Cochrane for Clinicians

Putting Evidence into Practice

Effectiveness of Exercise Therapy in Patients With Chronic Low Back Pain

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Clinical Question

Is exercise an effective treatment for adults with chronic low back pain?

Evidence-Based Answer

There is low- to moderate-quality evidence that exercise reduces pain and improves function in patients with chronic low back pain compared with no treatment, usual care, and other conservative interventions such as education, manual therapy, and electrotherapy. This effect is clinically significant in the short term (six to 12 weeks) but less pronounced six months after treatment completion. The review does not recommend a specific exercise regimen to treat chronic low back pain.[1] (Strength of Recommendation: B, inconsistent or limited-quality patient-oriented evidence.)

Practice Pointers

Over the past three decades, low back pain has been the main cause of worldwide disability.[2] The authors of this Cochrane review defined chronic low back pain as pain, muscle tension, or stiffness lasting more than 12 weeks that is not the result of a specific pathology or condition, or at least two episodes of recurrent low back pain each lasting more than 24 hours with at least 30 pain-free days in between.[1] This review sought to update a prior 2005 review that assessed whether exercise reduces pain and improves function in adults with chronic, nonspecific low back pain compared with no treatment, usual care, and other conservative therapies.

This Cochrane review included 249 randomized trials with 24,486 adult patients from multiple countries in multiple settings, including health care, community, and occupational locations.[1] Patients had a mean age of 44 years. Most trials compared exercise vs. no exercise, usual care, or other conservative treatments. Exercise was not well defined, and there was considerable heterogeneity in regimen, format, exercise type, and treatment design. Many trials compared different exercise therapies, such as core strengthening, mixed exercises (i.e., more than two different types), general strength training, aerobic exercise, and Pilates.

Pain outcomes were assessed using a visual analog scale and numeric rating scale, and functional limitations were described using back pain–specific scales, such as the Roland-Morris Disability Questionnaire and the Oswestry Disability Index. These numeric scores were adjusted to a 0 to 100 scale for meta-analysis, with lower scores suggesting less pain and better function. The designated minimum clinically important difference was at least 15 points for pain intensity and at least 10 points for functional improvement. Patient outcomes were compared in the short term (six to 12 weeks), intermediate term (13 to 47 weeks), and long term (48 weeks or more). Short-term follow-up often corresponded with immediate or near-immediate completion of the exercise intervention, whereas the intermediate- and long-term follow-ups were postintervention assessments. Adverse effects were not commonly reported and primarily were the typical nonlimiting effects of exercise.

The meta-analysis demonstrated that, on average, exercise treatment groups reported significantly lower pain intensity scores compared with no treatment or usual care in the short term (mean difference [MD] = −15.2; 95% CI, −18.3 to −12.2; moderate-certainty evidence). There was appreciable but nonsignificant pain benefit in the intermediate term (MD = −10.6; 95% CI, −15.0 to −6.1; moderate-certainty evidence) and long term (MD = −11.8; 95% CI, −22.0 to −1.6; moderate-certainty evidence).

These are summaries of reviews from the Cochrane Library.

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Patients in the exercise intervention had a nonsignificant short-term improvement in function compared with no treatment or usual care (MD = −7.42; 95% CI, −9.24 to −5.60; moderate-certainty evidence). Compared with other conservative treatments, exercise provided a nonsignificant short-term improvement in pain (MD = −9.1; 95% CI, −12.6 to −5.6; low-certainty evidence) and function (MD = −4.1; 95% CI, −6.0 to −2.2). In the intermediate- and long-term assessments, there were small, nonsignificant improvements in pain and function for exercise compared with no treatment, usual care, and other conservative interventions (low- to moderate-certainty evidence).

Studies have considerable heterogeneity in how they define exercise as a treatment for chronic low back pain. Current guidelines from the American College of Physicians and the National Institute for Health and Care Excellence recommend general exercise with other nonpharmacologic therapies as initial treatment for chronic low back pain.[3,4] Of note, several effective treatments recommended by these organizations (e.g., acupuncture, psychological therapies, nonsteroidal anti-inflammatory drugs) were not assessed in this Cochrane review, so the authors of this review could not compare the effectiveness of exercise with these interventions or in combination. A recent meta-analysis comparing specific four-week exercise programs with varying weekly exercise regimens found that Pilates, resistance training, aerobic exercise, and motor control exercises (i.e., activation of the deep trunk muscles progressing from simple to complex tasks with an emphasis on functional activities) were overall the most effective exercise treatment modalities for chronic low back pain.[5] In general, exercise improves pain and function in adult primary care patients with chronic low back pain. Further research could help clarify which exercise programs might provide the greatest impact.

The practice recommendations in this activity are available at https://www.cochrane.org/CD009790.

The views expressed are those of the authors and do not reflect the official policy or position of the U.S. Department of the Army, the U.S. Department of Defense, or the U.S. government.

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Effect of Psychotherapy on Patients With Borderline Personality Disorder

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Clinical Question

Is psychotherapy beneficial for patients with borderline personality disorder (BPD)?

Evidence-Based Answer

In patients with BPD, psychotherapy in the form of dialectical behavior therapy (DBT) or mentalization-based treatment (MBT) reduces the severity of symptoms, improves psychosocial functioning, and reduces depression scores compared with no treatment. (Strength of Recommendation [SOR]: B, inconsistent or limited-quality patient-oriented evidence.) In addition, DBT and MBT reduce the severity of BPD symptoms compared with usual treatment, including other types of psychotherapies.[1] (SOR: B, inconsistent or limited-quality patient-oriented evidence.)

Practice Pointers

BPD is defined by a pervasive pattern of instability in affect regulation, impulse control, interpersonal relationships, and self-image.[2] The prevalence in the primary care setting is approximately 6%, but the disorder is frequently underdiagnosed and undertreated.[3,4] BPD is often characterized by comorbid psychiatric disorders and difficulties in patient-physician

relationships, highlighting the importance of effective therapies.[3,4]

This updated Cochrane review included 75 randomized controlled trials and 4,507 participants to assess psychological therapies for patients with BPD.[1] Participants had a mean age of 15 to 46 years and were primarily located in the United States and Europe, but also in Australia, Canada, Iran, and Taiwan. The trials incorporated more than 16 kinds of psychotherapy compared with usual treatment, waiting list placement, or other active treatments. Therapy was predominantly conducted in outpatient settings, lasted one to 36 months, and included major psychotherapeutic interventions used for BPD (e.g., DBT, MBT, schema-focused therapy, transference-based therapy). However, the number of trials for each intervention varied. DBT was used in 24 trials, MBT was used in seven trials, and a limited number of studies used schema-focused and transference-based therapies.

All outcomes, which were self-reported or clinician rated, were analyzed posttreatment and at six months of follow-up or later. BPD symptom severity was quantified using scales such as the Zanarini Rating Scale for Borderline Personality Disorder. Other primary outcomes were evaluated using the Deliberate Self-Harm Inventory, Suicide Attempt Self-Injury Interview, and Global Assessment of Functioning scale. Secondary outcomes included abandonment, affective instability, anger, chronic feelings of emptiness, depression, dissociation and psychotic-like symptoms, identity disturbance, impulsivity, and interpersonal problems.

Compared with patients on waiting list placement or no treatment, those receiving psychotherapy had improvements in BPD symptom severity (standardized mean difference [SMD] = −0.49; 95% CI, −0.93 to −0.05; three trials; n = 161), psychosocial functioning (SMD = −0.56; 95% CI, −1.01 to −0.11; five trials; n = 219), and depression (SMD = −1.28; 95% CI, −2.21 to −0.34; six trials; n = 239). There was no evidence that psychotherapy changes the risk of self-harm or suicide-related outcomes.

Compared with usual treatment, psychotherapy led to a clinically relevant improvement in symptom severity (SMD = −0.52; 95% CI, −0.70 to −0.33; 22 trials; n = 1,244), corresponding to a mean difference of −3.6 (95% CI, −4.4 to −2.08) on the Zanarini Rating Scale for Borderline Personality Disorder, which ranges from 0 to 36. Psychotherapy may be slightly more effective than usual treatment for self-harm, suicide-related outcomes, and psychosocial functioning, but it did not show clinically meaningful benefit.

Subgroup analyses demonstrated that, compared with usual treatment, DBT decreased BPD symptom severity (SMD = −0.60; 95% CI, −1.05 to −0.14; three trials; n = 149), reduced incidence of self-harm (SMD = −0.28; 95% CI, −0.48 to −0.07; seven trials; n = 376), and improved psychosocial functioning (SMD = −0.36; 95% CI, −0.69 to −0.03; six trials; n = 225). MBT appeared to be better than usual treatment at reducing self-harm (relative risk [RR] = 0.62; 95% CI, 0.49 to 0.80; three trials; n = 252), suicidality (RR = 0.10; 95% CI, 0.04 to 0.30; three trials; n = 218), and depression (SMD = −0.58; 95% CI, −1.22 to 0.05; four trials; n = 333). No significant adverse effects were identified with these therapies.

Current guidelines recommend psychotherapy as first-line treatment for BPD but do not single out one therapy over the others.[5,6] Further studies are needed to better clarify the treatment effects of various psychotherapies. Another systematic review, which included some of the same studies as this Cochrane review, had a similar conclusion and found that DBT can be helpful in treating BPD.[7] This Cochrane review provides low-quality evidence that DBT and MBT may reduce morbidity associated with BPD. These low-risk interventions may be worth considering when caring for these patients.

The practice recommendations in this activity are available at http://www.cochrane.org/CD012955.

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