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Q/ Is exercise therapy effective treatment for low back pain?

EVIDENCE-BASED ANSWER

A/ YES, IT IS SOMEWHAT EFFECTIVE. Exercise therapy—including general exercise, yoga, Pilates, and motor control exercise—has been shown to modestly decrease pain in chronic low back pain (LBP); levels of benefit in short- (≤ 3 months) and long- (≥ 1 year) term follow-up range from 4% to 15% improvement (strength of recommendation [SOR]

A, based on a systematic review of randomized controlled trials [RCTs]).

Exercise therapy may improve function and decrease work disability in subacute and chronic LBP, respectively (SOR A, based on a meta-analysis of RCTs). Exercise therapy has not been associated with improvement in acute LBP (SOR A, based on a meta-analysis of RCTs).

Evidence summary

General exercise offers benefit ... at least for chronic LBP

A 2017 systematic review of 4 systematic reviews and 50 RCTs (122 total trials) evaluated general exercise vs usual care for acute (< 4 weeks), subacute (4 to 12 weeks), or chronic (≥ 12 weeks) LBP with or without radiculopathy in adults.¹ Exercise was not consistently associated with decreased pain in acute or subacute LBP. For chronic LBP, 3 RCTs ($n = 200$) associated exercise with decreased pain (weighted mean difference [WMD] = -9.2 on a 0-100 point visual acuity scale; 95% CI, -16.0 to -2.4) and improved function (WMD = -12.4 on the Oswestry Disability Index; 95% CI, -23.0 to -1.7) at short-term follow-up (≤ 3 months). This effect was found to decrease at long-term (≥ 1 year) follow-up (WMD for pain = -4.9 ; 95% CI, -10.5 to 0.6 and WMD for function = -3.2 ; 95% CI, 6.0 to -0.4). In a meta-analysis of 10 studies ($n = 1992$) included in this systematic review, exercise was associated with a lower likelihood of work disability (odds ratio, 0.66 ; CI, 0.48 to 0.92) at 12 months.¹

Yoga, Pilates, and motor control exercise: Your results may vary

Several reviews have explored the effects

of specific exercise modalities on LBP. A 2017 meta-analysis of 9 RCTs in the United States, United Kingdom, and India of nonpregnant adults (≥ 18 years old) with chronic LBP ($N = 810$) found that yoga (any tradition of yoga with a physical component) vs no exercise demonstrated a statistically, but not clinically, significant decrease in pain at 3 to 4 months (mean difference [MD] = -4.6 on a 0-100 point scale; 95% CI, -7.0 to -2.1), 6 months (MD = -7.8 ; 95% CI, -13.4 to -2.3), and 12 months (MD = -5.4 ; 95% CI, -14.5 to -3.7). Clinically significant pain benefit was considered a change of 15 or more points.²

A 2015 meta-analysis of RCTs (10 trials; $N = 510$) comparing the effects of Pilates (a form of body conditioning involving isometric contractions and core exercises focusing on stability) vs minimal intervention on chronic (> 12 weeks) LBP in nonpregnant adults (≥ 16 years old) found low-quality evidence for decreased pain at short-term follow-up (≤ 3 months; MD = -14.1 on a 0-100 point scale; 95% CI, -18.9 to -9.2). There was moderate-quality evidence for decreased pain at intermediate follow-up (3-12 months; MD = -10.5 ; 95% CI, -18.5 to -2.6).³

A 2016 systematic review evaluated motor control exercise (MCE; a form of exercise that

focuses on trunk muscle control and coordination) in adults (≥ 16 years old) with chronic LBP (≥ 12 weeks). There was low- to moderate-quality evidence that, compared to minimal intervention, MCE decreases pain at short-term (≤ 6 months; 4 RCTs; MD = -10.0 on a 0-100 point scale; 95% CI, -15.7 to -4.4), intermediate (6-12 months; 4 RCTs; MD = -12.6; 95% CI, -20.5 to -4.7), and long-term follow-up (> 12 months; 3 RCTs; MD = -13.0; 95% CI, -18.5 to -7.4). When comparing MCE to general exercise, there were no clinically significant differences in pain or disability at intermediate and long-term follow-up.⁴

Common limitations included heterogeneity of intervention methodology, inability to blind results, inability to assess cointerventions, and in some cases, small sample sizes of trials.

Recommendations from others

The 2017 American College of Physicians (ACP) clinical practice guideline on noninvasive treatments for LBP does not recommend exercise therapy in acute or subacute LBP; recommended therapies include superficial heat, massage, acupuncture, or spinal manipulation.⁵ The ACP recommends general exercise, yoga, tai chi, or MCE for chronic LBP, in addition to multidisciplinary rehabilitation, acupuncture, mindfulness-based stress reduction, progressive relaxation, biofeedback, laser therapy, operant therapy, cognitive behavioral therapy, or spinal manipulation.

The 2017 US Department of Veterans Affairs and US Department of Defense clinical

practice guideline on treatment of LBP notes insufficient evidence for benefit of clinician-guided exercise therapy in acute LBP.⁶ For chronic LBP, clinician-directed exercise, yoga, tai chi, or Pilates is recommended.

Editor's takeaway

Convincing evidence demonstrates that exercise *modestly* improves chronic LBP—but only modestly (4% to 15%), and not in acute LBP. This small magnitude of effect may disappoint expectations, but exercise remains among our better interventions for this common chronic problem. Few—if any—interventions have proven better, and exercise has beneficial side effects, a low cost, and widespread availability. **JFP**

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