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Exercise in osteoarthritis: Moving from prescription to adherence



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A B S T R A C T

Exercise is recommended for the management of osteoarthritis (OA) in all clinical guidelines irrespective of disease severity, pain levels, and functional status. For knee OA, evidence supports the benefits of various types of exercise for improving pain and function in the short term. However, there is much less research investigating the effects of exercise in patients with OA at other joints such as the hip and hand. It is important to note that while the magnitude of exercise benefits may be considered small to moderate, these effects are comparable to reported estimates for simple analgesics and oral nonsteroidal anti-inflammatory drugs for OA pain but exercise has much fewer side effects. Exercise prescription should be individualized based on assessment findings and be patient centered involving shared decision making between the patient and clinician. Given that patient adherence to exercise declines over time, appropriate attention should be paid as reduced adherence attenuates the benefits of exercise. Given this, barriers and facilitators to exercise should be identified and strategies to maximize long-term adherence to exercise implemented.

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Introduction

Osteoarthritis (OA) is a chronic joint disease commonly affecting the joints of the knee, hip, and hand. People with OA report pain, difficulty performing activities of daily living, sleep problems, and fatigue. They present with a range of physical impairments including joint stiffness, muscle weakness, altered proprioception, reduced balance, and gait abnormalities. In addition to these, psychological impairments such as depression and anxiety are common.

Exercise is an integral component of conservative management for OA and is universally recommended by clinical guidelines [1–5], irrespective of patient age, joint involved, radiographic disease severity, pain intensity, functional levels, and comorbidities. Exercise prescription should be individualized based on assessment findings and be patient centered involving shared decision making between the patient and clinician. This chapter reviews the role of exercise in the management of OA. OA in general is covered, but knee OA is a primary focus given that this is the most common lower limb joint affected and that the majority of OA exercise research involves the knee joint.

The first section of the chapter highlights the evidence supporting the effectiveness of exercise in managing symptoms of OA. Following this, practical recommendations are made regarding specific exercise prescription in terms of type, dosage, and delivery methods as well as ways to assess and monitor the outcomes of exercise in individual patients. The subsequent sections cover issues related to implementation of exercise by clinicians and patients. While there is evidence to support the use of exercise, clinicians are not routinely recommending exercise to patients and potential reasons for this are explored. Given that patient adherence to exercise declines over time, appropriate attention should be paid as reduced adherence attenuates the benefits of exercise. Facilitators and barriers to exercise adherence are discussed and practical strategies to improve patient adherence to exercise are provided.

Is exercise effective in reducing symptoms of OA?

While considerable research has investigated the effects of exercise for knee OA, 2002 While considerable research has investigated the effects of exercise for knee OA, there is much less research at other joints such as the hip and hand. For knee OA, systematic reviews and meta-analyses consistently support the benefit of exercise for improving pain and physical function in the short term [6–8]. One recent review incorporating trial sequential analysis and network meta-analysis located 60 trials for lower limb OA (44 knee, two hip, and 14 mixed) covering 12 different types of exercise interventions [6]. Results showed that as of 2002, sufficient evidence was available to confirm the significant benefit of exercise interventions over no exercise control for a range of exercise types. The benefits of exercise also extend to patients with severe disease with another systematic review showing that exercise reduced pain and improved activity in those awaiting total joint replacement [9]. However, while effective in the short term, the benefits of exercise decline over the longer term [10]. Reasons for this and strategies to improve long-term effects of exercise are discussed in subsequent sections.

There has been much less research investigating the effects of exercise specifically in patients with hip OA. A 2009 Cochrane review of land-based exercise for hip OA demonstrated a small treatment benefit for pain but no significant effect for self-reported physical function [11]. Conversely, the results of a 2008 meta-analysis were more favorable, suggesting that exercise was beneficial for pain relief in hip OA [12]. Since then, there have been four additional high-quality exercise randomized controlled trials (RCTs) that provide hip OA specific data [13–16]. In general, these studies found nonsignificant mean improvements in pain with various types of exercise. In contrast to pain, exercise appeared to have greater effects on physical function. Therefore, evidence to date suggests that exercise in people with hip OA has only modest benefits that appear greater for function than pain.

While clinical guidelines recommend exercise for hand OA, this is based largely on expert consensus. Indeed, the clinical trial evidence is less convincing with conflicting results from a limited number of trials, most with small sample sizes [17]. In the recently published largest RCT of exercise for hand OA to date ($n = 257$), hand exercises were not effective for improving outcomes at 6 months [18]. The program included stretching and strengthening hand and thumb exercises performed daily. Further research in this OA patient population is clearly needed.

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