

Exercise and osteoarthritis: an update

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Osteoarthritis (OA) is a painful and debilitating joint disease and is a leading cause of disability (Villafañe et al., 2015). The socioeconomic cost and burden of symptomatic OA are growing with the ageing population globally. Clinically, the condition is characterized by joint pain, tenderness, crepitus, stiffness and limitation of movement with occasional effusion and variable degrees of local inflammation, especially if those patients are older than 50 years (Felson, 2009). This condition is progressive and leads to functional decline and loss in quality of life, with important health care and society costs. OA prevalence differs by physical activity. General joint hypermobility may be associated with OA, but differences by physical activity are not known. Particular repetitive activities inherent in certain occupations have long been, and continue to be, associated with greater risk of OA (Ebell, 2018). This editorial highlights new research findings.

The conclusion of recent systematic reviews (Hurley et al., 2018; Schiphof et al., 2018) is that exercise therapy has moderate positive benefits for people with symptomatic OA. Muscle strengthening and programs that include combinations of strength, flexibility, and aerobic exercises, are more beneficial for pain and disability than general activity (e.g., walking). The majority of studies involve people with OA of the knee (Schiphof et al., 2018); however, beneficial effects of exercise therapy are also noted in studies of hand OA. For example, we found moderate quality evidence that therapeutic exercise combined with manual therapy or splints improve pain in hand OA (Bertozzi et al., 2015; Kjekken et al., 2011). The benefits of exercise therapy extend beyond pain and physical function with moderate effects on depression in people with hip and knee OA (Hurley et al., 2018). Pro-

grams that include exercise therapy and education about exercise provide are recommended to decrease fear of activity and improve patient engagement in exercise programs.

The pain in OA is frequently activity related; constant pain frequently becomes a feature later in the disease (Collins et al., 2014). Pain in OA is not simply attributable to the structural changes in the affected joint, but the result of interplay between structural change, peripheral and central pain processing mechanisms. Neuroplastic changes in the nociceptive system such as peripheral and central sensitization facilitate pain processing (Clauw and Hassett, 2017; Villafañe, 2018). This mechanism encompasses distorted sensory processing in the central nervous system, malfunctioning of descending pain-inhibitory mechanisms, enhanced activity of pain-facilitatory mechanisms, and long-term potentiation of the neural synapses in the anterior cingulate cortex that can amplify pain experiences by increasing its degree, duration, and spatial extent (Arendt-Nielsen, 2017). Despite conflicting evidence, several authors have concluded that a possible explanation for chronification of pain in the knee, hip, low back pain, shoulder and hand, in the absence of concomitant worsening in joint degeneration, can be explained by central sensitization (Villafañe et al., 2013). OA pain may also be aggravated by general factors such as metabolic changes and diabetes mellitus, genetic and psychological factors (Schaible, 2018). The weight of such factors may determine the pain pattern in individual patients.

OA poses a substantial and increasing burden on individuals and society. There is no resolutive therapy for this complicated disorder and there is still a crucial need to identify new non-pharmacological interventions for OA. Multimodal exercise therapy

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has a positive impact on quality of life for people with symptomatic OA and the condition shares several aspects of other chronic pain conditions. The understanding of OA and its manifestations has expanded in recent years; so have the therapeutic and treatment options to manage the disease.

CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

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