission (Tpre), at 4, 6, 12, 24, 30, 36, 48 and 60 hours after the first administration. Data were calculated as mean ± standard deviation and compared using one-way ANOVA (p<.05). Twenty cats (9 Female; 11 Male) were included with a mean body weight and BCS of 3.73 ± 0,97 and 5/9 ± 0.94, respectively.Mean and standard deviation (% variation) of the scores recorded for the study are reported in Table. (*p < .05 compared to Tpre).

	Tpre	T4	T6	T12	T24	T30	T36	T48	T60
GSS	-1.05 ± 0.68	0.42 ± 0.83* (25.47%)	0.8 ± 0.61* (30.87%)	0.55± 0.68* (28.74%)	0.3 ± 0.73* (26.36%)	0.5 ± 1* (25.87%)	-0.05 ± 0.88 * (19.48%)	0 ± 0.88* (19.47%)	-0.26 ± 0.93* (16.69%)
FGS	3.25 ± 1.33	2.5 ± 1.3* (-7.37%)	2.4 ± 1.53* (-8.5%)	1.95 ± 0.75* (-13%)	1.7 ± 1.26* (-15.5%)	1.8 ± 1.39* (-17.5%)	1.4 ± 1.04* (-18.5%)	1.52 ± 1.26* (-16.32%)	1.42 ± 0.96* (-19.47%)
DSS	15.85 ± 2.68	11.42 ± 4.00* (18.31%)	10.4 ± 3.11* (21.8%)	9.55 ± 2.96* (24.8%)	8.4 ± 4.01* (26.36%)	7.5 ± 3.79* (29.8%)	7.25 ± 3.32* (32.6%)	9.10 ± 4.06* (27.37%)	9.78 ± 4.09* (24.42%)

All scores improved with pregabalin, while physiological parameters remained similar. The study reveals the beneficial effects of pregabalin in hospitalized cats.

References

Zeiler, G. E., Fosgate, G. T., van Vollenhoven, E., & Rioja, E. (2014). Assessment of behavioural changes in domestic cats during short-term hospitalisation. J Feline Med Surg 16(6), 499–503.

Evangelista, M. C., Watanabe, R., Leung, V. S. Y. et al. (2019). Facial expressions of pain in cats: the development and validation of a Feline Grimace Scale. Sci Rep 9(1), 19128.
Carvalho, E. R., Champion, T., Ambrosini, F. et al. (2019). Dexmedetomidine low dose followed by constant rate infusion and antagonism by atipamezole in isoflurane-anesthetized cats: an echocardiographic study. Vet Anaesth Analg 46(1), 43–54.

ID357

Comparison of three scoring systems for assessing induction quality of general anaesthesia in horses

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Induction of general anaesthesia in horses possesses a high risk because of their size and temperament. A variety of induction quality scoring systems (IQSS) are used to evaluate this perilous anaesthetic period in horses (Hubbell et al. 2024), but no attempts to elucidate their reliability have been performed.
Video-recorded anaesthetic inductions from client-owned horses were evaluated by 4 experienced observers twice, with one-month interval. Raters were asked to familiarize themselves with the IQSS before performing each evaluation. Three IQSS were used: visual analogue scale (VAS), the most utilized simple descriptive scale (SDS) (Mama et al. 1995); and a composite grading scale (CGS) proposed by the authors. To assess reliability, intra and inter-rater intraclass correlation coefficient (ICC), and their 95%, confidence intervals (CI) were calculated based on a mean-rating (k = 4), absolute-agreement, 2-way random-effects model. Sample size was calculated based on the standard deviation from a previous study in dogs (Wolfe et al. 2022).
Randomized eight video-records were used. The higher inter-rater ICC found was for the VAS, presenting almost a very good reliability (0.74 ± 0.11). The CGS and the SDS had lower inter-rater agreement than the VAS, classified as moderate to good reliability (0.65 ± 0.22 and 0.63 ± 0.21, respectively). Intra-rater agreement results demonstrated very good reliability for both VAS and SDS (0.82 ± 0.08; 0.81 ± 0.18, respectively); and excellent reliability for the CGS (0.91 ± 0.08).
The barely used VAS and the proposed CGS are reliable and reproducible IQSS in horses, as the widely used SDS. For research purposes, the VAS is advised if multiple evaluators assess induction quality, whereas the CGS would be a better option for studies involving a single observer. Standardizing the VAS as IQSS may facilitate broader multi-centre studies as it is a simple, user-friendly and adequate for short-lasting events scale.

References
Hubbell JAE, Muir WW, Gorenberg E, Hopster K. (2024). A Review of Equine Anesthetic Induction: Are all equine anesthetic inductions 'crash' inductions?. J Equine Vet Sci., 139, 105130–105130.
Mama KR, Steffey E, Pascoe PJ (1995). Evaluation of Propofol as a General Anesthetic for Horses. Vet Surg., 24, 188–194.
Wolfe KL, Hofmeister EH, Clark-Price SC, Reed R, Quandt J. (2022). Development of the Auburn Induction Scale for evaluating induction quality in dogs. Vet Anaesth Analg., 49, 608-614.

ID382

Influence of adding detomidine to a lidocaine paravertebral anaesthesia on proinflammatory cytokines in cows undergoing laparotomy

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The aim was to investigate proinflammatory cytokines (IL-1β, IL-2, IL-6, IL-8, TNF-α) in cows undergoing abomasal displacement surgery, and the potential influence of adding detomidine to the lidocaine proximal paravertebral nerve block (PPNB).
Thirty-nine adult cows requiring surgery to correct left (LAD) or right abomasal displacement (RAD) were enrolled in this prospective, blinded, randomized clinical study. Cows were divided into 2 groups: PPNB using lidocaine (40 ml 2% lidocaine per injection site, n = 20) or lidocaine-detomidine (lidocaine + 5 µg kg^{-1} detomidine equally distributed to the lidocaine syringes, n = 19). The PPNB was performed at T13, L1 and L2 vertebra, always by the same investigator using a blind technique. Citrate blood samples were collected from a jugular catheter before surgery and T2, T12, and T24 hours postoperatively. Plasma was separated and frozen immediately after centrifugation, and later analyzed using multiplex assay based on the Luminex technology and ELISA (IL-6, IL-8) techniques. Following logarithmic transformation of data, linear mixed models were used to investigate the effects of timepoint, PPNB protocol, surgery duration, experience of surgeon, and LAD/RAD on plasma cytokines ($p < 0.05$).
IL-1β increased at T2 (31.5 [8.29 – 254.92] pg mL^{-1}, $p = 0.027$; median [range]), whereas IL-2, decreased at T24 (313.3 [53.41 – 6643.47] pg mL^{-1}, $p = 0.014$) compared to before surgery (IL-1β: 24.5 [8.29 – 279.23], IL-2: 376.8 [39.43 – 8956.87] pg mL^{-1}) with no effect of PPNB protocol. IL-6 increased at T2 (7.6 [0.8 – 32.5] ng mL^{-1}, $p = 0.04$) compared to T0 (5.7 [0.6 – 33.3] ng mL^{-1}) when detomidine was added to the PPNB. No other effects were detected.
In cows undergoing L-/RAD surgery, proinflammatory cytokines exhibited time-dependent changes, with IL-6 being influenced by detomidine administration. However, further research is needed to determine the clinical significance of these findings.

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ID369

Assessment of sedation and recovery following subcutaneous injection of midazolam and two doses of flumazenil in bearded dragons (*Pogona vitticeps*)

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Benzodiazepines have been reported to provide adequate sedation in some reptile species (Bressan et al. 2019). This study evaluated sedation following subcutaneous (SC) injection of midazolam cranial to the thoracic limb, followed by two doses of flumazenil in bearded dragons.In a prospective, randomized, experimental crossover study, eight bearded dragons (age: 13–14 months; five males and three females) underwent three treatments with a washout period of 14–16 days.
Midazolam (1 mg kg^{-1}) was injected SC and animals were video-recorded before (T0) and for 180 minutes postinjection (T10–T180). Thirty minutes after midazolam (T30), SC flumazenil [0.05 mg kg^{-1} (MFL) or 0.1 mg kg^{-1} (MFH)] or placebo [NaCl 0.9% 0.5 ml kg^{-1} (MP)] was given. Videos were randomised and scored by a blinded observer using a validated sedation scale (scale range 0–12). Sedation scores were compared: 1) between time points within treatments and 2) between treatments using Friedman and Dunn's post hoc test. Data are presented as [median (min–max)].
Midazolam resulted in measurable sedation in all treatment groups compared to baseline. At T30, before flumazenil/placebo treatment, scores were: MP; 4 (2 – 5), MFL; 4 (2 – 6), MFH; 4 (1 – 6). At T40, after flumazenil/placebo treatment, scores were: MP; 4 (2 – 5), MFL; 1 (0 – 3), MFH; 1 (0 – 3). At T180, scores were: MP; 5 (2 – 6), MFL; 2 (1 – 4), MFH; 3 (0 – 4). Compared to MP, scores were significantly lower with MFL [T40 (p = 0.026) and T120–T180 (p = 0.018, p = 0.026, p = 0.012)] and MFH [T40–T150 (p = 0.026, p = 0.026, p = 0.008, p = 0.037, p = 0.012, p = 0.026)].
Subcutaneous midazolam induces moderate sedation in bearded dragons. Both doses of flumazenil caused incomplete sedation reversal.

Acknowledgments
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Reference
Bressan, TF, Sobreira T, Carregarro AB (2019). Use of Rodent Sedation Tests to Evaluate Midazolam and Flumazenil in Green Iguanas (Iguana iguana). J Am Assoc Lab Anim Sci 58, 810-816.

Program | Day 2, May 16: Animal welfare

08.30–09.30	Registration
09.30–10.30	**Tools for Supporting Ethical and Critical Cases in Veterinary Medicine** *Prof. Dr. Herwig Grimm* ***Chairs:** Yves Moens	Oliver Dunham*
10.30–11.00	Coffee break, poster viewing, visit exhibition area
11.00–12.00	**Time to Decide: To treat or to Euthanise?** *Dr.med.vet. Svenja Springer* ***Chairs:** Yves Moens	Oliver Dunham*
12.00–12.15	**VAA Journal announcement**
12.15–12.30	**RAAN AVA announcement**
12.30–13.00	Poster presentations
13.00–14.00	Lunch break, visit exhibition area
14.00–15.00	**Redefining Boundaries: The Role of the Anesthetist in Palliative Care** *Dr.med.vet. Shannon Axiak Flammer* ***Chairs:** Iris Wiederstein	Dany Elzahabi*
15.00–15.30	Coffee break, poster viewing, visit exhibition area
15.30–16.30	Abstract presentations Pain & Euthanasia: Room **MARIA THERESIA** ***Chairs:** Iris Wiederstein	Dany Elzahabi* Small Animals: Room **SOPHIE** ***Chairs:** Gudrun Schoeffmann	Mateo Serpieri*
16.30–17.00	**Results of Round table** *Univ.-Prof. Dr.med.vet. Martina Mosing*
17.00–17.15	**Closing ceremony**

Program | Day 2, May 16: Abstract Presentations

15.30–16.30	Pain and Euthanasia: Room **MARIA THERESIA** ***Chairs:*** *Iris Wiederstein	Dany Elzahabi* **Abstracts here**	Small Animals: Room **SOPHIE** ***Chairs:*** *Gudrun Schoeffmann	Mateo Serpieri* **Abstracts here**
15.30–15.45	**Anti-nociceptive and physiologic effects of cannabidiol in horses** *Carroll	Reed*	**The use of topical laryngeal lidocaine with propofol induction and impact on intra-ocular pressure in feline anesthesia** *Forest	Sinclair	Yiew	Tisotti	Fonfara	Monteith*
15.45–16.00	**Evaluation of tranquilization or anesthesia to enhance the quality of carbon dioxide euthanasia of piglets** *Maloney	Caulkett*	**Effect of a single dose of tranexamic acid in peri-operative blood loss in dogs undergoing spinal surgery** *De Celis Perez	Santos	Bell*
16.00–16.15	**Preliminary evaluation of the effects of cannabidiol via buccal administration, with or without oral carprofen, in alleviating osteoarthritis-associated pain in dogs** *Vake	Tomsič	Žgank	Snoj*	**Pharmacokinetics of ropivacaine after intraperitoneal administration to dogs undergoing ovariectomy or ovariohysterectomy: preliminary results** *Verdier	Hummel	Claassen	Al Jalali	Donati	Portela	Razzazi-Fazeli	Mosing*
16.15–16.30	**Opioid sparing effects of intravenous paracetamol combined with NSAIDs as part of a multimodal analgesic protocol in dogs undergoing elective orthopaedic surgery** *Stallard	Murrell	Deutsch*	**Standing Sedation for Corneal Surgery in Horses: Retrospective Review of 19 Cases** *Faucher	Sarra Ferrer	Didier	Jourdan	Douet*

2025 AVA Vienna Meeting
Oral presentations
FRIDAY 16.5.2025
ROOM MARIA THERESIA

Time	Abstract ID	Title	Authors
15:30 – 15:45	362	Anti-nociceptive and physiologic effects of cannabidiol in horses	Carroll | Reed
15:45 – 16:00	361	Evaluation of tranquilization or anesthesia to enhance the quality of carbon dioxide euthanasia of piglets	Maloney | Caulkett
16:00 – 16:15	359	Preliminary evaluation of the effects of cannabidiol via buccal administration, with or without oral carprofen, in alleviating osteoarthritis-associated pain in dogs	Vake | Tomsič | Žgank | Snoj
16:15 – 16:30	356	Opioid sparing effects of intravenous paracetamol combined with NSAIDs as part of a multimodal analgesic protocol in dogs undergoing elective orthopaedic surgery	Stallard | Murrell | Deutsch

ID362

Anti-nociceptive and physiologic effects of cannabidiol in horses

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Cannabidiol (CBD), is a nutraceutical proven to modulate pain in some species. Horses possess cannabinoid receptors but efficacy of CBD as an anti-nociceptive has not been investigated (Galliazzo et al 2021). The aim of this study was to investigate the effect of CBD on thermal and mechanical thresholds and physiologic variables in horses.
Six horses (3 geldings and 3 mares) were enrolled in a prospective, randomized, masked cross-over design. Horses received CBD oil 3 mg kg^{-1} or placebo (sesame oil) orally every 24 hours for 3 days. Thermal and mechanical thresholds were determined at baseline, 4 hours, and 12 hours post treatment administration on each day. Physiologic variables including HR, f_R, and rectal temperature were also recorded at the same time points. Data were analyzed using a generalized mixed model with significance set at $p < 0.05$. A student's t test was used to compare time points. Thermal threshold was elevated in the CBD group above baseline and placebo on Day 2 at 12 hours and on Day 3 at 4 hours ($p \leq 0.036$ for all). There was no effect of treatment on mechanical threshold. Overall least squares mean (LSM) (95% CI) f_R was 17 (15 - 20) and 18 (15 - 21) breaths per minute in the CBD and placebo groups, respectively ($p = 0.033$). There was no effect of treatment on HR or rectal temperature. CBD provided anti-nociception as measured by thermal threshold. Oral administration of CBD appears safe and well tolerated at the dose studied.

References
Galliazzo G, De Silva M, Giancola F, et. al. (2021) Cellular distribution of cannabinoid-related receptors TRPV1, PPAR-gamma, GPR55, and GPR3 in the equine cervical dorsal root ganglia. Equine Vet J. 54, 788-98.

ID361

Evaluation of tranquilization or anesthesia to enhance the quality of carbon dioxide euthanasia of piglets

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Carbon dioxide (CO_2) is commonly used to euthanize piglets. There are concerns that CO_2 used alone is stressful and attempts have been made to reduce the stress of this technique. Intramuscular azaperone 2 mg kg^{-1} (n = 30) or alfaxalone 7 mg kg^{-1} (n = 27) were compared to CO_2 alone (n = 29) in sick piglets (1-6 days old) euthanized with a commercial CO_2 chamber (Euthanex AgPro^R). Euthanasia was video recorded. Body movement (none---frequent) and subjective quality of euthanasia (poor---excellent) were scored via visual analogue scoring (0-10 cm line) by an evaluator unaware of treatment. Time to cessation of movement was also determined. Immediately post euthanasia blood was obtained in a subset of animals (10 per treatment) via cardiac puncture and analyzed for lactate and cortisol concentration. After testing for normality parametric data was analyzed with analysis of variance and a post hoc Tukey test. Non-parametric data was analyzed with a Kruskal-Wallis test and a post hoc Dunn test. Significance $p < 0.05$.
For body movement, alfaxalone (1; 0-4 cm) scored significantly lower than control or azaperone; no differences between control (7; 0-9 cm) and azaperone (7; 1-8 cm) were found. For subjective quality of euthanasia alfaxalone (7.0 +/- 2.0 cm) scored significantly greater than azaperone or control; no difference between control (4.5 +/- 1.2 cm) and azaperone (4.9 +/- 2.2 cm) were found. Time to cessation of movement was significantly faster in alfaxalone (0.8 +/- 0.9 min) than in control (3.4 +/-1.8 min) or azaperone (3.6 +/- 1.5 min). Control was not significantly different than azaperone. Lactate and cortisol concentrations were not significantly different between treatments.
Anesthesia with alfaxalone significantly decreased movement severity, time to cessation of movement and improved the subjective quality of euthanasia. Tranquilization with azaperone did not improve quality of CO_2 euthanasia.

References

Smith, R.K., Rault, J.L., Gates, R.S. and Lay Jr, D.C., 2018. A two-step process of nitrous oxide before carbon dioxide for humanely euthanizing piglets: On-farm trials. Animals, 8(4), p.52.
Çavuşoğlu, E., Rault, J.L., Gates, R. and Lay Jr, D.C., 2020. Behavioral Response of Weaned Pigs during Gas Euthanasia with CO2, CO2 with Butorphanol, or Nitrous Oxide. Animals, 10(5), p.787.

ID359

Preliminary evaluation of the effects of cannabidiol via buccal administration, with or without oral carprofen, in alleviating osteoarthritis-associated pain in dogs

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Osteoarthritis (OA) is a chronic joint disease that causes pain, discomfort and reduces quality of life in dogs. This study evaluated the efficacy of cannabidiol (CBD) alone and combined with carprofen in alleviating OA-associated pain in dogs.
In this double-blind, randomized clinical trial, 21 dogs with OA were randomly assigned to either CBD (2 mg kg^{-1} buccal oil, twice daily, n = 8), Carprofen (2 mg kg^{-1} oral tablets, twice daily, n = 6) or the Combination group (same dosing of both drugs, n = 7). Animals were treated for 28 days and clinically evaluated weekly using two owner questionnaires (Liverpool Osteoarthritis in Dogs, LOAD and Canine Brief Pain Inventory (CBPI)), visual assessment of gait and joint pain, goniometric measurements and physical activity monitoring using a collar-mounted accelerometer. Data were analysed using mixed models and presented as mean with standard errors.
The LOAD questionnaire showed significant pain reduction across all groups, with Carprofen being the most effective (2.2 ± 0.5 weekly score decrease). The CBPI questionnaire found significant pain reduction only in the Combination group (0.39 ± 0.15 weekly decrease). Joint pain decreased significantly in all groups with weekly trends of -0.21 ± 0.05 (CBD), -0.16 ± 0.06 (Carprofen) and -0.19 ± 0.06 (Combination). Physical activity during weekends decreased significantly by 22.8 % ± 10.5 in the Carprofen group and increased by 10 % ± 6.7 in the CBD group. Weekday activity, gait and goniometric measurements remained unchanged in all groups. Minor adverse events were reported in all groups, with the Combination group showing the highest incidence, especially in elevated alkaline phosphatase.
Preliminary results suggest CBD may alleviate OA pain almost as effectively as carprofen, depending on the measure observed. However, combined therapy may increase the risk of adverse events and should be used cautiously. Future investigations are required.

ID356

Investigating the opioid sparing effect of intravenous paracetamol combined with a multimodal analgesic protocol in dogs undergoing elective orthopaedic surgery

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No data evaluating paracetamol in combination with NSAIDs for analgesia in dogs are published.
Thirty dogs undergoing elective orthopaedic surgery were enrolled. Dogs were randomly assigned to receive paracetamol 10 mg kg^{-1} IV after induction of anaesthesia and every 8 hours (Q8) during hospitalisation (test) or not (control). No placebo was used. Premedication consisted of dexmedetomidine 5 µg kg^{-1} and methadone 0.3 mg kg^{-1} IV. Anaesthesia was induced with propofol to effect and maintained with isoflurane in oxygen. Femoral and sciatic nerve blocks were performed with bupivacaine 0.5% 2 mg kg^{-1} total dose. Meloxicam or robenacoxib were administered via a licensed dose, interval and route dependent on ongoing use and anaesthetists' discretion. Methadone 0.1 mg kg^{-1} IV was administered at the subjective discretion of the anaesthetist intraoperatively or if the Glasgow Composite Measure Pain Scale – Short Form score >4/20 as assessed by blinded, trained and experienced staff every two hours post-operatively until discharge (16 - 48 hours). A power calculation was performed, and a sample size of 30 dogs selected. All parameters including rescue methadone requirements were compared between groups using Mann Whitney-U and Fisher's exact tests. $P \leq 0.05$ was considered statistically significant.
Data from 14 (test) and 13 (control) dogs were analysed. Breed, age, sex, weight, surgical time and anaesthetic complications were not significantly different between groups. Median (range) rescue methadone requirements were 0.0 mg kg^{-1} (0.0-0.2), and 0.1 mg kg^{-1} (0.0-0.3) for test and control groups, respectively ($P = 0.169$), with no statistical difference intra- ($P = 0.720$) and postoperatively ($P = 0.239$). Four (test) and 7 (control) dogs required rescue analgesia perioperatively ($P = 0.173$).
With this multimodal analgesic protocol, paracetamol did not provide significant opioid sparing effects in the peri-operative period. Low rescue analgesia requirements in both groups may have masked a clinical benefit.

2025 AVA Vienna Meeting
Oral presentations
FRIDAY 16.5.2025
ROOM SOPHIE

Time	Abstract ID	Title	Authors
15:30 – 15:45	358	The use of topical laryngeal lidocaine with propofol induction and impact on intra-ocular pressure in feline anesthesia	Forest | Sinclair | Yiew | Tisotti | Fonfara | Monteith
15:45 – 16:00	364	Effect of a single dose of tranexamic acid in peri-operative blood loss in dogs undergoing spinal surgery.	De Celis Perez | Santos | Bell
16:00 – 16:15	375	Pharmacokinetics of ropivacaine after intraperitoneal administration to dogs undergoing ovariectomy or ovariohysterectomy: preliminary results	Verdier | Hummel | Claassen | Al Jalali | Donati | Portela | Razzazi-Fazeli | Mosing
16:15 – 16:30	371	Standing Sedation for Corneal Surgery in Horses: Retrospective Review of 19 Cases	Faucher | Sarra Ferrer | Didier | Jourdan | Douet

ID358

The use of topical laryngeal lidocaine with propofol induction and impact on intra-ocular pressure in feline anaesthesia

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Topical laryngeal lidocaine (TL) is commonly recommended for feline intubation. This randomized, prospective, blinded cross-over study evaluated the effects of TL on propofol induction dose requirements, ease of intubation, and intraocular pressure (IOP) in healthy cats.
Eight ASA I cats, (1-3 years old, mean weight 3.47 kg) were anesthetized on 3 occasions. Premedication included midazolam (0.3 mg kg^{-1}, IV) and hydromorphone (0.05 mg kg^{-1},IV), followed by propofol (2 mg kg^{-1} over 20 sec, IV) with additional boluses of 0.5 mg kg^{-1} until animal attained sternal recumbency (induction). Cats were assigned to receive TL (10 mg) or no treatment (control group, CG). Sedation, intubation ease and attempts were scored. Cardiorespiratory variables and IOP (tonometry) were obtained at baseline, after sedation, post-induction, post-intubation, 5 minutes after isoflurane, at the end of inhalant and post-extubation. Analysis included a general linear mixed model with *post-hoc* analysis. Single variables were analyzed for mean differences between groups with student t-test and Wilcoxon test was used to compare scores.
Sedation did not change IOP. Cats that received TL had a lower propofol induction dose (3.5 ± 0.8 mg kg^{-1} vs 4.6 ± 0.9 mg kg^{-1}), lower IOP following intubation (27.45 vs 39.33 mmHg) and better induction ease score compared to the CG. Propofol significantly increased IOP in both groups. No differences were noted in cardiorespiratory variables.
Propofol increased IOP. Cats in the TL group needed lower propofol dose for intubation, had better intubation score and a lower IOP after intubation.

ID364

Effect of a single dose of tranexamic acid on perioperative blood loss in dogs undergoing spinal surgery

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The aim of this prospective clinical study was to determine whether single pre-operative administration of tranexamic acid reduces blood loss in dogs undergoing spinal surgery. One hundred dogs (excluding sighthounds and crosses) scheduled for spinal surgery were enrolled. Dogs were randomly allocated into two groups: treatment (TXA, 15 mg kg^{-1}, IV) and control (equivalent volume of 0.9% NS). Block-randomisation was based on surgical procedure (ventral slot, dorsal laminectomy, hemilaminectomy, complex hemilaminectomy). Blood loss was estimated by measuring surgical swabs and suction jar weights and visual estimation of loses on the surgical drapes and floor. The primary preregistered outcome measure was the total blood loss in mL kg^{-1}. Secondary outcomes were blood loss exceeding 10% of blood volume and clinical requirement for unblinding. Mann-Whitney-U and Chi-squared tests were used to compare groups ($\alpha = 0.05$).
Anaesthesia and surgical times, breed, age or weight were not significantly different between groups. Mean (± SD) blood loss in controls was 5.01 mL kg^{-1} (± 4.49) and 4.80 mL kg^{-1}(± 5.03) in the TXA group ($p = 0.459$). Eleven dogs were unblinded in the control group versus twelve in the TXA group. Blood loss greater than 10% was experienced in 12 dogs, 7 in the control group and 6 in the treatment group. The single pre-operative administration of TXA at 15mg kg^{-1} did not result in reduced blood loss during spinal surgery.
Based on the effect size in the human literature a difference should have been evident (Heyns et al. 2021). This may be due to species differences; dogs have shown to have accelerated fibrinolysis compared to humans and an *in vitro* model has suggested that higher intravenous doses may be necessary (Fletcher al. 2014; Osekavage et al. 2018). Thus, studies assessing higher intravenous doses and guided with *in vivo* coagulation assays may be insightful.

References

Fletcher DJ, Blackstock KJ, Epstein K et al. (2014) Evaluation of tranexamic acid and epsilon-aminocaproic acid concentrations required to inhibit fibrinolysis in plasma of dogs and humans. Am J Vet Res 75, 731-738.
Heyns M, Knight P, Steve AK et al. (2021) A Single Preoperative Dose of Tranexamic Acid Reduces Perioperative Blood Loss: A Meta-analysis. Ann Surg 273, 75-81
Osekavage KE, Brainard BM, Lane SL et al. (2018) Pharmacokinetics of tranexamic acid in healthy dogs and assessment of its antifibrinolytic properties in canine blood. Am J Vet Res 79, 1057-1063.

ID375

Pharmacokinetics of ropivacaine after intraperitoneal administration to dogs undergoing ovariectomy or ovariohysterectomy: preliminary results

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This study evaluated the pharmacokinetics of intraperitoneal ropivacaine in dogs.
Ten dogs undergoing spay were anaesthetised and randomised to receive either 1 (group R1; n = 5) or 3 (group R3; n = 5) mg kg^{-1} of ropivacaine intraperitoneally, diluted with 0.9% sodium chloride to a total volume of 0.8 mL kg^{-1}. After ovariectomy/ovariohysterectomy, solution aliquots were instilled over the ovarian and uterine stumps. Jugular vein blood was sampled 2 minutes before and 5, 10, 15, 30, 45, 60, 120 and 240 minutes after instillation. Plasma ropivacaine concentrations were measured using liquid chromatography–mass spectrometry. Plasma protein binding (PPB) was determined by rapid equilibrium dialysis at each timepoint. Pharmacokinetic parameters based on total concentrations were described by a non-compartmental analysis. Wilcoxon rank-sum or Student T tests were used, according to distribution, to compare mean variables between groups.
Mean PPB was 90.1 (± 4.09) %. For R1 and R3, maximum total ropivacaine plasma concentrations (C_{max}) were 304.0 (± 84.8) and 418.4 (± 87.2) ng mL^{-1} at 30 (15–45) and 5 (5–60) minutes, mean elimination half-life was 106.0 (± 45.6) and 130.0 (± 26.7) minutes, mean clearance (CL) was 0.68 (± 0.31) and 1.10 (± 0.36) L min^{-1}, mean volume of distribution (Vd) was 103.70 (± 69.21) and 208.70 (± 87.28) L, area under the curve from 0 to last time point measured (AUC_{last}) were 34.41 (± 11.70), and 44.48 (± 20.35) min*ng L^{-1}, and to infinity ($AUC_{infinity}$) 51.85 (± 6.61) and 72.81 (± 13.59) min*ng L^{-1}. Although C_{max}, Vd and CL showed a tendency to differ, only the AUC_{last} and $AUC_{infinity}$ were significantly different between groups ($p < 0.05$).
The mean exposure to ropivacaine was higher in R3 but not 3-fold indicating non-linear pharmacokinetics. The total ropivacaine plasma concentration was below previously reported toxic levels in all dogs.

ID 371

Standing Sedation for Corneal Surgery in Horses: Retrospective Review of 19 Cases

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General anesthesia for ophthalmic procedures carries risks in horses. Standing sedation would offer an alternative but is mainly described for non-corneal procedures.
Medical records from the National Veterinary School of Toulouse (2022– 2024) were reviewed. Inclusion criteria were horses undergoing corneal surgery under standing sedation. Collected data included patient demographics, surgeries and durations (Figure 2), sedation protocols (Figure 1), complications. Descriptive statistics were applied. Results are expressed as mean ± SD [min – max].
Nineteen horses were included (19 ± 8,7 [2.5–31.5] years old, 506 ± 163,4 [90–680] kg). The sedation protocol included alpha-2-agonist ± acepromazine ± morphine. Multimodal analgesia was performed with NSAIDs and locoregional anesthesia:

- Topical oxybuprocaine 0.4% (1 mL)
- Retrobulbar block (7–10 mL), auriculopalpebral, infra-trochlear, lacrimal, and frontal nerve blocks (1.5 mL each) zygomatic nerve block (2.5 mL) of lidocaine 1%, bupivacaine 0.25%, adrenaline 5 µg/mL

Anesthesia and surgery lasted 100 ± 36 [52-180] and 61 ± 28 [15-124] minutes. Minor complications occurred in five horses. One with untreated Cushing's disease had transient severe nystagmus and ataxia. No postoperative complications occurred.

Figure 1: Standing sedation protocol
Figure 2: Types and duration of procedures

	Flunixine meglumine (19/19)	Acepromazine (16/19)	Morphine (7/19)	Alpha-2-agonists		
				Detomidine (12/19)	Romifidine (5/19)	Medetomidine (2/19)
Bolus (mg.kg^{-1})	1,1 IV	0,03 [0,03-0,04] IM 0,005 [0,003-0,015] IV	0,1 IV	0,01 [0,005-0,015] IV	0,04 [0,02-0,06] IV	0,003 [0,003-0,003] IV
CRI (mg.kg^{-1}.h^{-1})	/	/	/	0,003-0,060	0,010-0,080	0,003-0,004

Surgery	Keratectomy	Keratectomy + graft	Keratectomy + graft + additional procedure
N	5/19	8/19	6/19
Duration (minutes)	47 ± 21,1 [15-70]	58,8 ± 26 [30-105]	75,2 ± 32 [35-124]

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ID 353

Feasibility of electrical impedance monitoring of dogs in an intensive care unit

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Electrical impedance tomography (EIT) has experienced an upswing in research in recent years,[1] but long-term monitoring in a clinical setting in awake dogs has not been described.
Seven dogs admitted for non-pulmonary diseases were monitored with a custom-made EIT belt (figure 1), which was secured with an elastic bandage after applying ultrasound gel on the washers. The goal was to determine the feasibility of wearing the belt and performing EIT recordings every 4 hours for up to 48 hours. Descriptive statistical analysis was performed using Microsoft® Excel® Version 2402.
A total of 42 measurements were taken in seven dogs, with 2 - 11 measurements (6 ± 3.8) per dog. One dog wore the belt only intermittently due his activity level, while the remaining dogs wore it between 4 and 40 hours, averaging 22 ± 15.5 hours. Interference with monitoring equipment (ECG, pulse oximetry) was not observed. None of the dogs exhibited intolerance of the belt (e.g., unwillingness to lie down, scratching, biting, or removal attempts). A thrombocytopenic dog wore the belt for 40 hours without developing ecchymoses. One dog developed washer-related skin indentations where the skin had been clipped for surgery after wearing the belt for 8 hours. No bleeding was noted, and the dog was not uncomfortable.
The average number of failing electrodes per recording was 2.4 ± 2.6 with a maximum of seven failures, yet images and data were still generated. Between two measurement points, the belt had to be repositioned 14.7% and gel had to be reapplied 36% of the time.
EIT belts are well tolerated by awake dogs for extended periods of time. A better solution for maintaining electrode contact is desirable.

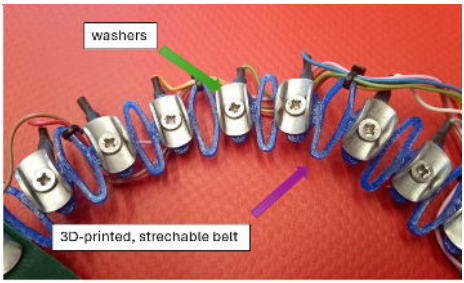

Figure 1. EIT belt with washers.

References

Brabant OA, Byrne DP, Sacks M, et al. (2022) Thoracic Electrical Impedance Tomography - The 2022 Veterinary Consensus Statement. Front Vet Sci 9:946911.

ID 355

Severe bradycardia and asystole in a dog after intravenous metoclopramide injection

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A 5.5-month-old female English-Bulldog with a history of resolved bronchopneumonia was scheduled for a CT scan and corrective surgery for a brachycephalic obstructive airway syndrome. Clinical examination was otherwise unremarkable. The dog was premedicated intravenously with maropitant (1 mg kg^{-1}), pantoprazole (1 mg kg^{-1}) and acepromazine (20 µg kg^{-1}). Anaesthesia was induced 105 minutes later with alfaxalone IV (2 mg kg^{-1}) following 5 minutes of preoxygenation and the trachea was intubated**.** Physiological parameters post-induction were unremarkable (HR 100 bpm, MAP 75 mmHg) and isoflurane in oxygen administration was started. Five minutes later, metoclopramide IV (1 mg kg^{-1}, Emeprid solution injectable, Ceva, France) was administered over one minute. Immediately after, the dog developed sinus bradycardia (4 bpm) rapidly progressing to asystole, a drop in EtCO2 and apnoea. Cardiopulmonary resuscitation was started, isoflurane discontinued, and atropine (40 µg kg^{-1}) administered IV as first-line treatment. Within one-minute, spontaneous circulation was restored and hemodynamic parameters stabilized (HR 140 bpm, MAP 78 mmHg, EtCO2 43 mmHg). The CT-scan and surgery proceeded without complications. The dog recovered and was discharged the same day. A Naranjo probability score of 6 suggested a probable causal relationship between metoclopramide and the arrythmia. No alternative cause for the cardiac arrest was identified after a thorough case review.
Metoclopramide-induced severe bradycardia and cardiac arrest has been reported in humans, potentially due to sodium channel inhibition (Stoetzer at al. 2017, Rumore 2012). To our knowledge, metoclopramide-induced asystole has not been reported in dogs. This dog had previously received lower dose of metoclopramide IV (0.5 mg kg^{-1} IV every 8 hours) and orally without complication.
Metoclopramide-induced cardiac arrest was managed due to rapid detection of ECG abnormalities. ECG monitoring appear recommended during high-dose metoclopramide administration in anaesthetised dogs.

References

Rumore MM. (2012) Cardiovascular adverse effects of metoclopramide: Review of literature. International Journal of Case Reports and Images 3(5), 1-10.
Stoetzer C, Voelker M, Doll T, et al. (2017) Cardiotoxic Antiemetics Metoclopramide and Domperidone Block Cardiac Voltage-Gated Na+ Channels. Anesthesia and Analgesia 124, 52–60.

ID 360

PHARMACOKINETICS OF TRAMADOL AND O-DESMETHYLTRAMADOL METABOLITE IN BOA *(Boa constrictor constrictor)*

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Tramadol is commonly used for pain management, but its pharmacokinetics in reptiles, especially snakes, are not well understood. *Boa constrictors* are an ideal model for studying tramadol's absorption, metabolism, and elimination due to their unique physiological characteristics.
Ten healthy male *Boa constrictors* (4.33 ± 1.5 kg) were administered tramadol (5 mg·kg^{-1}) via intramuscular in the epaxial musculature at the cranial third (TRIM) or intravenous in the paravertebral vein at the cranial third (TRIV), with a 45-day interval between treatments. Blood samples were collected at various time points: 0 (before tramadol injection), 1 (20 min after injection), 2 (40 min after injection), and 3, 4, 5, 6, 7, 8, and 9 hours (1, 2, 4, 8, 12, 18, and 26 hours post-injection). The total blood collected per animal did not exceed 1% of its weight, pharmacokinetics were analyzed using high-performance liquid chromatography and a pharmacokinetic model (R software 4.3.0). A paired Student's T-test was used for all parametric variables, except clearance analyzed with the Wilcoxon test, with statistical significance set at 5%.
For the TRIM group, tramadol reached a maximum concentration of 2.58 µg·mL^{-1}, with a volume of distribution (Vd) of 10.58 ± 2.91 L·kg^{-1}, clearance of 0.36 ± 0.07 L·kg^{-1}·h^{-1}, and a half-life of 19.96 ± 8.34 h. For the TRIV group, values were 3.39 µg·mL^{-1}, 5.60 ± 1.69 L·kg^{-1}, 0.22 ± 0.05 L·kg^{-1}·h^{-1}, and 17.32 ± 7.55 h, respectively. The active metabolite M1 had a maximum concentration of 0.58 µg·mL^{-1} (TRIM) and 0.59 µg·mL^{-1} (TRIV), with half-lives of 49.89 ± 10.8 h and 35.66 ± 10.85 h. Tramadol's intramuscular bioavailability was 61%, with M1 detectable 20 minutes after administration.
Tramadol is rapidly converted into M1, maintaining high concentrations for extended periods. The intramuscular route proves to be a viable alternative due to its favorable bioavailability in *Boa constrictors*.

ID 366

Can the parasympathetic tone activity (PTA) monitor be used in ferrets?

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Monitoring the Parasympathetic Tone Activity (PTA) index (0 – 100) is a non-invasive, real-time analysis of nociception in animals undergoing general anaesthesia based on heart rate variability; PTA indices > 50 suggest the absence of nociception.
Three ferrets presented for dental surgery (n = 2) and laparotomy (n = 1) were monitored using the PTA index additionally to multi parameter monitoring. Premedication was based on an α2-agonist, plus opioid SC (n = 2) and IV (n = 1) protocol. One ferret received additional ketamine SC. Induction was performed either with propofol (n = 2) or alfaxalone (n = 1) IV. Maintenance consisted of isoflurane inhalant and dexmedetomidine continuous rate infusion (n = 2) or a total intravenous anesthesia protocol with propofol, lidocaine and fentanyl (n = 1). Dental cases received an infraorbital and inferior alveolar block while in the laparotomy a splash block was performed.
Events with a decrease in PTA index < 50 together with a hemodynamic reaction (n = 1) as well as drops in PTA numbers without hemodynamic reaction (n = 7) were recorded (based on either the absence of local blocks on one side, inflammatory processes or breakthrough nociception). There were either an association with surgical stimulation (n = 4), technical issues (n = 1) or superficial plane of anaesthesia (n = 2). Last one included high jaw tone, tongue movement, HR > 180 beats minute^{-1} and MAP > 91 mmHg, but no nociceptive manipulation. Increases in the PTA index > 55 were observed either following fentanyl boli administration or increasing depth of anaesthesia with isoflurane and dexmedetomidine infusion.
The PTA index as used in this case series could serve as a valuable additional tool for evaluating nociception or too light plane of anaesthesia, aimed at ensuring animal welfare in exotic species with limited available data.

References

Ruíz-López P, Domínguez JM, Mar Granados M. (2020) Intraoperative nociception-antinociception monitors: A review from the veterinary perspective. Vet Anae and Anal. 47, 162-159
Van Zeeland Y, Schoemaker NJ. (2023) Pain Recognition in Ferrets. Vet Clin Exot Anim. 26, 229-24
MDoloris Medical Systems. (2017). PTA monitor® [Medical device]. Lille, France. Retrieved from https://www.mdoloris.com/products-mdoloris/pta-monitor/ [Accessed 28 Jan 2025].

ID 368

Pharmacokinetics of intravenously administered maropitant in pigs (a pilot study)

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Maropitant is an antiemetic (Hay Kraus, 2017) and inhalation anaesthetics sparing drug (Niyom et al., 2013). In this study, the pharmacokinetics of IV administered maropitant in pigs were investigated, as only the pharmacokinetics of IM administration in pigs have been investigated to date (Smith et al., 2023). Maropitant was administered at the end of anaesthesia for the primary study evaluating the safety and efficacy of electrochemotherapy of portal vein and adjacent tissues in 12 pigs. A peripherally inserted central catheter (PICC) was placed at the end of anaesthesia and maropitant 1 mg kg^{-1} was administered IV. The first blood sample, which was taken 0.5 hours after the administration of maropitant, was already from awake pigs. Blood samples for pharmacokinetic analysis were collected after induction to anaesthesia (baseline) and 0.5, 1, 2, 4, 8, 12, 16, 20 and 24 hours after the administration of maropitant. Plasma levels of maropitant were determined by liquid chromatography coupled with tandem mass spectrometry. Standard pharmacokinetic parameters (Table 1) were calculated by analysing the plasma concentration–time curves (Graph Pad Prism).

Table 1. Pharmacokinetic parameters of IV maropitant 1 mg kg^{-1}

C_0 (ng mL^{-1})	$t_{1/2}$ (hours)	AUC (ng hour mL^{-1})	V_D (L kg^{-1})	Cl_p (L $hour^{-1}$ kg^{-1})
795.3 ± 177.0	6.27 ± 1.44	2707.67 ± 508.59	3.43 ± 1.00	0.384 ± 0.072

AUC, area under the plasma concentration–time curve; Cl_p, plasma clearance; C_0, initial plasma concentration; $t_{1/2}$, elimination half-life; V_D, volume of distribution (mean ± SD).

The initial plasma concentration after IV administration was determined by extrapolation of maropitant elimination curve, which showed a mono-exponential decline. Compared to IM administration (Smith et al., 2023), the $t_{1/2}$ was almost identical, but the AUC was twice as high.

References

Hay Kraus BL. (2017) Spotlight on the perioperative use of maropitant citrate. Vet Med (Auckl). 24, 41-51.
Niyom S, Boscan P, Twedt DC, et al. (2013) Effect of maropitant, a neurokinin-1 receptor antagonist, on the minimum alveolar concentration of sevoflurane during stimulation of the ovarian ligament in cats. Vet Anaesth Analg. 40, 425-31.
Smith JS, Gebert JE, Ebner LS, et al. (2023) Pharmacokinetics of intramuscular maropitant in pigs (Sus scrofa domesticus). J Vet Pharmacol Ther. 46, 158-164.

ID376

Ketamine-Medetomidine Protocol for Chemical Restraint of Wild Roe Deer (*Capreolus capreolus*)

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This study aimed to evaluate a ketamine-medetomidine protocol for chemical restraint of wild roe deer (*Capreolus capreolus*) rescued and transported to a wildlife rehabilitation centre.
Thirteen roe deer (12 males, 1 female; body weight 21 [20 – 24] kg) received IM ketamine (1.5 mg kg^{-1}) and medetomidine (30 µg kg^{-1}), administered via blowpipe or direct injection, depending on the circumstances. For all subjects, induction time (time to immobilisation) was recorded and key physiological variables (HR, f_R, and SpO_2) were monitored every 5 minutes. Euthanasia was performed when rehabilitation was deemed unfeasible. For the remaining individuals, atipamezole (0.15 mg kg^{-1}, administered half IV and half IM) was used as a reversal agent, and time to standing was recorded. The quality of induction, immobilisation, and recovery was assessed using a five-point scale (1 = poor, 5 = excellent) (Avni-Magen et al. 2019). Physiological variables at different time points were analyzed within the group using the Friedman test, with significance set at $p < 0.05$.
Results are reported as median (range). The induction time was 5 (4 – 7) minutes. The HR was 67 (55 – 77) beats $minute^{-1}$, f_R was 28 (24 – 36) breaths $minute^{-1}$, and SpO_2 was 93 (92 – 96) %. Euthanasia was required in six cases. Atipamezole was administered 72 (45 – 109) minutes post-induction, with animals standing in 2 (2 – 4) minutes. Scores for induction, immobilisation, and recovery were 5 (4 – 5), 4 (4 – 4), and 4 (3 – 5), respectively. No anaesthetic-related complications were observed. The Friedman test did not reveal significant *p* values.
Roe deer frequently sustain severe injuries, necessitating chemical restraint for safe transport to wildlife centres and to mitigate the risk of capture myopathy (Varga 2016, Pacini et al. 2022). This protocol ensured effective restraint, and its partial reversibility enables prompt recovery and release, making it suitable for field applications.

References

Varga M. (2016) Deer. In: BSAVA Manual of Wildlife Casualties (2nd edn). Mullineaux E, Keeble E (eds). BSAVA, UK. pp. 275-298.
Avni-Magen N, Zafrir B, King R, et al. (2019) Immobilization of captive Persian fallow deer (*Dama dama mesopotamica*) using medetomidine-ketamine or medetomidine-midazolam. Vet Anaesth Analg. 46, 662-666.
Pacini M, Bonelli F, Lubas G, Sgorbini M. (2022) Relationship between Blood Parameters and Outcome in Rescued Roe Deer. Animals. 12, 3469.

ID 377

Successful inhalation anaesthesia with ultrasound-guided regional anaesthesia in a patas monkey *(Erythrocebus patas)* for the treatment of an iatrogenic tibial fracture

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A 10-year-old, 6.7 kg, clinically unremarkable, female patas monkey was sedated for relocation using a blowpipe-delivered dart, which instead of the right lateral thigh, struck the left proximomedial tibia. Initial examination revealed a puncture wound with stable bone palpation. Fourteen days later, a non-weight bearing lameness was observed.
After 6 mg kg^{-1} oral diazepam, the monkey willingly climbed into a transport box and could be injected by hand with 0.05 mg kg^{-1} medetomidine and 5 mg kg^{-1} ketamine IM for sedation. Following placement of an intravenous catheter, general anaesthesia was induced with propofol IV, and maintained with sevoflurane in 100% oxygen after orotracheal intubation. Radiographic examination revealed a long oblique fracture of the tibia. Ultrasound-guided regional anaesthesia of the femoral and sciatic nerves using 2 mg kg^{-1} bupivacaine was performed before osteosynthesis with a 3.5 mm locking compression plate.
Anaesthetic complications included hypothermia and hypotension (MAP 55 ± 5 mmHg). The latter proved non-responsive to fluid administration and was successfully treated with dobutamine IV (3 - 5 µg kg^{-1} $minute^{-1}$). Non-invasive oscillometric blood pressure measurement could be performed on the forearm. The other vital parameters were within the normal reference range for old world monkeys (Bush et al. 1977; Morita 1995) during the entire procedure (4 hours). After successful completion of surgery, the monkey recovered in its transport box. Cage rest, oral enrofloxacin and meloxicam were continued for ten days. Other than temporary non weight bearing, further recovery was unremarkable.
This case report describes the successful anaesthetic management for osteosynthesis of a presumably dart-induced tibial fracture in a monkey. During anaesthesia, no signs indicative of nociception were observed, suggesting effective regional anaesthesia. Postoperative analgesia beyond meloxicam might have been beneficial but was not used due to a lack of experience with oral bioavailability and tolerability of opioids in this species.

References

Bush M, Custer R, Smeller J, Bush LM. (1977) Physiologic Measures of Nonhuman Primates During Physical Restraint and Chemical Immobilization. *J Am Vet Med Assoc* 171(9), 866–869.

Morita H. (1995) Ventricular wall thickness and blood pressure values in normal cynomolgus monkeys. J Vet Med Sci 57, 1045–1048.

ID 379

Challenging peri-anaesthetic management in a one-day-0ld dog undergoing diaphragmatic hernia repair

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There is a lack of literature on veterinary neonatal anaesthesia, which is challenging (Martin Jurado et al. 2011).
A 1-day-old male German Shepherd weighing 0.3 kg was referred for treatment after sustaining trauma, likely from the mother. The puppy presented with rib fractures, soft tissue wounds, and a diaphragmatic hernia. Due to severe dyspnea, surgical intervention for diaphragmatic hernia repair was deemed necessary. Owner declined euthanasia and chose surgery after discussing medical and ethical issues. After applying a topical local anesthetic cream, the left jugular vein was catheterized using a 24-gauge catheter. Premedication was achieved with 0.3 mg of ketamine IV. Following pre-oxygenation, anesthesia was induced with 0.6 mg of alfaxalone IV, and the trachea was intubated with a 2.5 mm uncuffed endotracheal tube. A Mapleson C breathing system was used to deliver oxygen at 1 L min^{-1}, with manual intermittent positive pressure ventilation as needed. Anesthesia was maintained with incremental alfaxalone boluses. Monitoring included SpO2, ECG, respiratory rate (fR), heart rate (HR), temperature, and blood glucose levels. Twenty minutes post-induction, bradycardia developed (HR 130 bpm), prompting the administration of 0.06 mg of atropine IV, which increased the heart rate to 160 bpm. Atropine was repeated thirty minutes later, resulting in an increased HR of 188 bpm. At this time, the glucometer failed to register blood glucose, so 0.5 mg/kg of 33% glucose was administered, raising glucose levels to 36 mg/dL. Anesthesia lasted 60 minutes. Upon recovery, vital signs were recorded as T 36.8°C, HR 200 bpm, RR 10 bpm. Postoperatively, the puppy was monitored in the intensive care unit, receiving Ringer's lactate, antibiotics, and glucose supplementation, along with analgesia via buprenorphine. Despite these efforts, the puppy developed respiratory complications and unfortunately died two days post-surgery.
This report highlights the challenges of peri-anesthetic management in critically ill neonatal patients.

References

Martin Jurado O, Mosing M, Bettschart-Wolfensberger R. (2011) Anaesthetic Management of a 1-Month-Old Puppy Undergoing Lateral Thoracotomy for Vascular Ring Anomaly Correction, *Case Reports in Veterinary Medicine*, 536064.

ID 380

Retroperitoneal haematoma following ultrasound-guided vetro-dorsal quadratus lumborum block in a cat undergoing nephrectomy

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Ultrasound-guided quadratus lumborum block (QLB) is widely used in veterinary practice; however, complications may include retroperitoneal haematomas (Chiavaccini 2024).
A 5-year-old male European Shorthair cat, weighing 5.7 kg, underwent nephrectomy due to severe hydronephrosis affecting the left kidney. Preoperative complete blood work revealed moderate anaemia [Hct 21.7% (29-44.3%)], thrombocytopenia [PLT 55,000µL^{-1} (range 144-430 K µL^{-1})], and mild hypoalbuminaemia [2.7 gdL^{-1} (2.9- 3.7 gdL^{-1})]; decreased creatinine [42 mg/dL 1.09- 1.95 mg dl^{-1})]; no other abnormalities were detected and the cat was otherwise healthy. Sedation included IV methadone at 0.2 mg kg^{-1}; anesthesia was induced with IV propofol at 15 mg and midazolam at 1 mg. After endotracheal intubation, anesthesia was maintained with isoflurane in oxygen and medical air. Intermittent positive pressure ventilation was applied to maintain normocapnia. Continuous monitoring of HR, $f_{R,}$ IBP and SpO_2 was provided. After surgical preparation, a bilateral ventro-dorsal QLB was performed under ultrasound guidance (dos Santos et al. 2022). Using a high-frequency linear transducer, the quadratus lumborum muscle was identified at the level of the second lumbar vertebra. A 22-gauge 50-mm echogenic single shot block needle was inserted in-plane in a ventrolateral-to-dorsomedial direction. The needle tip was carefully positioned between the vertebral body and the dorsal surface of the quadratus lumborum muscle, and 0.5 ml kg^{-1} of 0.33% ropivacaine was injected bilaterally after confirming negative aspiration. During celiotomy, a retroperitoneal hematoma was identified cranial to the right kidney. The hematoma was localized, and no active bleeding was observed. The surgery was completed without further complications. Recovery was uneventful. The cat was discharged 48 hours postoperatively.
This case demonstrates the potential for retroperitoneal haematomas following dorso-ventral QLB in cats, emphasising the importance of technical precision and procedural planning.

References

Chiavaccini L, Solari F, Ham K, et al. (2024). Retroperitoneal hematoma after dorsal quadratus lumborum block in two dogs. Vet Anaesth Analg.51,107–114

dos Santos JD, Ginja M, Alves-Pimenta S, et al. (2022). Comparison of dorsoventral and ventrodorsal approaches for ultrasound-guided quadratus lumborum block in cats: a cadaver study. Vet Anaesth Analg. 49, 481–489.

ID 381

Retroperitoneal haematoma after ultrasound-guided vetro-dorsal quadratus lumborum interfascial plane block in two dogs

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The quadratus lumborum block (QLB) is nowadays commonly performed, with retroperitoneal hematomas associated with dorsal QLB previously reported in dogs (Chiavaccini et al. 2024).
This report describes retroperitoneal haematomas after ventro-dorsal QLB in two dogs.
Both cases showed mild coagulation changes that did not require treatment before surgery and did not preclude it. Case 1 involved an 11-year-old, 22.7 kg mixed-breed dog undergoing midline celiotomy for liver lobectomy and splenectomy. The anesthetic protocol included methadone (4.5 mg) and dexmedetomidine (0.011 mg) IV. Anaesthesia was induced with propofol (79.5 mg) and midazolam (2.3 mg) IV, and maintained with sevoflurane in an oxygen/air mixture. Case 2 involved a 3-year-old, 1.6 kg female Maltese undergoing extrahepatic portosystemic shunt attenuation. The anesthetic protocol included dexmedetomidine (0.0016 mg) and fentanyl (0.0032 mg) IV; anaesthesia was induced with propofol (4.8 mg) IV and maintained with isoflurane in an oxygen/air mixture. Dogs were positioned in lateral recumbency and a bilateral QL interfascial plane block was performed, as previously described (Garbin et al., 2020). In case 1, a 22 gauge, 80 mm and in case 2 a 22 gauge, 50 mm, a echogenic single-shot block needle was inserted in a ventrolateral to dorsomedial direction, in plane to a high-frequency linear transducer. Ropivacaine 0.33% (3 mg kg^{-1}) with dexmedetomidine (0.001 mg ml^{-1}) was injected in each dog. In both cases, monitoring included ECG, capnography, SpO_2, invasive arterial blood pressure, and esophageal temperature. During both surgeries, a hematoma in the left retroperitoneal space was observed, with no active bleeding. Both procedures proceeded uneventfully, rescue analgesia was not required; the dogs recovered well with stable clinical parameters postoperatively.
Regardless of the approach used to perform the QLB, attention must be paid to the technique and to coagulation disorders or clinical conditions that could increase the risk of bleeding.

References

Chiavaccini L, Solari FP, Ham KM, Regier PJ, Vettorato E, Portela DA. (2024) Retroperitoneal hematoma after dorsal quadratus lumborum block in two dogs. Vet Anaesth Analg. 51, 112-114.
Garbin M, Portela DA, Bertolizio G, Garcia-Pereira F, Gallastegui A, Otero PE. (2020) Description of ultrasound-guided quadratus lumborum block technique and evaluation of injectate spread in canine cadavers. Vet Anaesth Analg. 47, 249-258.

ID 383

Peri-anaesthetic management for portal vein venotomy in a dog

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Portal vein venotomy has recently been described (Hertel et al., 2025); this report focuses on the anaesthetic protocol.
A 9-year-old male West Highland White Terrier, weighing 8.1 kg, underwent partial pancreatectomy and portal vein venotomy for pancreatic carcinoma with vascular invasion. The day before surgery, under general anaesthesia, an epidural catheter (20-gauge) was inserted at the 6 - 7 lumbar intervertebral space with the tip positioned at the level of lumbar vertebrae 3. On surgery day, premedication included IV dexmedetomidine (0.0081 mg) and methadone (1.62 mg). General anesthesia was induced with propofol (50 mg IV) and maintained with isoflurane in oxygen and medical air. Intermittent positive pressure ventilation was used to maintain normocapnia. Monitoring included ECG, capnography, pulse oximetry, invasive arterial blood pressure, and esophageal temperature. Following surgical preparation, bilateral ultrasound-guided quadratus lumborum blocks with ropivacaine 0.33% (4 ml) (Garbin et al., 2020) and transversus abdominis plane blocks with ropivacaine 0.2% (2.4 ml) (Schroeder et al., 2011) were performed, along with epidural morphine (1.6 mg diluted in 2 ml saline), in order to achieve cardio-vascular stability. During surgery, vital signs were within normal ranges except for hypothermia. The portal vein was clamped for 15 minutes, with a minimum MAP of 56 mmHg recorded during that period. Minimal non-hemodynamically significant bleeding occurred therefore, two 5 ml/kg Ringer Lactate boluses were administered. Recovery was rapid and smooth; after extubation, methadone (1.62 mg) and dexmedetomidine (0.0081 mg) were administered IV. Post-operative analgesia included epidural ropivacaine 0.33% (diluted in 2 ml saline every 6-8 hours) and morphine (0.8 mg every 24h) and IV methadone, according to the pain scale. Maropitant, antibiotics, and steroids were administered. The epidural catheter was removed the day after surgery and the dog was discharged 4 days after.

References

Garbin M, Portela DA, Bertolizio G, et al. (2020) Description of ultrasound-guided quadratus lumborum block technique and evaluation of injectate spread in canine cadavers. Vet Anaesth Analg. 47, 249-258.
Hertel B, Bortolami E, Furlanello T, et al. (2025). Successful venotomy for portal tumor thrombus removal due to pancreatic carcinoma in a dog. Vet Surg. Feb 6. doi: 10.1111/vsu.14225. Epub ahead of print.
Schroeder CA, Snyder LB, Tearney CC, et al. (2011) Ultrasound-guided transversusabdominis plane block in the dog: an anatomical evaluation. Vet Anaesth Analg. 315:38, 267-271

ID 385

Use of MDoloris PTA monitor for evaluation of equine nociception in healthy standing horses

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Assessing pain in animals is challenging especially in clinical settings. Following the results of the Analgesia Nociception Index (ANI) technology to monitor human patients, MDoloris developed PTA (Parasympathetic Tone Activity), non invasive system to evaluate animals autonomic nervous system (ANS) response to nociception, and so level of analgesia. Based on heart rate variability analysis from ECG acquisition, PTA values (range 0 – 100) represent percentage of the parasympathetic part of the ANS activity. The higher the PTA value, the lower the nociception. PTA range 50 – 100 evokes adequate analgesia in small animals under general anesthesia.
In order to interpret adequately PTA index in horses and look for reference values, a clinical trial was performed in 6 standing resting healthy horses (3 mares, 2 geldings, 1 male). PTA and HR were continuously recorded through ECG during 5 mins, every morning (before paddock) and evening for 50 days. Times to set up and stabilize measurements were noticed. Morning and evening PTA and HR means were compared by and between horses. Student t-test was used to determine any statistic differences ($p < 0.05$).
HR was stable from t0 after calibration. PTA needed 30s to set up (t0 value 20% lower). PTA values were easily recorded and stay stable during the 5 mins. Lost of signal happened sometimes with sudden or important movements of the horse. PTA mean values were not different between mornings and evenings (54 +- 4 ; $p = 0.12$; mini 48 ; maxi 61) while evening HR was a little higher (33 vs 32 ; $p = 0.02$).
More studies are needed to investigate clinical situations and their analgesic management, but MDoloris PTA index seems to be considered as a valuable objective parameter of nociception, even in standing horses, with a 50 and above range as reference for "healthy zone".

ID386

A study of the anatomy and sonoanatomy of the bovine brachium

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The sonoanatomy to perform radial, ulnar, median and musculocutaneous (RUMM) nerves block is not well described in ruminants.
One calf (referred for euthanasia due to reasons unrelated to this study) was included. After sedation with xylazine (0.2 mg kg^{-1} intramuscularly) the right brachium was scanned bilaterally using a linear ultrasound probe, oriented transversely to the humerus, and the images were recorded. Subsequently, ketamine (2 mg kg^{-1} intravenously) was administered, and the RUMM nerves were injected with tissue dye (5 mL each; yellow, green, and blue for the radial, median/musculocutaneous, and ulnar nerves, respectively), using both ultrasound and peripheral nerve stimulation guidance, and the calf euthanized. In sequence, the arteries and veins were filled with red and blue latex, respectively. The calf was frozen, and transverse cross-sections (1 to 6) were performed along the brachium (Figure 1).
Each nerve was fully stained with the respective dye injected, tracing its trajectory from the distal to the proximal humerus. All main arteries of the forelimb were completely filled with red latex, while the main veins were completely filled with blue latex from cross-sections 1 to 4. Anatomical cross-sections 3, 4, and 5 were successfully correlated with the sonoanatomy; the RUMM nerves were identifiable through a single acoustic window from both the medial and lateral aspects.
In conclusion, the RUMM nerves were visible on ultrasound along the mid to proximal humerus in this calf, from either the lateral or medial side of the brachium. Further studies involving a larger sample size are needed to confirm the reproducibility of this technique.

Fig 1. (a) Anatomical cross-sections (white dashed lines numbered 1 to 6) performed on the right forelimb of a calf cadaver, lateral view. (b) Illustration of the same cross-sections shown on a drawing of a calf right forelimb skeleton (lateral view).

General

Date
May 14–16, 2025

Limited number of participants
pre-conference day: 80 attendees
main conference days: 200 attendees

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