

From the website of Bret Contreras

Is pain catastrophizing a risk factor for chronic pain after total knee arthroplasty?

The study: *Pain catastrophizing as a risk factor for chronic pain after total knee arthroplasty – a systematic review, by Burns, Ritvo, Ferguson, Clarke, Seltzer & Katz, in Journal of Pain Research (2015)*

What is pain catastrophizing?

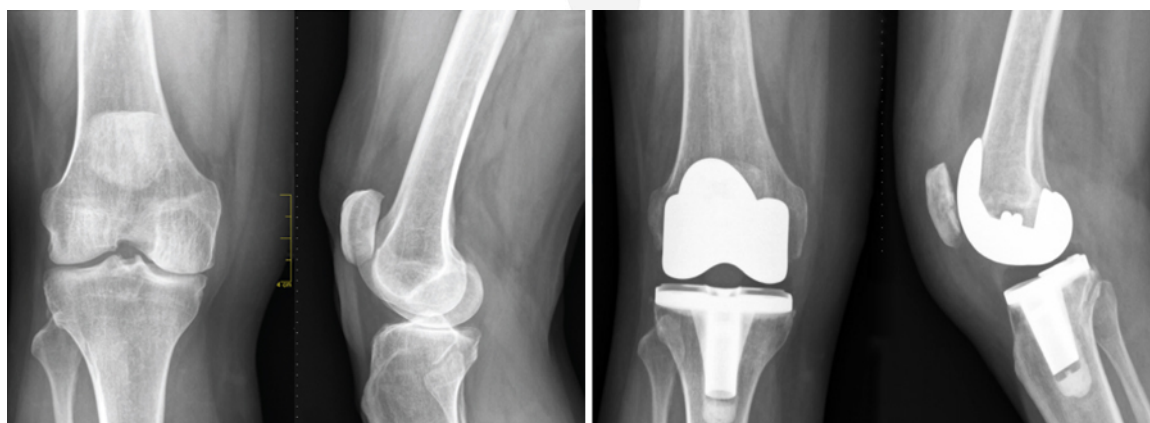
Our current model of pain catastrophizing involves three cognitive processes, which lead to an exaggerated and negative perception of the painful event: rumination, magnification, and helplessness. Individuals engaging in pain catastrophizing are found to be often ruminating about their pain, magnifying their pain, and feeling helpless about managing their pain. Pain catastrophizing appears to be associated with a reduced ability to cope with a painful event and also with a poorer overall prognosis when the painful event is a musculoskeletal condition.

What did the researchers do?

The researchers perform a systematic review of the literature to assess presence of pain catastrophizing as a risk factor for chronic pain following total knee arthroplasty (replacement).

What happened?

The researchers identified 6 prospective longitudinal studies meeting the inclusion criteria. They noted that the measure of pain catastrophizing used varied only slightly between studies and 5 of the 6 studies used the popular pain catastrophizing scale. The researchers found that the presence of pain catastrophizing was a significant predictor of chronic pain at ≥ 3 months following total knee arthroplasty in 5 of the 6 included studies. Thus, they concluded that there is moderate evidence for the presence of pain catastrophizing as a risk factor for the development of chronic pain after total knee arthroplasty.



Is central sensitization a key factor of shoulder pain?

The study: [The role of central sensitization in shoulder pain – a systematic literature review, by Lluich, Nijs, Struyf, & Kangasperko in Seminars in Arthritis and Rheumatism \(2014\)](#)

What is the background?

Nociception is not the same as pain but is an integral part of the mechanism by which pain is experienced. Nociception is the detection of noxious stimuli that leads to a sensation of hurt and occurs through the activation of specific, nociceptive sensory pathways. The activation of these nociceptive sensory pathways does not occur at the same threshold of noxious stimuli at all times. For example, after repeated or very noxious stimuli, the threshold for the activation of nociceptive sensory pathways falls and the nociceptive responses to subsequent stimuli are heightened. This is one example of central sensitization, or the amplification of neural signaling within the central nervous system leading to hypersensitivity to pain.

What did the researchers do?

The researchers performed a systematic review of the literature to assess whether central sensitization plays a role in unilateral non-neuropathic shoulder pain of different etiologies, including rotator cuff pathology, adhesive capsulitis, labral lesions, and subacromial impingement syndrome.

What happened?

The researchers identified 10 relevant studies, of which 4 involved solely patients with subacromial impingement syndrome while the other 6 incorporated subjects with a range of different types of shoulder pain. The researchers found that the presence of central sensitization in individuals with unilateral shoulder pain was supported by 8 out of the 10 included studies. The researchers concluded that although peripheral mechanisms are involved, central sensitization does play a role in some cases of unilateral shoulder pain.



Can physical activity help reduce fear avoidance and alleviate chronic non-specific pain?

The study: [Physical activity, fear avoidance, and chronic non-specific pain: a narrative review, by Nelson & Churilla in Journal of Bodywork and Movement Therapies \(2015\)](#)

What is the background?

The fear-avoidance model describes the tendency of individuals to engage in a self-perpetuating cycle of pain, fear, and disuse. In the fear-avoidance model, an initial painful event leads (often through pain catastrophizing) to fear of the painful event, which then leads to avoidance of any movements and activities that are associated with the painful event, ultimately causing disuse atrophy, reduced mobility, and reduced functional status. These factors then raise the risk of further painful events, ultimately leading to a persistent chronic pain syndrome.

What did the researchers do?

The researchers reviewed the associations between fear-avoidance tendencies, pain and levels of physical activity and disability to review the mechanisms that might underlie a beneficial effect of physical activity on chronic non-specific pain.

What did the researchers find?

The reviewers identified that a number of studies have reported strong associations between the tendency to display fear avoidance beliefs and both disability and pain, as well as between levels of physical inactivity and the tendency to display fear avoidance behaviors. The researchers noted that the mechanism by which physical activity can affect fear avoidance and pain is unclear. However, it may relate to the elevation of endogenous hormones that effect pain relief, such as beta-endorphins, or it might break the cycle of fear avoidance by halting the progression of deconditioning, or it might provide a sufficient distraction from the painful condition to reduce pain catastrophizing. In any event, the researchers suggested that individuals suffering from chronic pain conditions should be encouraged to take part in physical activity insofar as they are able to do so.

