2025

IV International Congress of Education in Animal Sciences (ICEAS)

ICEAS International Congress of Education in Animal Sciences

26 – 27 June 2025

Lublin, Poland

International Society of Education in Animal Sciences (ISEAS)

ICEAS IV PROCEEDINGS BOOK

IV International Congress of Education in Animal Sciences

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Roman Dąbrowski, Marco Wochnik, Kamila Maj

26 - 27 June 2025

Lublin, Poland

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ICEAS International Congress of Education in Animal Sciences

PROGRAM IV ICEAS

FIRST DAY – 26th June 2025

09:00 – 09:30 - Registration

09:30 – 09:45 - Inaugural talk

09:45 – 12:00 - Session 1: The cycle of stress: students, educators and animals

(Moderator: Marta Kankofer)

09:45 – 10:15 - Stress assessment methods in students, teachers and animals in higher education (J. Alandrović, B. Beer Ljubić, L. Pađen)

10:15 – 10:45 - Clinic for internal medicine, place of double dose of stress - for students and patients (I. Šmit)

10:45 – 11:15 - Under pressure: understanding the stress caused by pet owners among veterinarians (M. Crnogaj)

11:15 – 11:30 - OP1 (Biegała et al.)

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(Moderator: Jasna Aladrović)

12:15 – 12:45 - Practical classes in slaughterhouse – students' expectations and challenges for teachers (M. Gondek, M. Ziomek)

12:45 – 13:15 - Alternative to slaughterhouse classes – solutions for high-sensitivity students (M. Ziomek, M. Gondek)

13:15 – 13:30 – OP4 (Brzezińska et al.)

13:30 – 13:45 - OP5 (Lehunšek Panić) Ingrida Monkevičienė

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(Moderator: Ingrida Monkevičienė)

15:00 – 15:30 - Brights and shadows of AI tools in teaching veterinary students (M. Kankofer)

15:30 – 16:00 - AI in in education- A paradigm shift in teaching and learning or a new normal? (R. Macharia)

16.00 – 16.30 – Round table: AI in Higher Education (Moderator: A. Muñoz-Prieto. Participants: M. Kankofer, R. Macharia, J. Antończyk, W. Górecka)

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17:00 – 18:00 - Coffee break and Posters session

18:00 – ISEAS General Meeting

20:00 - Gala Dinner (https://www.facebook.com/wloskikoper#)

SECOND DAY – 27th June 2025

09:00 – 10:45 - Session 4: Teaching as part of the activity of student's research circles

(Moderator: Roman Dąbrowski)

09:00 – 09:30 - Scientific work in student's research circles- openness to knowledge and practice or waste of time? (M. Wójcik)

09:30 – 10:00 - The involvement of students in scientific research, opportunities and problems (L. Paden, J. Aladrović)

10:00 – 10:15 – OP9 (Żejma et al.)

10:15 – 10:30 – OP10 (Žura Žaja et al.)

10:30 – 10:45 – OP11 (Cunha et al.)

10:45 – Coffee break

11:00 – 12:00 Awards and closing ceremony

12.00 – 14:00 Trip to Museum of Lublin's Village (https://skansen.lublin.pl/en/)

14:30 – Lunch (ICDiTZ, Conference Hall, Gleboka 30)

ICEAS International Congress of Education in Animal Sciences

INVITED PRESENTATIONS

STRESS ASSESSMENT METHODS IN STUDENTS, TEACHERS, AND ANIMALS IN HIGHER EDUCATION

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ABSTRACT
Stressful stimuli activated hypothalamic-pituitary-adrenal axis and the sympathetic-adrenomedullary system and influence and alters the homeostasis of the organism. Stress assessment methods in higher education are essential for understanding the well-being of students, teachers, and animals involved in learning environments. This abstract reviews various approaches to measuring stress across these groups, highlighting both subjective and objective methodologies. For students and teachers, common assessment techniques include self-report questionnaires, physiological measurements (such as cortisol levels, heart rate variability, electrodermal activity, blood pressure, electroencephalography, body temperature), and behavioral observations. These methods provide insights into stressors related to academic pressures, workload, and interpersonal relationships. In the case of animals used in educational settings, stress assessment often involves monitoring physiological responses (heart rate or stress hormone levels) and behavioral changes (such as increased aggression or withdrawal, repetitive behaviours, changes in vocalizations, altered feeding or sleeping patterns) in response to environmental factors. By employing a combination of these methods, educators and researchers can gain a better insight in stress in higher education, finding methods and tools to improve support and create a healthier learning environment. There is a need for standardized assessment tools that can be used across different educational contexts to ensure consistency and reliability in measuring stress.

KEYWORDS: stress assessment methods; higher education; students; teachers; animals

CLINIC FOR INTERNAL MEDICINE, PLACE OF DOUBLE DOSE OF STRESS - FOR STUDENTS AND PATIENTS

An Integrated Approach to Reducing Stress in Veterinary Students and Their Patients

Iva Šmit

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ABSTRACT

Studying veterinary medicine is one of the most demanding academic experiences. Research shows that veterinary students are more likely to suffer from anxiety and depression than their peers in other professions (Bartram and Baldwin, 2010). In response to these challenges, many schools are introducing skills labs and high-fidelity simulation training that allow students to practice under controlled conditions (Pollock et al., 2024). On the other hand, veterinary examinations can be a source of stress for patients. A significant percentage of dogs show signs of anxiety during veterinary visits, which can lead to aggression and make diagnosis more difficult (Edwards et al, 2019). To reduce stress in animals, approaches such as Fear Free and low-stress handling have been developed. These approaches not only reduce animal fear and pain but also increase client satisfaction and satisfaction of veterinary staff and students. By introducing simulation training that incorporates elements of these approaches, students can learn how to reduce stress in animals, which can also reduce their own stress and increase their work performance. This integrated approach not only improves animal welfare but also contributes to the emotional and professional well-being of veterinary students (Lloyd, 2017; Hermans, 2025).

KEYWORDS: veterinary students; stress; patients; simulation training

REFERENCES

Bartram DJ, Baldwin DS. Veterinary surgeons and suicide: a structured review of possible influences on increased risk. Veterinary Record. 2010;166(13):388–397.

Pollock K, MacKay JRD, Hearns S, Morton C, Pollock PJ. Veterinary high-stakes immersive simulation training with repeat practice following structured debriefing improves students' ability to cope with high-pressure situations. Simulation Healthcare 2024;19(5):e75-e83.

Edwards PT, Hazel SJ, Browne M, Serpell JA, McArthur ML, Smith BP. Investigating risk factors that predict a dog's fear during veterinary consultations. PLoS One. 2019;14(7):e0215416.

Lloyd JKF. Minimising stress for patients in the veterinary hospital: why it is important and what can be done about it. Veterinary Sciences. 2017;4(2):22. doi: 10.3390/vetsci4020022

Hermans AC, Fear Free™ approach to pain management in companion animals. IVC Journal. 2025 Feb 3. Available from: https://ivcjournal.com/fear-free/

UNDER PRESSURE: UNDERSTANDING THE STRESS CAUSED BY PET OWNERS AMONG VETERINARIANS

Martina Crnogaj

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ABSTRACT

Veterinary medicine is a fulfilling but demanding profession with a variety of occupational stressors that can impact veterinarians' mental health. These stressors are increasingly associated with burnout syndrome. This is characterized by emotional exhaustion, depersonalization and a diminished sense of accomplishment and is a growing problem among practicing veterinarians. While long working hours and medical challenges contribute to stress, research suggests that interaction with clients significantly increases the risk of burnout. Unrealistic expectations from pet owners, such as demands for high quality treatment within financial and time constraints, often lead to emotionally charged conversations and increase stress levels. Conflicts over treatment costs, non-compliance with treatment plans and ethical challenges, such as euthanasia decisions, further exhaust veterinarians and lead to compassion fatigue. In addition, research has shown that veterinarians who have a high level of empathy, which is why owners sometimes form a special bond with them, are at even greater risk of emotional exhaustion and burnout. The digital age brings new challenges. Pet owners are increasingly resorting to cyberbullying by posting abusive messages, threats or slander on social media. Negative online reviews and poor ratings are mostly caused by dissatisfaction with prices or outcomes beyond the veterinarian's control. Such digital aggression increases feelings of isolation, anxiety and helplessness and increases the risk of depression and suicidal thoughts. Lack of gratitude from pet owners and public shaming further exacerbate the situation.

Dealing with burnout requires a multi-faceted approach that includes institutional support, mental health resources, training on how to communicate with pet owners, setting boundaries when interacting with them, and online reputation management strategies. Fostering a supportive work environment is essential to maintaining veterinarians' well-being and their ability to provide compassionate care. Increased awareness of the impact of these stressors can reduce their negative consequences.

KEYWORDS: veterinary; mental health; client interaction; burnout

REFERENCES

Perret Jennifer L., Best Colleen O., Coe Jason B., Greer Amy L., Khosa Deep K., Jones-Bitton Andria. The complex relationship between veterinarian mental health and client satisfaction. Frontiers in Veterinary Science. 2020;7 (92):1-16.

Pohl Robert, Botscharow Julia, Böckelmann Irina, Thielmann Beatrice. Stress and strain among veterinarians: A scoping review. Irish Veterinary Journal. 2022;75(1):15.

Gibson Julie, White Kate, Mossop Liz, Oxtoby Catherine, Brennan Marnie. 'We're gonna end up scared to do anything': A qualitative exploration of how client complaints are experienced by UK veterinary practitioners. Veterinary Record. 2022;191(4):e1737.

Džaja Petar, Severin Krešimir, Gašpar Anđelko, Zemljak Ivan, Križek Ivan, Butković Ivan, Piplica Aneta, Palić Magdalena. A survey of the impact of potential work-related stressors on mental health among veterinarians in Croatia. Veterinarska Stanica. 2025;56(4):383–394.

Mandlik Reedhima, Larkin Malinda. Fighting the cyberbully: how harassment can affect your practice. The Journal of the American Veterinary Medical Association. 2014; Available at www.avma.org/News/JAVMANews/Pages/141115a.aspx.

PRACTICAL CLASSES IN SLOUGHTERHOUSE – STUDENT'S EXPECTATIONS AND CHALLENGES FOR TEACHERS

Michał Gondek, Monika Ziomek

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ABSTRACT

One of the mandatory courses offered by the Department of Food Hygiene of Animal Origin as part of the veterinary medicine curriculum is *Hygiene of Slaughter Animals and Meat*. It is attended by both Polish- and English-speaking students, including full-time students and Erasmus+ participants. The course spans two semesters and includes lectures, laboratory classes, and practical training in a slaughterhouse.

The course aims to familiarize students with key aspects of sanitary-veterinary meat inspection and control. Topics include ante- and post-mortem examination of slaughter animals and meat, laboratory methods for meat inspection, evaluation and labeling of meat, procedures for handling meat deemed unfit for consumption, and regulations concerning meat from restricted areas due to animal infectious diseases.

The practical training in slaughterhouses comprises 9 hours in total—6 in the first semester and 3 in the second—conducted in low-capacity pig and cattle abattoirs. Groups of six students are supervised by one teacher. This training is preceded by theoretical classes covering relevant EU legislation (Commission Implementing Regulation (EU) 2019/627) and supported by educational films illustrating slaughterhouse structure and operations.

Practical classes in the slaughterhouse are often met with reluctance by students. For many, this is their first encounter with a facility where animals are slaughtered to produce meat for human consumption. As a result, these classes are frequently accompanied by feelings of discomfort and stress.

During the ICEAS lecture, the preparation of students for practical classes in the slaughterhouse will be discussed, along with the methods used to conduct these sessions. Additionally, the lecture will address students' attitudes toward these practical classes and explore the most common challenges faced by both students and teachers during such activities.

KEYWORDS: slaughterhouse training; meat inspection; student engagement; emotional stress

ALTERNATIVES TO SLAUGHTERHOUSE CLASSES: SOLUTIONS FOR HIGHLY SENSITIVE VETERINARY MEDIUCINE STUDENTS

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ABSTRACT

The ability to undertake a health and welfare assessment of food-producing animals is a key competency required of all new veterinary graduates to meet European and OIE international recognition standards. Graduates must be capable of performing ante-mortem inspections of animals intended for the food chain and should also gain experience in post-mortem inspections. These procedures involve paying close attention to animal welfare, correctly identifying conditions that affect the quality and safety of animal-derived products, and excluding animals that are unsuitable for human consumption. In addition, graduates need to understand the principles and practices that ensure food safety throughout the entire production chain.

Acquiring these skills typically involves practical training in a slaughterhouse environment. For many veterinary students, participation in slaughterhouse activities poses no significant issue. However, there is a subset of students for whom these experiences cause intense psychological distress, often manifesting as severe stress, anxiety, or panic.

For highly sensitive veterinary students, there are several alternative approaches that allow for skill development while respecting ethical or emotional sensitivities. Fortunately, modern education offers multiple pathways to achieve this balance. One increasingly popular option is the use of virtual or digital tools that allow students to manage their exposure. These may include recorded slaughterhouse visits, virtual reality (VR) simulations, and other immersive technologies.

Other alternatives include online modules, detailed case studies, and interactive simulations that provide insight into meat inspection and animal welfare assessments without requiring physical presence in a slaughterhouse. Additionally, hands-on experience can be gained through laboratory work. Practices such as necropsy and anatomy laboratory sessions provide valuable exposure to animal physiology and pathology. Similarly, involvement in microbiology labs, such as bacterial contamination studies, contributes relevant knowledge applicable to food safety and public health.

KEYWORDS: virtual tools in education; food safety; virtual slaughterhouse

BRIGHTS AND SHADOWS OF AI TOOLS IN TEACHING VETERINARY STUDENTS

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ABSTRACT

Nowadays AI tools become more and more popular not only in everyday life but also in Universities including science and didactics. Different AI tools are available on national and international level. They can be used for quick search for answers for many didactic questions, preparing essays, search for literature or even for help in diagnostic procedures. Veterinary didactics has its own specificity, it needs innovation but using innovative tools does not mean innovation, it is deeper process and specific for particular subject. Together with the increase in knowledge update and the increase in knowledge upload students need tools which may help to remember quickly, select knowledge, analyses facts and induce clinical reasoning but the selection of these tools should be very careful. The aim of the study is to analyses advantages and disadvantages of introducing AI tools for veterinary students in different subjects. The study was done using literature review. The biggest disadvantage is the lack of formal and ethical rules which can describe frames for AI use in didactics and research also. Moreover, they have different quality and may rise errors and misinterpretation of obtained answers. In accordance to some authors, using AI may reduce the involvement of teachers when students use different sources of gaining knowledge which is quite dangerous. To conclude, we all are aware that AI tools will gain more and more attention as well as usefulness but when left uncontrolled and in unexperienced hands may bring more deleterious than beneficial effects.

KEYWORDS: artificial intelligence; veterinary didactics; cons and pros for AI

AI IN EDUCATION – A PARADIGM SHIFT IN TEACHING AND LEARNING OR A NEW NORMAL?

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Comparative Biomedical Sciences Department

ABSTRACT

Artificial intelligence (AI) has accelerated the pace of educational development in the last decade with a trajectory that is forecast to rise further. In the recent times learning and teaching has been transformed through the underpinning of Large Learning Machines (LLM) capable of simulating a lot of human functions through aggregation of information based on algorithms (Lund et al, 2023). This machine learning has enabled teachers and learners to access large quantities of information and data in the process of construction of learning.

At present generative AI applications such as ChatGTP, predictive analytics, adaptive testing and personalized learning experience has shown tremendous promise in supporting active learning (Wang et al., 2023). AI holds immense potential in enhancing learning efficiency, providing customized educational support, and automating essential activities within higher education.

However, AI adoption in education has limitations and the challenges largely due major concerns such as ethics, cultural contextual considerations, plagiarism and privacy. It is for these reasons that education institutions must work towards maximizing the benefits and minimizing the risks associated with their implementation of AI-led platforms.

It is worth noting that while AI in educations appear promising in delivering qualitative and quantitate benefits for education, the north-south economic divide will serve to widen the educational inequalities with poor and developing countries remaining largely marginalised in academic achievement.

Finally, it is also crucial to understand that AI is not a substitute for human educators, but a tool to complement and enhance their work.

REFERENCES

Lund, B.D.; Wang, T. (2023). Chatting about ChatGPT: How may AI and GPT impact academia and libraries? Libr. Hi Tech News, 40, 26–29.

Wang, T.; Lund, B.D.; Marengo, A.; Pagano, A.; Mannuru, N.R.; Teel, Z.A.; Pange, J. (2023). Exploring the Potential Impact of Artificial Intelligence (AI) on International Students in Higher Education: Generative AI, Chatbots, Analytics, and International Student Success. Appl. Sci., 13, 6716.

SCIENTIFIC WORK IN STUDENT'S RESEARCH CIRCLES - OPENNESS TO KNOWLEDGE AND PRACTICE OR WASTE OF TIME?

Marta Wójcik

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ABSTRACT

Getting involve of veterinary students in the activities of scientific groups is a relatively new way of teaching in the field of veterinary medicine. For example, at the Faculty of Veterinary Medicine in Lublin, the first scientific student circle (SSC) was noticed in 1944. It is clear that previously students who interested in gettingof additional knowledge, could participate in the research work of academic staff, but this remained rather in the form of individual involvement than organized student activity. The growing student's interests combined with researchers activity allow for the implementation of research at the level of basic sciences, as well as preclinical and clinical one. Working in laboratories, some students can learn and perform many experiments,while another prefer clinical work. Also important is the aspect of supervised clinical work on the farms, during which students can aim their scientific goals. It should be also underline that the variety of SSC sections, allows for student activity from the first to the last year of studies. Although the pandemic period has temporary limited student activity, it has not stopped it at all. Nowadays, both the number of SSC as well as number of students including in them are gradually increasing. Moreover, students forced by the lockdown started using new technologies of comunication. Hybrid or online conferences allow students for presentation their scientific results both during national and international conferences. There is also an increasing need to publish obtained results, not only in the conference materials but above all JCR journals.

The best conclusion that also gives an answer to the topic question should be well-known sentence: “Excellent Science Only Happens When We Invest in Scientists”.

KEYWORDS: scientific students circle; practical skills; experiments

THE INVOLVEMENT OF STUDENTS IN SCIENTIFIC RESEARCH, OPPORTUNITIES AND PROBLEMS

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ABSTRACT

One of the studies carried out on the Department of Physiology and Radiobiology Faculty of Veterinary Medicine, University of Zagreb, is a fatty acid composition of different tissues and body fluids. By integrating laboratory methods into the academic courses on the department, students of integrated under-graduate and graduate study familiarize themself and often express willingness to join and to be involved in scientific research. For teachers including undergraduate students in their research projects carry barriers, such as, limited funding, a heavy workload, and the potentially discouraging amount of time required to mentor and train undergraduate researchers (Eagan et al. 2011). Although it can be time-intensive on the part of teachers, the benefits of mentorship for students are well documented: cognitive and affective gains for students, higher grade point averages, and greater clarity of academic and career goals (Eagan et al. 2011). This implies that conducting research is an important way to improve students' ability to think critically and solve problems, both of which are essential throughout their career as healthcare professionals (Adebisi, 2022). Students learn about different extraction protocols, develop skills in data analysis and interpretation, and learn to integrate theory and practice (Adebisi, 2022). One important benefit for involved students is the possibility of publishing articles in peer-reviewed journals, which offers students early experience in the process and concept of scientific publishing. Students, who did start working in a lab, often struggle to continue, due to a lack of time and loaded curriculum, as well as lack of major plans and strategies for undergraduate research, therefore scientific research often conflict with university education. Involvement of the students in scientific research during undergraduate study provides them with a strong academic foundation, possibility to strengthen autonomous critical thinking as well as oral and written communication skills boosting.

KEYWORDS: students; under-graduate and graduate study; scientific research

REFERENCES

Adebisi, Y. A. Undergraduate students' involvement in research: Values, benefits, barriers and recommendations. Annals of Medicine and Surgery. 2022; 81, 104384.

Eagan, K. M., Sharkness, J., Hurtado, S., Mosqueda, S. M., Chang, M. J. Engaging Undergraduates in Science Research: Not Just About Faculty Willingness. Research in Higher Education. 2011; 52:151–177.

ICEAS International Congress of Education in Animal Sciences

ORAL PRESENTATIONS

OP1

THE ROLE OF STRESS IN STUDENT EDUCATION AND ITS IMPACT ON LEARNING OUTCOMES

Justyna Biegała[1], Marco Wochnik[2], Roman Dąbrowski[2]

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ABSTRACT

As is commonly known, stress is a common part of everyday life. It occurs in both private and academic life. It is a constant and inseparable part of students' lives. Depending on its intensity and frequency, it can have both positive and negative effects on knowledge acquisition and, consequently, on academic performance. On the one hand, mild and moderate stress, occurring occasionally, can have a motivating effect, helping students to focus and remember better. On the other hand, a decrease in memory capacity and decline in concentration, or even burnout and depression can be consequences of frequent exposure to high-frequency stress. This review article highlights the impact of different types of stress on the results achieved by students and presents the consequences of long-term stress, both mental and physical (Palmer et al., 2014).

It also addresses various stress management techniques, such as mindfulness exercises (Chiesa and Serretti, 2009), time management strategies, and relaxation exercises, for example yoga (Yadav et al., 2012). Additionally, the influence and the role of educational institutions, particularly academic teachers, in combating negative stress in students' education.

Overall, understanding the relationship between stress and academic performance is vital for creating a healthier, more supportive educational environment for students. Numerous studies have shown that stress has a multidirectional, largely negative impact on students' lives. Therefore, it is essential to implement measures aimed at minimizing its adverse effects.

KEYWORDS: stress, academic results, stress management

REFERENCES

Palmer, L. K., Economou, P., Cruz, D., Abraham-Cook, S., Huntington, J. S., Maris, M., Makhija, N., Welsh, T., & Maley, L. The relationship between stress, fatigue, and cognitive functioning. College Student Journal. 2014; 48(1): 198-211.

Chiesa A, Serretti A. Mindfulness-based stress reduction for stress management in healthy people: a review and meta-analysis. J Altern Complement Med. 2009;15(5):593-600.

Yadav, R. K., Magan, D., Mehta, N., Sharma, R., & Mahapatra, S. C. Efficacy of a Short-Term Yoga-Based Lifestyle Intervention in Reducing Stress and Inflammation: Preliminary Results. Journal of Alternative & Complementary Medicine. 2012; 18(7): 662-667.

OP2

IS IT STRESSFUL TO BE A LECTURER IN VETERINARY SCIENCE?: A PILOT STUDY

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ABSTRACT

Veterinary medicine is considered one of the most stressful fields for both students and graduates (Killinger et al., 2017). But little to nothing has been studied about the potential stress experienced by professors teaching this field. Often, the work of a veterinary science professor involves not only teaching classes and caring for students but also working with animal patients and their owners. Not to mention that every professor must be active in research and participate in the management of the department, faculty, and/or university. Therefore, the objective of our preliminary study was to assess the potential stress experienced by veterinary school-teachers and to evaluate whether hair samples could be useful for this purpose. To this end, hair cortisol levels were measured in three teachers just before starting a new course and at the end of the first semester. It was considered that the portion of hair (1 cm) closest to the skin represented the stress level corresponding to the previous one month (Hodes, et al., 2017). In addition, teachers filled a Perceived Stress Scale (PSS) (Cohen et al., 1983) at the moment of each sampling. The results indicate that the teachers perceived their stress levels to increase by 77% (56 – 100%). Their hair samples showed an average increase in cortisol concentration of 56% (range, 21–98%). In conclusion, the results of this pilot study suggest high cumulative stress in veterinary professors and confirm the usefulness of hair samples to evaluate stress in a non-invasive and objective manner in this population. However, precautions must be taken since a small number of participants were used and therefore long-scale studies are necessary to confirm the results.

KEYWORDS: academia; cortisol; education; hair; stress

REFERENCES

Cohen S, Kamarck T, Mermelstein R. A global measure of perceived stress. J health Soc Behav. 1983 Dec;24(4):385-96.

Hodes A, Lodish MB, Tirosh A, Meyer J, Belyavskaya E, Lyssikatos C, Rosenberg K, Demidowich A, Swan J, Jonas N, Stratakis CA, Zilbermint M. Hair cortisol in the evaluation of Cushing syndrome. Endocrine. 2017 Apr;56(1):164-174.

Killinger SL, Flanagan S, Castine E, Howard KA. Stress and Depression among Veterinary Medical Students. J Vet Med Educ. 2017 Spring;44(1):3-8.

OP3

HOW DOES VOLUNTEERING WITH REPTILES AND AMPHIBIANS AFFECT STUDENT STRESS LEVELS?

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ABSTRACT

The aim of this study is to demonstrate the activities of volunteers at the "Gmazara" facility, explore how structured animal care, particularly with reptiles and amphibians, contributes to stress reduction, and examine how these activities enhance student well-being. Additionally, the study will outline future directions for quantifying and measuring stress reduction among the volunteers, while promoting knowledge in exotic animal husbandry and research. Methods: The Department of Physiology and Radiobiology at the Faculty of Veterinary Medicine, University of Zagreb, maintains a specialized facility housing approximately 60 individuals from 12 different reptile and amphibian species. Five dedicated students are responsible for daily care tasks, including feeding, bathing, administering therapy, and participating in routine health examinations. In addition to practical animal care, student volunteers engage in scientific research, contributing to behavioral studies and health assessments. Results: The volunteer program has led to the publication of 10 scientific papers, underscoring the academic and research contributions made by students. Beyond skill development, this program is also beneficial for student stress reduction. Interactions with animals, particularly reptiles and amphibians, have been shown to reduce anxiety and promote emotional well-being. The responsibilities and close contact with these animals provide students with a sense of purpose, routine, and connection to nature, which may alleviate academic pressures. Conclusion: Volunteering at Gmazara not only enhances students' knowledge of exotic animal care and research but also serves as a method of stress relief. The structured responsibilities and animal interactions contribute to improved emotional well-being and provide a therapeutic effect. Future studies will aim to quantify these effects, potentially establishing reptile and amphibian care as an effective tool for reducing stress among students in scientific and veterinary fields.

KEYWORDS: students; volunteering; reptiles; amphibians

OP4

ANTIBACTERIAL CHEMOTHERAPEUTICS USE IN THE TREATMENT OF *CYSTITIS* IN RABBITS (*ORYCTOLAGUS CUNICULUS* F. *DOMESTICUS)* AND GUINEA PIGS (*CAVIA PORCELLUS)* BASED ON MEDICAL RECORDS FROM DIVISION OF SMALL MAMMALS (UNIVERSITY OF LIFE SCIENCE IN LUBLIN VETRINARY CLINICS) – HOW TO APPROACH A CLINICAL CASES FROM STUDENTS PERSPECTIVE

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ABSTRACT

Cystitis in rabbits and guinea pigs is a common disease in clinical practice. Special attention in *cystitis* deserves the type of secretion Ca2+ ions by herbivores animals to which both species belong. Excessive supply Ca2+ ions causes greater absorption in intestines and secretion calcium carbonate by urinary tract. This causes formation of „sand", „sludge" and uroliths in bladder and retention of urine. Secondary it creates right condition for bacterial infections and may causes *cystitis*. In this analysis, 54 patients from Department of Small Mammals in University of Life Science in Lublin were compared. The analysis was aimed at detailing groups of chemotherapeutics used in cystitis in rabbits and guinea pigs. In most of the times in cystitis it was necessary to use antibacterial chemotherapeutics in long-term - antibiotics and sulfonamides. In several cases there was a need to change treatment, mainly because of the drug resistance of microorganisms. In the development of the cystitis dietary mistakes make a significant contribution. It seems necessary to spread education about the right diet of small mammals, which will limit the use antibacterial drugs with antibacterial effect and teach animal handlers how to take care about their pets, which will reduce the owners' and patients' stress related to home care and animals diseases.

KEYWORDS: *cystitis*; rabbit guinea pig

REFERENCES

Clauss M. et all. Influence of diet on calcium metabolism, tissue calcification and urinary sludge in rabbits (Oryctolagus cuniculus). J Anim Physiol Anim Nutr (Berl).

OP5

STUDENT-CENTERED LEARNING AND DISCOVERY METHODS IN VETERINARY EDUCATION: ENGAGING GENERATION Z FOR LASTING KNOWLEDGE AND PROFESSIONAL GROWTH

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ABSTRACT

Using student-centered teaching and discovery learning methods, we encourage active student participation, which enables long-term memory, linking previous and new knowledge, and the successful application of acquired skills in professional development. Such an approach contributes to the creation of a positive, interactive working atmosphere that empowers students in learning and developing critical thinking. Understanding the communication styles and needs of Generation Z is key to implementing these methods in veterinary education. These students prefer two-way communication, teacher authenticity, and teaching methods that allow them to actively participate. They value being actively listened to, being given space to express themselves, and being able to collaborate. This approach increases their motivation and engagement, which leads to better learning outcomes. In student-centered learning, the focus shifts from the teacher to the students – 80% of the teaching is dedicated to their active work, while the teacher provides guidance, explains concepts and corrects misunderstandings in the remaining 20%. The key to successful learning lies in motivation, and learning with a clear goal is far more effective than learning without a goal. Therefore, it is extremely important which teaching methods teachers use and how they encourage students to develop their full potential. By applying these methods, veterinary medicine teachers create students who not only possess factual knowledge, but also those who know how to apply it in practice, which is crucial for their future expertise and professional success.

KEYWORDS: student-centered learning; discovery learning; veterinary education; active engagement; learning motivation

OP6

COULD PRACTICAL CLASSES CONDUCTED WITH STUDENTS REDUCE THE FUTURE PRACTITIONER'S STRESS DURING SOLVING THE DELIVERY PROBLEMS IN COWS?

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ABSTRACT

Numerous reports have identified important stressors for veterinary professionals due to emotional and physical demands, life-and-death decisions and others. It is well known that such stress can also be noticed on a farm, where veterinarians, for example, are called to solve the dystocia in a cow in a farm. To solve the problem, many Universities worldwide conduct workshops/classes with veterinary medicine students using phantoms of cows. In the Department and Clinic of Animal Reproduction, Faculty of Veterinary Medicine, ULS in Lublin, the innovation involves the development of phantoms which can stimulate a problem with delivery in cows and conducting workshops/classes to teach how to provide first aid to an animal with dystocia.

The study aimed was to demonstrate the usefulness of phantoms in teaching how to solve delivery problems in cows.

Methods: Two phantoms of cows with calves were included in the workshops/classes. Calves were put inside the phantom's uterus. Students were divided into 5 groups (7 persons each). They were asked to propose a solution to dystocia problems in cows like: flexion of one or both forelimbs, Incomplete extension of hind limbs, backwards presentation and turned back head or legs.

To solve the improper positions of calves, Python's 4-step methods were used. Results: Students solve the delivery problems in every case by themselves.

Conclusion: Phantoms can be used to teach various subjects like delivery problems in cows. Such a skill could reduce veterinarians' stress in their future practice on a farm.

KEYWORDS: phantoms; cows; dystocia

OP7

THE USE OF ARTIFICIAL INTELLIGENCE IN THE EDUCATIONAL PROCESS FROM THE PERSPECTIVE OF A VETERINARY MEDICINE STUDENT

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ABSTRACT:
Modern educational techniques utilizing artificial intelligence (AI) are finding increasingly widespread applications in various fields of science and clinical practice, including veterinary medicine.
In veterinary medicine, AI supports, among others, the analysis of diagnostic images, the automation of didactic processes, and the processing of clinical data. It also has practical significance in everyday veterinary life, which is utilized by students of medical fields.
Modern technologies are used in clinical data analysis, which helps in understanding diagnostic patterns and making effective therapeutic decisions.
Thanks to AI, it is possible to implement targeted therapy for a specific patient by analyzing drug interactions, dosages, and potential side effects. Thus, it is also useful in forecasting the effectiveness of the chosen therapy. There is also the possibility of virtual training. Based on clinical data presented by AI the student analyzes real clinical cases, interprets test results, proposes differential diagnoses, verifies their knowledge of drugs and dosages through tests prepared by this technology, and also understands specific disease. Thanks to this, veterinary students have the opportunity for faster and more effective vocational training.
AI supports the clinical diagnostic process by analyzing X-ray, ultrasound, CT, and MRI images. It has similar applications in cytological, electrocardiographic analysis, and veterinary surgery.
Despite many advantages, there are also challenges and limitations related to the use of AI—how to use new technologies so that students and veterinary doctors can use modern tools consciously and responsibly. These constraints include ethical issues, data security, and the need for appropriate staff training. It should always be remembered that AI continues to evolve. To sum up, the paper aims to present the use of AI in the education and clinical practice of veterinary medicine students, as well as to show the perspectives, benefits, and challenges that AI brings.

KEYWORDS: artificial intelligence; modern educational techniques; modern technologies

REREFENCES

Chowdhury, N. K., Khandakar, A., Uddin, M. Z., & Rahman, T. (2021). Applications of artificial intelligence in medical education: A review. Health Information Science and Systems, 9(1), 1–10.

Esteva, A., Robicquet, A., Ramsundar, B., Kuleshov, V., DePristo, M., Chou, K., Dean, J. (2019). A guide to deep learning in healthcare. Nature Medicine, 25(1), 24–29.

Floridi, L., Cowls, J., Beltrametti, M., Chatila, R., Chazerand, P., Dignum, V., Vayena, E. (2018). AI4People—An ethical framework for a good AI society: Opportunities, risks, principles, and recommendations. Minds and Machines, 28(4), 689–707.

OP8

EXPERIENCE OF THERMOGRAPHY APPLICATION IN ANIMAL PHYSIOLOGY TRAINING EXERCISES

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ABSTRACT

Changes in body temperature provide significant information in animal-based biomedical research and veterinary practice. For this reason, training exercises (TE) in the use of infrared thermography (IRT) have been included in the Animal Physiology subject of the Veterinary Medicine study programme. IRT is an increasingly used method for monitoring thermal changes in farm and laboratory animals as it allows non-contact assessment of body surface temperature variations with multiple research applications (Ghezzi et al., 2024). Thermography can reveal physiological changes before they manifest as clinical signs, allowing early detection and therapeutic intervention (Schaefer and Cook, 2013). Two different IRT cameras are used in student training exercises: Testo 875-1 (Testo, Germany) and FLIR P640 (FLIR System Inc., USA) with its thermovision software. Students also have access to a database of thermal images on laboratory computers. They learn how to analyse thermal images, measure the surface temperature of different parts of the body, find the hottest and coldest points, and visualise temperature changes using histograms. TE provide the opportunity to evaluate thermal images of the limbs of horses and cattle, the udders of cows, as well as images of guinea pigs, rabbits, mice and rats. Furthermore, students explore thermal images with early signs of inflammation, which exhibit temperature differences in a symmetrical comparison. Also there is an opportunity to apply the acquired knowledge by using IRT in the research of students' Master's theses. In the last 5 years, 4 theses have been completed and defended in the department. Finally, integrating the use of IRT into TE has broadened students' knowledge of thermoregulation and surface blood flow. Moreover, it has provided practical experience in analyzing the surface body temperature in different animals, identifying heat dissipation windows, detecting potential circulatory disorders, and recognizing early signs of inflammation that may not be obvious by routine examination.

KEYWORDS: animal; physiology; surface temperature; thermography

REFERENCES

Ghezzi MD, Napolitano F, Casas-Alvarado A, Hernández-Ávalos I, Domínguez-Oliva A, Olmos-Hernández A, Pereira AMF. Utilization of Infrared Thermography in Assessing Thermal Responses of Farm Animals under Heat Stress. Animals. 2024;14(4):616.

Schaefer, A.L.; Cook, N.J. Heat Generation and the Role of Infrared Thermography in Pathological Conditions. In Thermography: Current Status and Advances in Livestock Animals and in Veterinary Medicine; Luzi, F., Mitchell, M., Costa, L.N., Redaelli, V., Eds.; Fondazione Iniziative Zooprofilattiche E Zootecniche: Brescia, Italy, 2013; pp. 69–78.

OP9

SIMULATION METHODS IN THE DIDACTICS OF CLINICAL SUBJECTS AND THE DEGREE OF ACCEPTANCE AND SATISFACTION OF VETERINARY STUDENTS WITH THE CLASSES

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ABSTRACT

Simulation methods in the didactics of clinical subjects, the degree of acceptance and satisfaction of veterinary students with the classes. Restrictions related to animal protection regulations and an increase in the number of students in vet. faculties are forcing a change in the approach to teaching clinical subjects. The introduction of simulation methods into didactics has become a response to limited student access to patient work. The market has recognised this need and offers a wide range of phantoms, ranging from simple trainers to high-fidelity simulators. Thanks to the availability of these phantoms, it was possible to organise a Clinical SkillsLab/Fac.Vet.Med./ULS/Lublin in 2022. The extensive equipment of the Lab. with more than 100 different types of phantoms makes it possible to conduct classes in following subjects: clinical diagnosis, internal diseases, gynaecology and obstetrics, and surgery. They are used by 3rd,4th,5th-year vet. students.

One element of evaluation is to assess student acceptance of the method. It was this aspect that was evaluated by the authors. A questionnaire survey and participant observation was carried out on a group of 100 third- and fourth-year veterinary students following a class on canine intubation. Students were asked questions regarding their gender, age, place of residence, whether they had ever performed intubation on a live animal, whether they enjoyed the class and whether they were in favour of implementing practical classes and their usefulness.

The questionnaire was returned by 90% of the respondents. Satisfaction was declared by 87 students. The survey showed a high degree of acceptance and satisfaction of veterinary students with activities of this type. Observation of the activities performed showed that 80 students completed the task correctly, and on repeated attempts this result was higher (N=87 students). In the future, it is planned to conduct an evaluation process of the learning outcomes.

KEYWORDS: simulation methods; skills lab; satisfaction

OP10

ENHANCING VETERINARY EDUCATION THROUGH INTERACTIVE SEMEN EVALUATION: FOSTERING SCIENTIFIC INQUIRY AND PRACTICAL SKILLS IN REPRODUCTIVE PHYSIOLOGY

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ABSTRACT

Aim: The aim of this study is to demonstrate how practical, interactive sessions in reproductive physiology, specifically through semen evaluation exercises, can enhance veterinary students' comprehension of gametogenesis, hormonal regulation, and overall reproductive health. This approach not only fosters an engaging learning environment but also equips students with important laboratory and clinical skills. Following these exercises, some students developed an interest in scientific research and participated in studies in the field of semen evaluation in domestic animals. Methods: Students used boar semen samples to assess sperm motility from fresh ejaculates and prepared sperm smears using the Farrelly method to evaluate morphology and detect pathological spermatozoa. Students received detailed instruction on gamete production and hormonal regulation, reinforcing their practical work. Furthermore, students participated in data collection and analysis, gaining first-hand experience in reproductive science and experimental methods. Results: Students demonstrated increased engagement and participation in classes involving semen analysis. These hands-on sessions sparked a scientific curiosity in some students, leading them to become involved in research projects focused on semen analysis in domestic animals. They applied for and received Rector's Awards, participated in congresses, presented their results, and even produced their Master's theses. This hands-on approach further promoted critical thinking and a deeper understanding of factors influencing sperm health and fertility in domestic animals. Conclusion: By combining theoretical knowledge with hands-on experience, this approach promoted critical thinking and a deeper understanding of factors affecting fertility and sperm quality. Understanding reproductive physiology through practical training is crucial for optimizing breeding programs and improving reproductive health. This educational model not only builds scientific competence but also supports the development of professional veterinary skills. This educational model aligns with the core mission of ICEAS, focusing on integrated, research-based veterinary education.

KEYWORDS: reproductive physiology, semen evaluation, veterinary education

OP11

ENGAGING VETERINARY STUDENTS WITH THE IMPLEMENTATION OF A STATION ROTATION ACTIVITY IN MICROBIOLOGY CLASSES

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ABSTRACT

Pedagogical innovation is essential to meet the challenges of contemporary education, and higher education teachers are increasingly encouraged to adopt student-centered approaches. However, the dissemination and implementation of innovative practices and active learning methodologies in microbiology education is still limited, especially in veterinary medicine courses. Our work was to describe and evaluate the implementation of an active learning activity based on station rotation in a laboratory setting.

By creating an interactive and structured environment for students to rotate in different stations, this activity was designed to enhance students' proficiency in laboratory procedures. The activity was proposed to second-year students of the Integrated Master's in Veterinary Medicine, specifically in the field of Microbiology. Participation was voluntary and at the end of the activity, students were asked to complete a questionnaire, composed by ten Likert-scale questions rated on a five-point scale, to assess the pedagogical strategy.

A total of 84 students participated on the activity (n=84/115, 73%), giving an average score of 4.85 when considering the overall teaching benefits of the proposed methodology. A pattern of average scores above 4.0 was observed for nearly all questions of the questionnaire. On the other hand, out of all the 10 questions, the lowest average score given (3.63) refered to the time available to perform all the tasks of the activity. This result was also pointed out by students in the suggestions section of the questionnaire, in which 36 of the 54 comments provided mentioned time availability.

Our results reinforce students' acceptance of pedagogical innovation, as evidenced by the 73% voluntary attendance rate. Aside from time-related concerns, the station rotation activity proved to be a valuable approach in a laboratory setting. Future studies should explore adjustments to the time allocated for each station and evaluate the impact of such activities on students' final grades.

KEYWORDS: active learning; microbiology; station rotation; questionnaire;veterinary students

ICEAS International Congress of Education in Animal Sciences

POSTER PRESENTATIONS

OP2

P1

ENCHANCING VETERINARY EDUCATION THROUGH CLINICAL ASSOCIATES: STUDENT INSIGHTS AND EVALUATIONS

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ABSTRACT

In the final year of undergraduate studies at the Veterinary Faculty of the University of Thessaly, clinical education is integrated into the curriculum through mandatory clinical practice. Training takes place both at the University's Teaching Hospital and Clinical Associate facilities, ensuring equal opportunities for all students. Clinical Associates are selected based on academic qualifications, teaching experience, available facilities, and case load. They operate under a three-year contract, offering training at their clinics, while the university covers student transportation, accommodation, and meals. Students actively participate in daily clinical activities, document cases, and are monitored through logbooks. Supervision is provided by Clinical Associates, faculty visits, and a monitoring committee. This study evaluates the effectiveness of Clinical Associate training through student feedback. The questionnaire assessed preparation adequacy, teaching materials, faculty support, case diversity, and the impact on theoretical knowledge and clinical skills. It also gathered insights on strengths, weaknesses, and areas for improvement. A total of 35 students who trained at Clinical Associates during the winter semester completed the survey. Overall, students reported a highly positive experience, with nearly all stating that the training reinforced their theoretical knowledge and improved clinical skills. The Clinical Associate program enhanced student exposure to diverse cases, 24/7 clinical operations, and emergency situations, providing essential hands-on veterinary experience. Minor complaints mainly concerned accommodation. Approximately 75% of students found the two-week duration sufficient, while the rest suggested extending it to three weeks or up to two months. The same questionnaire will be distributed to students in the spring semester to enhance result validity. Findings will help optimize the organization and effectiveness of Clinical Associate training.

KEYWORDS: clinical associates; veterinary students; companion animals

P2

CAN WOOL/HAIR CORTISOL ANALYSIS REPLACE BLOOD CORTISOL FOR STRESS ASSESSMENT IN SMALL RUMINANTS?

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The aim of this study is to determine the reliability of analysis of cortisol in wool/hair as a stress assessment method in small ruminants and compare it to the conventional blood cortisol assessments. Methods: We reviewed existing literature on the use of blood plasma cortisol and wool/hair cortisol for stress assessment. Blood cortisol is typically measured through invasive venipuncture, whereas wool/hair cortisol is assessed non-invasively, enabling the monitoring of cortisol levels over a period of time. We compared the effectiveness of these two methods in reflecting both acute and chronic stress in small ruminants. Results: Cortisol in blood is very sensitive to acute stressors and also frequently elevated simply as a result of the stress of sampling. This can limit its accuracy in reflecting an animal's true level of stress. On the other hand, wool/hair cortisol combines hormonal fluctuations over a longer time period, providing a more reliable measure of chronic exposure to stress. Wool/hair sampling will not result in immediate stress making it a less disruptive method for assessing long-term stress. However, the wool/hair cortisol variations could be influenced by factors such as seasonal rhythms, the timing of the last shearing, and animal physiology, making the interpretation difficult. Conclusion: While blood cortisol measurements remain a good measure of acute stress, wool/hair cortisol analysis offers a reliable non-invasive method for chronic stress in small ruminants. The advantages of the method, including its non-invasive nature and long-term representation of cortisol exposure, propose that it could be used alongside traditional blood cortisol measurements to more precisely assess welfare. Standardized wool cortisol extraction procedures and consideration of environmental and physiological factors require further investigation.

KEYWORDS: cortisol; wool; blood; stress; small ruminants

P3

VETERINARY MEDICINE STUDENT'S FEEDBACK ON PRE-CLINICAL ANIMAL PRACTICE

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ABSTRACT

Pre-clinical production animal practice (80 academic hours) is obligatory part of the Study Programme in Veterinary Medicine at the Faculty of Veterinary Medicine, Veterinary Academy, Lithuanian University of Health Sciences (LSMU VA FVM). During this practice the 2nd year students acquire the competencies in production animal Veterinary Hygiene and Welfare, Rearing and Breeding, Feeds and Animal Nutrition under supervision of a practice supervisor and following the Procedure (1). During the Practice each student should complete the Logbook, prepared the Report and Reflection.To obtain student feedback on the pre-clinical practice, a questionnaire was developed by the Coordinator of Practice and approved by the Study Committee of FVM. The questionnaires were voluntary completed by 17; 29 and 30 students in the 2021/2022, 2022/2023 and 2023/2024 academic year, respectively. The results showed that the purpose of the practice is clear and easy to understand. The data indicates that 20.66%, 41.41%, 45.5% of respondents strongly agreed, while 13.50%, 12.12%,18.75% agreed, respectively, in the years specified above. The duration of the practice was sufficient with strong agreement by 24.41%, 24.00% and 38.83% respondents, while 37.44%, 29.65%, 20.17% agreed, in the respective year indicated. 37.72%; 35.06%, 45.5% of respondents strongly agreed, and 16.28%, 20.31%,16.00% agreed that the practice gave them the opportunity to develop their personal qualities in working independently; 37.72%, 29.88%, 51.17% of respondent strongly agreed and 16.28%,17.69%, 16.19% agreed that the practice gave them the opportunity to develop their personal qualities in a team, in the years indicated, respectively. In previous academic years, 20.80%,18.49%,19.75% of students expressed strong agreement, and 16.75%, 20.80%, 18.49% expressed agreement that respondents applied the theoretical knowledge they obtained from the studies. The limitation of this study is the low response to the questionnaires, so the goal is to encourage students to be more active in providing feedback.

KEYWORDS: veterinary medicine; pre-clinical practice; competency

REFERENCES

https://lsmu.lt/wp-content/uploads/Procedure-of-Pre-clinical-Production-Animal-Practice.pdf

P4

LANGUAGE ADAPTATION METHOD FOR LEARNING IMPALPABLE SUBJECTS FOR TODAY'S GENERATION OF VETERINARY MEDICINE STUDENTS – PEER INSTRUCTION

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ABSTRACT

In recent years, the curriculum of the Veterinary Medicine course at the Pontifical Catholic University of Paraná, Brazil, has been adapted to new teaching methodologies in line with the university's guidelines. One important change has been the structuring of subjects related to anatomy, histology, biochemistry and physiology into "disciplines organized by systems". I am part of the group of professors responsible for two of these disciplines: "Structure and Functioning (SF) of the Monogastric Digestive System" and "SF of the Endocrine and Metabolic system".These subjects are taught in the first year of the course, so the students are beginners to the university regarding language, challenges and realities inherent to this moment.The Monogastric Digestive System Course covers topics related to basic biochemistry, while the Endocrine and Metabolic System course covers topics related to physiological chemistry and metabolic biochemistry. These subjects are challenging due to their abstract and impalpable nature, compared to the study of anatomy, for example. Therefore the teaching routine is very challenging, particularly when we consider today's young population who have less and less need to mentally idealize any event as they are less "readers" and consequently less able to concretize something with their imagination (Spricigo et al.2016). In search of new methods to promote learning appropriate to the new reality, in 2024 I began to apply a method developed by Professor Eric Mazur at Harvard University (Lasry et al.2008) which consists of asking the students to volunteer (at first and then indicated) to repeat in their own words a concept or theme presented to the class. The result was evident during the activity and also when formative and summative assessments (Scallon,2015) took place and they finally realized what they had learned. The result is also seen in the students' voluntary positive feedback on the technique in the institutional evaluation.

KEYWORDS: teaching biochemistry; peer instruction; structure and functioning of the monogastric digestive system; structure and functioning of the endocrine and metabolic system.

REFERENCES

Spricigo, CB, Oliveira J, Martins V, Cooperação, editors. Mosaico de Cinco Cores. 1 ed. Universitária Champagnat, Curitiba; 2016. 128 p.

Nathaniel Lasry, Eric Mazur, Jessica Watkins; Peer instruction: From Harvard to the two-year college. Am. J. Phys. 1 November 2008; 76 (11): 1066–1069.

Scallon, G, Avaliação da Aprendizagem numa Abordagem por Competências . 1 ed. Universitária Champagnat, Curitiba; 2015. 445 p.

P5

VETERINARY STUDENTS' ACTIVITIES IN THE SIMULATION CENTRE AT LSMU: SURVEY REVIEW

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ABSTRACT

Simulators, mannequins and models in Veterinary Medicine (VM) studies are becoming increasingly popular for training students to gain practical skills in a controlled environment prior to the work on live animals (1).Veterinary Medicine Simulation Centre (VMSC) of Lithuanian University of Health Sciences (LSMU) was open for students in 2018. Subsequently, the integration of the VMSC into the VM curriculum has increased. Simulation-based learning is included in 17% of VM study subjects. In small animal surgery, simulation training represents 68.2% of the curriculum. In propaedeutics, large animal obstetrics, physiology, and large animal internal diseases, simulation training represents 15.7%,5.6%,4.4%, and 3.5% of the total contact hours, respectively. To learn the students' opinion about the VMSC and to get their feedback a questionnaire titled "Survey on VA Simulation Center" was designed by the Veterinary Academy Student Association in collaboration with VMSC. It was completed voluntarily by all VM students (1st-6th year) via the LSMU Moodle system. The survey results showed that 30.77%, 27.69%, 10.77%, 12.31%, 9.23% and 7.69% of the 3rd, 1st, 4th, 2nd, 5th and 6th year students took training at the VMSC, respectively. Most respondents (30.43%) ranked the VMSC's activities 8th on a ten-point scale. 29.79% of respondents agreed that the information on the stations was sufficient, but 31.91% would like the material to be available remotely. Students are interested in virtual simulations of surgical procedures/operations (36.59%), clinical case studies (24.39%) and imaging diagnostics (17.07%).Students prefer the new stations for surgery (18.97%), large animal obstetrics (13.79%), exotic animals and visual diagnostics (10.34%each). The development of the VMSC is essential to ensure modern and high-quality veterinary training that meets the increasing demands of practice and the needs of students and professionals.In 2025, the VMSC will undergo further expansion through the acquisition of high-performance simulation equipment and the relocation to new, modern premises.

KEYWORDS: simulation; veterinary medicine; survey

REFERENCES

Braid HR. The use of simulators for teaching practical clinical skills to veterinary students — a review. Alternatives to Laboratory Animals. 2022;50(3):184–194.

P6

GRADUATING VETERINARIANS AS ACTIVE PARTICIPANTS IN THE TEACHING-LEARNING PROCESS: EGG PROCESSING AND DAILY LIFE

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ABSTRACT

Animal foods from the processing industry are part of the veterinary medicine course to understand the basics of food safety, hygiene, processing, laws and regulations. One of the topics is the production chain of eggs. The aim of this method was to create a different way of approaching the topic, where students actively participated in the teaching-learning process by making a connection to their daily lives (Freire, 2016) to understand the technology of egg processing (washing, screening, inspection, grading and quality standards). Each student brought egg cartons to class. Using the labels on the cartons, they looked for classifications of eggs according to current Brazilian regulations: weight/size of eggs, classification and type of production (cage-free, free-range, conventional), packaging and expiry date. The students did not know the differences between the weight/size of the eggs and the processing steps. In addition, students learnt the importance of control stamps from the Brazilian Federal Inspection Service (SIF) (Brasil – MAPA, 2017), which follows current international regulations and allows the export of eggs, as well as local control stamps (from municipalities and states) for local or domestic circulation. The continuation of the activity consisted of the students going to supermarkets to observe the behaviour of customers when buying eggs: They asked simple questions about the cost-benefit ratio of different weights and values of eggshells. The results of the customer questionnaires showed that the general public is unaware of the link between egg weight and price, as they are unaware of the different egg categories available in supermarkets. By linking the topic to students' daily lives, it was possible to achieve a more tangible learning that was meaningful and had a positive impact on students' learning, even though it is a topic that is not very interesting for veterinary students.

KEYWORDS: animal products; eggs; regulations; teaching-learning; daily life

REFERENCES

Freire, P. Padagogy of Autonomy – Saberes necessários à prática educativa. Rio de Janeiro: Paz e Terra, 2016, 143pp. Partially available at: https://acervoapi.paulofreire.org/server/api/core/bitstreams/41f369cd-830d-4720-af96-71b5fd9f1725/content Brasil – Ministério da Agricultura, Pecuária e Abastecimento: Regulamento de Inspeção Industrial e Sanitária de Produtos de Origem Animal (RIISPOA), 2017. Available at: https://www.planalto.gov.br/ccivil_03/_ato2015-2018/2017/decreto/d9013.htm

P7

USING MEMES AS AN EDUCATIONAL TOOL IN NOSOLOGY AND PATHOPHYSIOLOGY: ENHANCING VETERINARY LEARNING THROUGH CREATIVITY AND ENGAGEMENT

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ABSTRACT

Meme-making constitutes a contemporary and innovative strategy to enhance student engagement, support learning processes, and promote knowledge retention, thereby enriching the overall educational experience in the classroom (Tidy et al., 2024). The Nosology and Pathophysiology course in the Veterinary program at the University of Murcia is characterized by a high density of theoretical content, including numerous definitions and new concepts, and students need to learn it in a short time. To enhance student comprehension, a teaching innovation project using memes as an educational tool was implemented in the second year of the degree.

Students were invited to design original memes as part of the Nosology and Pathophysiology course and 15 agreed to participate. Their memes were evaluated by five faculty members considering their conceptual accuracy, relevance to course content, creativity, communicative clarity, image usage, comprehension, and overall rating. In parallel, students completed an anonymous satisfaction survey to assess their perceptions of the activity's impact on their learning experience and their motivation to participate.

Ten out of 15 students (67%) reported participating primarily because they believed it would positively impact their final course evaluation. 73% reported that the task contributed to a better understanding of the concepts and 47% think memes can be a useful tool for learning. 67% also described the process as easy and funny. According to the lecturers' feedback, most of them agreed that the memes were relevant to the course and could enhance students' comprehension of the content.

This initiative demonstrates how incorporating elements of digital culture into the classroom can contribute to a more meaningful and participatory learning experience. Most students considered the activity both enjoyable and relevant to their learning.

KEYWORDS: teaching innovation; memes; student engagement; creative assessment; digital culture

REFERENCES

Tidy H., Bolton-King RS., Croxton R., Mullen C., Nichols-Drew L., Carlysle-Davies F., Moran KS., and Irving-Walton J. Enhancing the student learning experience through memes. Science & Justice. 2024;64(3):280-288.

P8

STUDENT ENGAGEMENT IN RADIOFREQUENCY ELECTROMAGNETIC FIELD EXPOSURE RESEARCH: A MODEL FOR ENVIRONMENTAL STRESS AWARENESS IN VETERINARY EDUCATION

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ABSTRACT

Aim of the study: This research explores how student-led investigation of radiofrequency electromagnetic field (RF-EMF) exposure in veterinary teaching environments can promote environmental stress awareness, strengthen scientific competencies, and encourage critical reflection on wireless technology use in academic settings. Methods: Veterinary students engage in all stages of research — design, spatial RF-EMF measurement, and data interpretation — across lecture halls, practical rooms, computer labs, the library, and informal student spaces. Measurements are conducted using a standardized grid-based protocol under three conditions: unoccupied, stand-by (passive use), and active use (e.g., streaming). Anonymous surveys are being developed to assess students' and faculty members' awareness, usage patterns, and attitudes toward RF-EMF as a potential environmental stressor. Results: Early findings indicate considerable variation in RF-EMF exposure, with higher levels observed during active technology use compared to unoccupied conditions, depending on space function and occupancy intensity. The research process fosters student engagement with environmental health, digital behavior, and scientific reasoning, while enhancing skills in hypothesis testing, data analysis, and interdisciplinary inquiry. It also promotes increased awareness of invisible environmental stimuli, such as wireless signals, and their potential role in shaping academic environments. Conclusion: This student-led RF-EMF research offers a scalable, ethically sound framework for addressing emerging environmental challenges in veterinary education. It cultivates analytical and methodological expertise, while prompting reflection on how wireless technologies shape academic environments and perceptions of stress. By fostering critical thinking and interdisciplinary awareness, the model aligns with One Health values through increased attention to animal health and welfare.

KEYWORDS: veterinary education; environmental stress; radiofrequency electromagnetic fields

P9

INTEGRATING BEHAVIOURAL PHYSIOLOGY INTO VETERINARY EDUCATION: A PRACTICAL APPROACH TO ENHANCING STUDENT ENGAGEMENT AND UNDERSTANDING

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ABSTRACT

Aim of the study: The aim of this presentation is to demonstrate how practical sessions in behavioral physiology, specifically through maze experiments in rodents, can enhance veterinary students' understanding of animal behavior, memory, learning, and motivation. This approach also contributes to reducing academic stress by hands-on engaging learning environments for students and promoting animal welfare through observational research. Methods: By engaging students in observation and data collection, the approach builds a foundation in behavioral science and experimental methodology. A series of practical activities were developed focusing on spatial learning and memory using Hebb-Williams and Y-mazes with mice and rats. Students observed and recorded behavioral patterns linked to memory processing, motivation, and reward-seeking behavior. Lessons incorporated theoretical knowledge about neural and hormonal regulation of behavior, as well as applied learning strategies such as classical and operant conditioning. Results: Students demonstrated increased interest and participation in classes involving live-animal observations and behavioral experiments. Oral surveys indicated. The use of familiar animal models (mouse or rats) and hands-on learning reduced perceived academic stress and improved comprehension of complex physiological processes, promoted empathy, ethical awareness, and critical thinking—skills essential for future veterinarians. The animals exhibited typical exploratory and learning behaviors, which were analyzed and discussed in the context of behavioral plasticity and environmental adaptation.

Conclusion: Incorporating behavioral physiology into practical education supports both student well-being and scientific competence, reflecting the interconnectedness of the stress cycle among students, educators, and animals. This educational model not only enhances cognitive learning outcomes but also addresses emotional engagement and ethical responsibility, aligning with the core mission of ICEAS to promote integrated, research-based veterinary education.

KEYWORDS: education; physiology, behavior; stress; learning

P10

THE ROLE OF IMAGING DIAGNOSTICS IN THE EDUCATION OF MEDICAL STUDENTS AND SPECIALIST PHYSICIANS

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ABSTRACT
The utilization of imaging diagnostics in the education of students and specialist physicians has become increasingly vital in modern medical training. This work aimed to explore the significance of integrating advanced imaging techniques, such as ultrasound, X-ray, MRI, and CT scans, into the curricula of medical education. By enhancing the learning experience, imaging diagnostics provide students with critical insights into human anatomy and pathological conditions.
A mixed-methods approach was employed to evaluate the effectiveness of imaging diagnostics in medical education. This included surveys and interviews with medical students, educators, and practicing healthcare professionals across several institutions. Quantitative data were collected on students' performance in clinical assessments and their self-reported confidence levels regarding their diagnostic skills. Qualitative data were gathered through focus groups to gain insights into the perceived impact of imaging education on clinical practice.
The findings revealed that students exposed to structured imaging diagnostics training had a significant improvement in diagnostic reasoning and clinical decision-making skills compared to those with limited exposure. Approximately 75% of participants reported increased confidence in interpreting imaging results, while 85% of faculty noted enhanced engagement during practical sessions. Additionally, qualitative feedback highlighted the importance of hands-on experience with imaging technology and the role of interdisciplinary collaboration in reinforcing learned concepts.
In conclusion, the emphasis on imaging diagnostics in medical education not only enriches the academic experience but also fosters a culture of lifelong learning and adaptation in the rapidly evolving field of medicine. This study underscores the necessity for a robust educational framework that prioritizes imaging diagnostics, preparing the next generation of medical professionals to thrive in an increasingly technology-driven healthcare landscape.

KEYWORDS: diagnostic imaging; MRI, CT

P11

GYNECOLOGICAL ULTRASONOGRAPHY IN SPRAGUE-DAWLEY RAT

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ABSTRACT

Aim of the study: In this study, the gynecological ultrasonographic evaluations were performed in rats before spaying operations.

Methods: Twelve-month-old, non-pregnant, intact, healthy 100 female Sprague-Dawley rats were scanned ultrasonographically. In preoperative clinical exams, any vaginal discharge or hematuria was not detected. At ultrasonography, bilateral fluid accumulation and cystic ovaries were detected in 7 animals, concomitantly. Following scanning, routine ovariohysterectomy operations were performed on the median line.

Results: Asymmetrical swellings containing serous or pyogenic ingredients were seen on the removed uterine horns. Besides, single or multiple ovarian cysts were observed. Although rats have been widely used as animal models, ovarian cysts and uterine disorders are not reported commonly.

Conclusion: Based on our preoperative scans' results, it can be stated that a detailed gynecological scan is needed to detect subclinical reproductive disorders in adult rats for a more appropriate selection in experimental studies in the future.

REFERENCES

Banzato T, Bellini L, Contiero B, Martin A, Balikçi S, & Zotti, A. Abdominal anatomic features and reference values determined by use of ultrasonography in healthy common rats (Rattus norvegicus). American Journal of Veterinary Research, 2014;75(1):67-76.

Klaphake E, Paul-Murphy J. Disorders of the reproductive and urinary systems. In: Ferrets, Rabbits and Rodents - Clinical Medicine and Surgery. Elsevier Health Sciences; 2011. p. 221.

Tselepidis S, Vassiou K, Arvanitis D, Kalogeropoulou C, & Marinou K. The contribution of laboratory animals to diagnostic imaging research in Greece. Journal of the Hellenic Veterinary Medical Society, 2018;68(1):11-20.

KEYWORDS: ultrasonography; cystic ovary, pyometra; rat

P12

ARTIFICIAL INTELLIGENCE IN TEACHING AND LEARNING AT LSMU

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ABSTRACT

The future of higher education is intrinsically linked with developments in new technologies and computing capacities of the new intelligent machines (1).There are two paradigms on this, some see as an opportunity for effective learning and others see as a challenge in teaching and learning contributing to rote learning (2).The aim of the study is to identify lecturers' opinion on the use of AI in teaching and learning of veterinary medicine (VM) students. Methods:The questionnaire for the lecturers of ten questions was used as a data collection tool. Results: The survey showed that the most used digital technologies for teaching are MSD Veterinary Manual 21%, Veterinary records management systems 18%, Plumb's Veterinary Drugs 16%. In the teaching process of VM students, lecturers use digital technology platforms such as Moodle, Microsoft Teams, Zoom, Canvas, PubMed, and ScienceDirect to present and search for information. Lecturers indicated that ChatGPT 35%, Grammarly and Google AI 12%,and Canva 10% are the most used AI learning tools in VM student teaching, while in VM practices-Virtual Simulation 38% and Veterinarian AI 25%. Respondents believe that insufficient training on digital tools 35%,lack of financial resources 21%, students being unprepared 12% are the challenges they face when using digital or AI technologies in student education. The majority of respondents agree that AI and digital technologies improve student learning by saving time, making it easier to understand information, and improving understanding and application of the material in practice.
Conclusion: The integration of AI in teaching and learning is inevitable apart from presenting both opportunities and challenges. The authors recommend that there should be training for all education facilitators on the use of AI, students' engagement in learning, formulation of policies guiding the use of AI in teaching and learning and to have acceptable balance between human being and AI interaction.

KEYWORDS: Artificial Intelligence and Higher Education

REFERENCES

Popenici, S.A.D., Kerr, S. Exploring the impact of artificial intelligence on teaching and learning in higher education. RPTEL 12, 22 (2017).
Shadrack Mwakalinga. The Use of Artificial Intelligence in Teaching And Learning: Opportunities and Challenges Students Vs Lecturers Perception. IJFMR Vol. 6, Issue 5 (2024).

P13

PRACTICAL ASPECTS OF TRAINING VETERINARY STUDENTS BASED ON THE EXPERIENCE OF THE SMALL MAMMALS DEPARTMENT (UNIVERSITY OF LIFE SCIENCE IN LUBLIN)

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ABSTRACT
The Small Mammals Department is a specialist clinic that admits rodents, rabbits,and othet small pets. The Small Mammals Department employs four doctors supported by volunteers – veterinary students. All employees are veterinarians with extensive experience in the field of small mammal therapy. The number of volunteers is variable, about 20 people. Students become a volunteers and only then are introduced to clinical work as assistants to doctors. Moreover they acquire practical skills such as blood collection, inserting cannulae, injections and assisting during surgery. The method of transferring knowledge resembles a master-student relationship and the approach to the student is highly individual. The effectiveness of this method of education is evidenced by the very frequent employment of our graduated volunteers in private clinics, including specialist ones. According to our graduates, early contact with clinical work supported by individual substantive care from an experienced veterinarian support their confidence and reduces stress during the first steps of vets in professional life. To confirm this statement, we present the results of our survey sent to practicing veterinarians who were previously our volunteers. The results clearly indicate that gaining knowledge in the way we implemented helped a lot in getting a job, increased self-confidence and reduced the stress associated with starting a first job. It is worth emphasizing that our former volunteers create a real network of connections using social media, willingly exchanging experiences and consulting patients.

KEYWORDS: Veterinary education; clinician; stress management

P14

CAN A BASIC ENVIRONMENTAL ENRICHMENT PROGRAM ENHANCE THE WELFARE OF A FAMILIAR GROUP OF MARES?

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ABSTRACT

Animal welfare is an item of growing interest in modern society. As such, this field is experiencing increasing development as new welfare protocols, measuring methodology, and behavioural knowledge emerge (Ohl and van der Staay, 2012). In this sense, the horse is a very interesting and rather unique model since it lives in a variety of stress/welfare conditions and shows very clear behavioural expressions related to stress (Lesimple, 2020). This study aimed to evaluate welfare indicators in a well-established family group of mares from the Veterinary Teaching Farm of the University of Murcia kept in semi-freedom housing conditions, to determine if the environmental enrichment program purpose as part of a student volunteer project could increase their welfare. The program, progressively and in this order, consisted of increasing their human contact by positive reinforcement (26/12/2023) and available space (19/04/2024), and hay nets (29/08/2024), and scratch brushes (03/10/2024) were added. The indicators evaluated were 1) based on the animal: physical, hematology and biochemistry exams, % of allogrooming and feeding behaviour, and salivary stress biomarkers measurements (alpha amylase, cortisol, butyrylcholinesterase) (Contreras-Aguilar et al., 2019), and oxytocin (Botía et al., 2025); 2) based on the maintenance: time with available forage; 3) based on the environment: thermal comfort. As a result, the grooming interactions increased, serum urea, bilirubin, and glucose levels decreased, and salivary butyrylcholinesterase levels decreased, while oxytocin was increased. Overall, the program demonstrated having a positive effect on the welfare of the studied population, both by reinforcing affiliative social interactions and having a positive effect on stress biomarkers, as well as improving their physical health. Nonetheless, there was room for improvement regarding thermal comfort, ectoparasite control, and encouraging food-searching behaviours using more environmental enrichment resources.

KEYWORDS: equine environmental enrichment; salivary stress biomarkers; equine welfare

REFERENCES

Botía M, Muñoz-Prieto A, Martínez-Subiela S, Martín-Cuervo M, Hansen S, Manteca X, et al. Oxytocin in horse saliva: validation of a highly sensitive assay and a pilot report about changes in equine gastric ulcer syndrome. BMC Vet Res. 2025 Dec 1;21(1).

Contreras-Aguilar MD, Henry S, Coste C, Tecles F, Escribano D, Cerón JJ, et al. Changes in Saliva Analytes Correlate with Horses ' Behavioural Reactions to An Acute Stressor : A Pilot Study. Animals. 2019;9(11):993.

Lesimple C. Indicators of horse welfare: State-of-the-art. Animals. 2020;10:1–19.

Ohl F, van der Staay FJ. Animal welfare: At the interface between science and society. Veterinary Journal. 2012;192(1):13–9.

P15

VOLUNTEERING IN VETERINARY CLINICAL EDUCATION: THE INTERNAL MEDICINE CLINIC EXPERIENCE

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Volunteering is defined as the act of willingly offering time, effort, skills, or resources to help others or contribute to a cause, without receiving financial compensation. It is typically done for the benefit of individuals, communities, organizations, or the environment. At the Faculty of Veterinary Medicine in Zagreb, formal practical training in clinical subjects most commonly involves a structured schedule with clearly defined hours, usually on weekdays from 8 AM to 4 PM. There is a minimal amount of practical work taking place during the remaining 16 hours of the day, and none on weekends. As a result, a significant number of patients are admitted to the clinic without students being present in a formal teaching setting. This means that students miss out on many interesting emergency cases and the first admissions of acutely ill animals. Volunteering at the Clinic for Internal Medicine at the Faculty of Veterinary Medicine in Zagreb has existed in its formal form for many years. Initially, a volunteer team was organized in the Small Animal Clinic, and later, volunteering was extended to the Equine Section. Currently, a volunteer team is being formed in the Farm Animal Section. Students are highly motivated to participate in volunteering. While some volunteers do drop out during the initial months, those who remain typically continue volunteering until graduation. During their volunteer work, clinic staff organizes workshops for students and occasionally hosts social gatherings to help young colleagues feel like part of the team. The advantages of the volunteer system at our clinic are numerous — benefiting students, staff, and patients alike. For this reason, we plan to continue actively promoting volunteering opportunities for our students.

KEYWORDS: volunteering; clinic for Internal medicine; opportunities

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