

Calling for early management of joint pain: Early weight bearing deficit in joint disease predicts hypersensitivity and comorbid depressive-like behavior in late disease stages

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Chronic joint disease is a significant burden to patients and can be associated with both expected complaints like pain and functional impairment, but also negative affective symptoms like anxio-depressive and cognitive dysfunctions. Whether the affective symptoms result from the more obvious sensory and functional impact remains poorly understood, likely contributing to inadequate management of the condition. Using two preclinical mouse-models of joint pain (CFA-induced ankle inflammation and MIA-induced knee-osteoarthritis), we found that while both models induced relatively similar sensory and functional symptoms in the chronic stages, the weight bearing deficit in the early disease-stages was of very different magnitude. The MIA-model caused the most significant changes in functional-impairment and was also the only model to cause early changes in activity and sleep patterns, cognitive impairment and also depressive-like behavior at 3 months. Interestingly, across models, the weight bearing deficits measured in the early stages strongly correlated with the sensory and depressive-like profiles at 3 months (Hestehave et al, 2023). Most crucially, when analgesic treatment by a novel FKPB51-inhibitor (SAFit2) was provided during the early stages of the MIA-model, this resulted in persistent improvement of sensory- and functional symptoms and prevented anxio-depressive behavior 3 months after injury. This suggests that early functional measures may be used as predictors of long-term symptoms from chronic joint-diseases, and that early therapeutic interventions may be crucial for better management of the symptom-complex. Reference; Hestehave et al, 2023, Biorxiv, <https://doi.org/10.1101/2023.11.29.569246>. Financial support: This work was supported by Versus Arthritis, UK, Research Award 21972.