

Understanding signs of pain in laboratory animals

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The purpose of pain is to protect. Therefore, pain is an unpleasant experience accompanied by distress and negative emotions. Pain makes animals alter their behavior, postures, and facial expressions to avoid pain and further damage, promote healing, and warn others. Motivation to get rid of pain is high. Animals learn from painful experiences and change their future behavior and hierarchy of needs due to pain. However, although protective, pain is also harmful, especially when severe and long-lasting. Thus, it is crucial to recognize, assess, and treat pain in laboratory animals. However, pain evaluation is demanding as pain-related changes in animals' behavior, postures, and facial expressions are complex and diverse. After forming a pain experience, the animal's brain decides the appropriate behavioral response in relation to previous experiences and all other information available in each situation. Therefore, an animal's subjective pain experience and related behavior can vary significantly in different situations and between individuals. For example, animals suppress pain behaviors when feeling threatened. Unfortunately, at the same time, anxiety often makes pain worse. Therefore, animals, especially many laboratory animals belonging to prey species, can feel severe pain but show only subtle signs of pain. Thus, evaluating deviations in spontaneous behaviors or activities and typical postures and facial expressions in their home environments without disturbing the animals is often the best choice for pain recognition and assessment in laboratory animals. Moreover, regular, and multiple observations before and after painful procedures will improve accuracy when using ethograms and grimace scales for pain assessment.