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Does regular exercise reduce the pain and stiffness of osteoarthritis?

Evidence-based answer

Yes, moderately. Exercise helps reduce the pain, but it's unclear whether it helps with stiffness. Exercise moderately reduces pain in elderly patients with osteoarthritis (strength of recommendation [SOR]: **A**, 3 systematic reviews, including high-

quality studies) and has a small effect on reducing self-reported disability (SOR: **B**, 2 systematic reviews, including reviews of smaller studies). No studies have evaluated the effect of exercise on stiffness.

Clinical commentary

Exercise takes 4 to 6 weeks to help

Talk to your patient about exercise preferences and concerns. Would your patient rather exercise with an organized group that provides instruction and support, or engage in a solitary activity such as walking? Referral to a physical therapist may be helpful. Remind your patient that exercise generally takes 4 to 6 weeks to help and must be continued to maintain improvements. Remind your patient to start slowly; an every-other-day regimen is often preferable initially.

The Arthritis Foundation (www.arthritis.org) offers exercise programs, videos, and patient education materials. Tai chi

for Arthritis, developed by an Australian family physician and tai chi expert, has been shown to decrease joint pain while improving balance and physical function. A list of certified instructors can be found at www.taichiforarthritis.com. The People with Arthritis Can Exercise (PACE) program and aquatic exercise programs are also available in many places through the Arthritis Foundation. These programs, designed specifically for people with arthritis, feature instructors who are trained in injury avoidance.

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FAST TRACK

Exercise for osteoarthritis:

- moderately reduces pain in the elderly
- has small effect on self-reported disability
- has not been studied for effect on stiffness

Evidence summary

Exercise therapy for osteoarthritis aims at reducing pain and disability by improving muscle strength, range of motion, joint stability, and fitness.^{1,2} A Cochrane systematic review of hip and knee osteoarthritis³ defined exercise therapy as activities performed actively, passively,

or against resistance. The outcomes were reported as effect sizes (ES): Typically, an ES of 0.2 is considered small, 0.5 medium, and 0.8 large.

Exercise, regardless of intensity, may ease pain of mild disease

Land-based therapeutic exercise demon-

strated a combined treatment effect of 0.39 (95% confidence interval [CI], 0.30-0.47) for reducing pain. Individual treatments (ES=0.52; 95% CI, 0.32-0.72) or exercise classes (ES=0.47; 95% CI, 0.34-0.60) had a larger effect than home-based programs (ES=0.28; 95% CI, 0.16-0.40). However, these studies only included patients with early or mildly symptomatic osteoarthritis, which may limit their applicability to more severe disease.

Another systematic review examined the effect of therapeutic exercise on hip and knee osteoarthritis.⁴ The standardized mean difference in ES for pain reduction was moderate, 0.46 (95% CI, 0.35-0.57). For self-reported physical functioning, the standardized mean difference was small, 0.33 (95% CI, 0.23-0.43). Study limitations included enrollment of patients with only early or mild osteoarthritis, low numbers of intent-to-treat studies, short-term nature of the studies, and inadequate sample sizes.

In a Cochrane systematic review that evaluated the intensity of exercise,⁵ only 1 study with 39 participants met the inclusion criteria. This limited-power study found no difference between the effect of low-intensity and high-intensity exercise on pain reduction or function.

Both aerobic and strengthening exercises seem to help

A 2005 systematic review examined aerobic walking and quadriceps strengthening for knee osteoarthritis using pain as the primary outcome and self-reported disability as the secondary outcome.⁶ In the exercise group, the weighted, pooled ES for pain reduction and self-reported disability was moderate at 0.52 (95% CI, 0.34-0.70) and 0.46 (95% CI, 0.25-0.67) respectively. The quadriceps strengthening group showed a small weighted, pooled ES for pain reduction of 0.32 (95% CI, 0.23-0.42) and disability of 0.32 (95% CI, 0.23-0.41); pain and disability measures were variable. None of the included clinical trials were blinded.

Two other reviews examined strength-

ening and aerobic exercises for osteoarthritis, including studies using isokinetic, concentric, and eccentric strengthening; water therapy; walking; yoga; and tai chi.^{7,8} The exercises appeared to have beneficial effects on pain. However, results from the studies of each type of exercise weren't combined and ES wasn't calculated.

No reviews assessed the effect of exercise on reducing stiffness.

Recommendations

The American College of Rheumatology recommends that nonpharmacologic therapy for osteoarthritis include education, aerobic exercise programs, physical therapy with range of motion, and muscle strengthening.⁹ The American Geriatric Society and the Centers for Disease Control and Prevention also recommend regular exercise.^{10,11} ■

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Advanced osteoarthritis



FAST TRACK

Tai chi for arthritis decreases joint pain while improving balance