

**DOI 10.36074/logos-13.12.2024.036**

## PECULIARITIES OF ANIMAL BEHAVIOR IN ZOOPHYSIOTHERAPY

**Bilash Yuliana Petrivna<sup>1</sup>**

---

**1.** PhD, Associate Professor,  
Department of Production Safety  
and Mechanization of Technological  
Processes in Animal Husbandry  
*Lviv National University of Veterinary Medicine  
and Biotechnologies named after S.Z. Gzhytsky, Lviv, UKRAINE*  
**ORCID ID: 0000-0002-8890-667**

---

Animal behavior is a complex and multifaceted process that includes both instinctive and learned reactions to external and internal stimuli. Studying this behavior allows for a better understanding of the evolutionary mechanisms that shape the adaptation of animals to changing environmental conditions. Types of behavior, such as feeding, social, sexual, territorial, and defensive behaviors, can vary significantly depending on the species, age, and sex of the animal. Instincts, learning, interaction with other individuals, and the environment play a crucial role in determining how animals respond to external changes. An important aspect is also the study of behavioral disorders that may arise under the influence of stress or environmental changes. All these aspects are studied within the fields of zoology, ethology, and ecology, which helps develop a deeper understanding of animals' adaptive strategies.

Animal behavior is one of the most fascinating fields of study in biology, encompassing a wide range of forms and patterns of interaction between organisms and their environment, as well as with each other. Understanding animal behavior is crucial not only for science but also for ecology, agriculture, veterinary medicine, and even psychology.[1]

For a zoophysiotherapist, understanding animal behavior is essential both for assessing signs of pain and for ensuring the safe and appropriate execution of physiotherapy interventions. This discussion highlights the importance of considering both genetic and environmental factors when evaluating animal behavior in general, as well as specific factors influencing the identification and

## ABSCHNITT 11.

### AGRAR- UND LEBENSMITTELWISSENSCHAFTEN

assessment of pain. Mechanisms underlying pain and its management are also discussed concerning their relationship with behavior. Finally, aggression is considered in terms of potential triggers and how to manage them during treatment.

Understanding animal behavior is vital for physiotherapists to ensure safe handling of animals that may be in pain, potentially aggressive, and to alleviate pain through thorough and accurate pain assessment. Often, we only recognize that an animal requires physiotherapy intervention due to its behavior. This behavior may be overt, such as non-weight-bearing lameness, or subtler, such as reduced activity or energy levels.[2]

In horses, pain can manifest as training issues or poor performance. Addressing the root cause of such behavior (rather than merely suppressing the symptoms) requires awareness of the full spectrum of factors interacting with and influencing behavior. This involves at least some understanding of various zoological disciplines, as well as psychology, veterinary science, animal husbandry, and nutrition. While this may seem daunting, it is often most effective to work as part of a multidisciplinary team, where each member respects and utilizes the expertise of the others.

Since pain expression involves two components—the sensory-discriminative component (i.e., processing the nature of the aversive stimulus and its location on the body) and the affective-motivational component of pain (i.e., the emotional and behavioral response to pain or its anticipation)—it is crucial to recognize their distinct behavioral manifestations.[3]

The first aspect of pain is primarily related to localized changes, such as lameness or sensitivity to touch, whereas the second involves broader behavioral changes, such as increased aggression or avoidance. Thus, animal physiotherapists must recognize that some animals may require behavioral therapy to address the affective-motivational aspects of pain before effectively managing the sensory-discriminative component.

Although animal physiotherapists are not expected to be behavioral specialists, nor should they be tempted to practice outside their expertise, a solid understanding and evaluation of the subject are critical. This is necessary to prevent harm to themselves, others, or the welfare of the animals. Physiotherapists transitioning from human disciplines may have a significant awareness of the psychological effects of chronic pain but must also understand the biological and cognitive differences between humans and non-human animals. Assuming that concepts applicable to one species are equally relevant to another can lead to superficial or inaccurate assessments, potentially resulting in inappropriate treatment. Anthropomorphism (attributing human traits to animals) may further

compound this issue. Therefore, thorough and objective evaluation of all available information is crucial, considering the biology of the species in question.[4]

Starting from the principles of animal behavior assessment, behavior and physiology are mechanisms by which animals attempt to adapt to or cope with their environment. To survive and thrive evolutionarily, animals must maximize efficiency, with those able to adapt appropriately having an advantage over less adaptable individuals. Accordingly, the behavior of a particular animal should be viewed as an attempt to respond most adequately to the current circumstances, given its prior experiences.

Considering all three is essential for fully understanding why an animal behaves in a particular way. After addressing these considerations, the discussion moves on to the concepts of pain, pain assessment, pain management, and inherent aggression—all within the context relevant to an animal physiotherapist.[5]

There are three main principles that should be included in the thought process when attempting to assess animal behavior:

- The nature of personality is influenced genetically on many levels.
- Prior experience has both a general and specific impact on behavior.
- The current circumstances of the individual relate to both its overall motivational state and internal and external factors that cause this state to dominate the animal's behavior.

Genetic effects lay the foundation for both species-typical behaviors and individual differences within a species. Species-typical behavior refers to activities that define the species, such as whether a dog or a horse behaves in certain ways. One species may be a predator, while the other is prey. To reduce the risk of predation, natural selection has likely favored a greater ability to mask signs of pain, injury, and illness in horses compared to dogs. In other words, when a horse looks visibly ill or lame, its well-being is often already seriously compromised. Similarly, during treatment and rehabilitation, one can expect the horse to stop showing these signs before full recovery, which increases the risk of relapse if the animal is returned to inappropriate levels of activity too quickly or abruptly. Animal physiotherapists play an important role in ensuring that this does not happen and in properly managing the progression toward full physical recovery.[6]

It is also important to understand the normal behavior of a species in order to assess whether something is a true illness or a common behavior. For example, an inexperienced owner might mistakenly think their cat is in pain because it meows loudly and rolls on the floor periodically.

There is also a large genetic contribution to the vast variation within a species, such as between breeds and within a breed. While some generalizations about

## ABSCHNITT 11.

### AGRAR- UND LEBENSMITTELWISSENSCHAFTEN

breeds may be easy to make, for example, selective breeding fostering greater stoicism in breeds used for live hunting (e.g., terriers), it is important to understand that variation within a breed can be greater than the variation that exists between breeds. Therefore, one should not assume that an individual of a particular breed will necessarily be more or less stoic than an individual of another breed.[7]

Expressions of individual variation arise from the interaction of various genetic and environmental factors throughout life, which serves to shape the temperament of the personality and how it perceives the surrounding world, including the personal significance of events. It is important to assess breed characteristics, but they should not be rigid guidelines, especially when it comes to the response to pain.

Suffering is a subjective experience that must always be respected when observed and should not be dismissed as unworthy simply because the cause seems secondary to the observer. This is perhaps one of the main challenges faced by those trying to develop general recognition of pain in animals. Therefore, it is not surprising that in many cases, the owner is the best evaluator, as they recognize what is normal for that individual and how it behaved before any changes occurred (Wiseman et al. 2001). Pet owners observe a much broader range of animal behavior than what a physiotherapist would see during a consultation; for example, the animal might show more signs of pain in the evening or morning, and this may only be controlled at home. Such record-keeping is crucial for the physiotherapist to assess therapeutic progress or identify early signs of relapse that may have gone unnoticed by the owner or veterinarian. Additionally, if progress reports show continuous improvement but the physiotherapist notices slight changes during therapy—such as the dog resisting a little more or appearing more tense or painful than usual—this should be reported to the referring or supervising veterinarian.[8]

A second important consideration is the influence of prior experience, both general and specific, on behavior. It has already been noted that a significant part of temperament arises as a result of the interaction between the animal's genetics and its early experiences, and temperament can be considered a general factor reflecting the animal's behavioral tendencies in various environments. For example, dogs that are poorly socialized are likely to be more fearful and aggressive towards a wide range of unfamiliar objects that might seem very «normal» to us [9]

Specific effects include individual learned responses that have been effective for the animal in the past. If a fearful dog growls at someone approaching it and the person (understandably) backs off, the dog learns that growling helps achieve its goal and may use this strategy in other contexts. The best approach is to recognize the early signs of distress, such as turning the head, yawning, or lip licking, and avoid unnecessary escalation to overt aggression. It is important to assess why this

happened and take appropriate steps to correct it. In a clinical context, it is crucial to distinguish between an animal that is generally fearful by temperament and does not like strangers approaching it, and one that may be protecting a painful area of its body (a specific response). Both may threaten aggressively when first approached, but only one has behavior related to a potential physiotherapeutic problem.[10]

Similarly, horses are often predisposed to fear-based behaviors when encountering anything new, whether it be a new person or unfamiliar handling, and this does not necessarily mean they are in pain. However, if the animal is not handled gently during its first interaction, it will likely develop a stronger aversion to similar situations in the future, which may manifest as both general irritability and specific behaviors. Many horses become protective of specific body areas due to insensitive handling when that area has been irritated by another process. For example, rough handling when putting on a bridle, especially if the horse has a sore mouth or ear irritation, can soon cause the animal to become skittish. In such situations, the animal learns that the safest reaction is to avoid manipulation, even when the pain may no longer be present, as the handling is likely to remain rough and unpleasant.

From a physiotherapeutic perspective, ensuring appropriate handling is not only essential for assessment but also for implementing interventions. For instance, a dog can be trained to stand on its own rather than being manually handled (Insertion 2.1) or can be introduced to equipment, such as an underwater treadmill, using positive reinforcement or targeted training. It is important to identify and acknowledge the potential role of any condition in the animal's history that could cause general irritability, including episodes of low-level pain, such as subclinical conditions in horses, and any history of temperament changes in adulthood should be carefully considered for possible underlying medical conditions.

As previously mentioned, multiple factors may occur simultaneously, and temperamentally fearful individuals being treated for painful conditions may require significant preparatory work to ensure effective handling. Animal physiotherapists should not hesitate to address this with the owner after the initial assessment and refer to a qualified behaviorist if necessary. While procedures to reduce the animal's sensitivity to proximity are relatively simple and easy to teach, they can be applied to aggressive animals or any that are tense during the initial examination. A relaxed animal is easier and safer to examine.

A brief behavioral history will help determine what to expect from the animal, and various external and internal factors that may influence behavior should be reviewed (Askew 2002) for more detailed information about the animal's broader behavioral history. External factors include general management and any specific aggression triggers or known fears of the animal.[10]

## ABSCHNITT 11.

### AGRAR- UND LEBENSMITTELWISSENSCHAFTEN

Internal factors involve personality signals (age, breed, gender, etc.) that may be relevant. Gathering basic information about triggers before the initial consultation can be helpful in managing behavior from the outset and avoiding negative early experiences in the treatment environment. For example, a horse may display very poor behavior during rear limb picking, which may need to be differentiated from pain processes in the hind limbs, or a horse may learn behaviors to avoid saddling or riding, resulting in it appearing «cold» or «stiff» or demonstrating a secondary reaction to the tightening of the girth.

Animal behavior is the result of a complex interaction between genetic mechanisms, physiological processes, and external environmental factors. Studying behavioral traits allows us to understand how animals adapt to their living conditions, communicate, obtain food, protect themselves, and reproduce.[11]

Key conclusions about animal behavior include the roles of instincts and learning, which are connected to many behavioral acts driven by genetically encoded instincts. At the same time, learning enables animals to adapt their behavior to new circumstances. Animal communication uses a variety of methods, such as sounds, smells, body postures, and movements, which facilitate social interaction within groups or the transmission of important information.

Sociality and individualism, observed in many species, manifest as both collective behaviors (such as in packs, herds, and colonies) and individual behaviors, depending on survival conditions. Adaptability, meaning that animal behavior is flexible and can change under the influence of evolution, the environment, and individual life experiences, is another important feature.[12,13]

Studying animal behavior helps us understand evolutionary processes, the biological needs of species, and the mechanisms they use to adapt to environmental changes. This knowledge is crucial for the conservation of biodiversity and the sustainable use of natural resources.[14]

Conclusion. Animal behavior is a complex system of innate and learned responses shaped by genetic, environmental, and social factors. Understanding the behavioral characteristics of animals is crucial for ensuring their welfare, successful care, treatment, and rehabilitation. In animal physiotherapy, behavioral aspects play a key role in achieving positive outcomes. Considering factors such as stress, pain response, social behavior, and learning ability allows for tailoring treatment methods to the individual needs of the animal. Studying behavior also helps reduce stress during procedures, improves interaction between animals and humans, and creates harmonious living conditions. This not only facilitates treatment but also enhances the overall quality of life for animals. Further research into animal behavior patterns will deepen our understanding of their needs, improve effective communication, and foster harmonious relationships between animals and humans.

## REFERENCES:

- [1] Askew, H.. Animal Behavior and Welfare. Routledge. 2002. <https://www.routledge.com/environment-agriculture/zoology/animal-behaviour>
- [2] Baker, S.G., Roush, J.K., Unis, M.D., Wodiske, T.. Comparison of four commercial devices to measure limb circumference in dogs. Vet. Compend. Orthopaed.Traumatol.,23:2010.406–410p. <https://pubmed.ncbi.nlm.nih.gov/20830452/>
- [3] Benito, J., Hansen, B., DePuy, V. et al.. Feline Musculoskeletal Pain Index (FMPI): responsiveness and criterion validity testing. J.Vet. Intern. Med., 27: 2013a.474–482 p. <https://pubmed.ncbi.nlm.nih.gov/23551140/>
- [4] Benito, J., Hardie, E., Zamprogno, H. et al.. Reliability and discriminatory testing of a client-based metrology instrument, Feline Musculoskeletal Pain Index – FMPI, for the evaluation of degenerative joint disease associated pain in cats.Vet.J.,96: 2013 368–673p. <https://pubmed.ncbi.nlm.nih.gov/23369382/>
- [5] Beck, T.W., Housh, T.J., Cramer, J.T. et al.. Electrode shift and normalization reduce the innervation zone's influence on EMG. Med. Sci. SportsExerc.,40:2008.1314–1322p. <https://pubmed.ncbi.nlm.nih.gov/18191207/>
- [6] Bergh, A. Mechanical nociceptive threshold in the neck and back of horses after intramuscular injections. Proceedings of the Sixth International Symposium on Rehabilitation and Physical Therapy in Veterinary Medicine. 2010 p. <https://pubmed.ncbi.nlm.nih.gov/16411590/>
- [7] McGowan, C., Goff, L., & Stubbs, N.. Animal Physiotherapy: Assessment, Treatment, and Rehabilitation of Animals. Wiley-Blackwell. 2007. <https://pmc.ncbi.nlm.nih.gov/articles/PMC2643454/>
- [8] Radecki, W. Ustawa o ochronie zwierząt. Komentarz. Wrocław. 2021. <https://vetbooks.pl/p/17/1054/ustawa-o-ochronie-zwierzat-komentarz-pozostale-hodowla-zwierzat.html>
- [9] Rudy, M. (2019). Traktat o uśmiercaniu zwierząt. Warszawa. 2003. <http://www.kancelaria-result.pl/2019/08/01/traktat-o-usmiercaniu-zwierzat-nowa-ksiazka-dra-michala-rudego/>
- [10] Shepherd, M.. Animal Behaviour: A Very Short Introduction. Oxford University Press. 2009. <https://global.oup.com/academic/product/animal-behaviour>.
- [11] Smaga, Ł. Ochrona humanitarna zwierząt. Białystok. 2010. <https://ochronahumanitarnazwierzat.home.blog/2010/09/17/ochrona-humanitarna-zwierzat-lukasz-smaga/>
- [12] Topczewska, K. Ustawa o ochronie zwierząt. Informator prawny dla praktyków. Warszawa. 2019. <https://www.google.com/search.2019>.
- [13] Wiseman, L., & Cole, E. The Behaviour of Animals: A Biological Approach. Cambridge University Press. 2001. <https://animalstudies.msu.edu/bibliography.php>
- [14] Appleby, M. C., Bradshaw, J. W. S., & Olsson, A. S.. Animal welfare: A cool look at a hot topic. Springer. 2002. <https://www.researchgate.net/publication/375270059>