To What Extent Does Trauma and Pain Association Inhibit the Mammalian Healing Process?

A holistic study into the effects of pain-driven behavioural learning, the motivation behind it, and the role this plays in both physical and mental healing across species – referencing opioid dependency and addiction in humans, the effects of predator-induced stress in hare mating cycles, and research into kissing spine rehabilitation in equines. With the recent growth of appreciation for the role mental well-being plays in biological healing and treatment, e.g. the introduction of MBSR in hospitals, this study highlights the extent of similarity within non-human psyches.

Kissing spine demonstrates how physical pain can alter behavioural characteristics, upturning an animal's personality. Pain association can leave a long-term scar on the psyche, existing beyond the physical ailment, and thus proves that bodily and mental pain are intrinsically connected and negatively impact the healing process – even after corrective treatment. The trauma response is present in this and hints towards the idea that equines experience PTSD similar to how a human would: avoidance behaviour and catastrophising. Focussing on the growth of association between two stimuli (e.g. increased thoracic pain and a saddle,) isolates the diagnostic and recovery process of kissing spine – due to symptoms being nearly entirely behavioural (e.g. rearing / excessive tail swishing), and still often being present after clinical treatment. Retraining the horse to no longer associate pain with being ridden parallels CBT or exposure therapy to systemically desensitise arachnophobic humans.

Demonstrating PTSD in animals and the feedback between psychological and physical pain is the relationship between hare mating cycles and their experienced self-preservation instincts. This investigates how high stress levels in hares from increased predation risks affect the reproduction rate in the females of the species – examining how chronic stress upsets the hormonal balance due to the constant presence of cortisol. An increase in infertility caused by the rise of cortisol rates (adrenal hypertrophy lasting after the predation risk is removed,) gives an example of how the mental state can alter physiology. This supports the causal correlation between psychology and physical pain, and the effects anticipation of harm and hypervigilance can have on both.

Behavioural dependency on opioids highlights the role of the mesolimbic reward system in learnt avoidance behaviour. The way one resorts to opioids as a source of escapism is a similar template to the mentality of someone whose injury leads to developing a phobia in that both exhibit behavioural alterations to avoid the cause of their negative stimulus. Both have an understood physical cause, yet the mental association of the drug or injury causes habitual cycles that are hard to recover from; thus, the mind impedes the healing process with the learnt response becoming a crutch.

Self-preservation, formed through fear, pain, and the associated avoidance response, is a behavioural blueprint that spans all species - yet sometimes this response can become a detriment. It's integral to learn how to retrain these behaviours to heal and appreciate the extent of an ailment, regardless of species.