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Resistance exercise training for fibromyalgia.

Busch AJ[1], Webber SC, Richards RS, Bidonde J, Schachter CL, Schafer LA, Danyliw A, Sawant A, Dal Bello-Haas V, Rader T, Overend TJ.

Author information

Abstract

BACKGROUND: Fibromyalgia is characterized by chronic widespread pain that leads to reduced physical function. Exercise training is commonly recommended as a treatment for management of symptoms. We examined the literature on resistance training for individuals with fibromyalgia. Resistance training is exercise performed against a progressive resistance with the intention of improving muscle strength, muscle endurance, muscle power, or a combination of these.

OBJECTIVES: To evaluate the benefits and harms of resistance exercise training in adults with fibromyalgia. We compared resistance training versus control and versus other types of exercise training.

SEARCH METHODS: We searched nine electronic databases (The Cochrane Library, MEDLINE, EMBASE, CINAHL, PEDro, Dissertation Abstracts, Current Controlled Trials, World Health Organization (WHO) International Clinical Trials Registry Platform, AMED) and other sources for published full-text articles. The date of the last search was 5 March 2013. Two review authors independently screened 1856 citations, 766 abstracts and 156 full-text articles. We included five studies that met our inclusion criteria.

SELECTION CRITERIA: Selection criteria included: a) randomized clinical trial, b) diagnosis of fibromyalgia based on published criteria, c) adult sample, d) full-text publication, and e) inclusion of between-group data comparing resistance training versus a control or other physical activity intervention.

DATA COLLECTION AND ANALYSIS: Pairs of review authors independently assessed risk of bias and extracted intervention and outcome data. We resolved disagreements between the two review authors and questions regarding interpretation of study methods by discussion within the pairs or when necessary the issue was taken to the full team of 11 members. We extracted 21 outcomes of which seven were designated as major outcomes: multidimensional function, self reported physical function, pain, tenderness, muscle strength, attrition rates, and adverse effects. We evaluated benefits and harms of the interventions using standardized mean differences (SMD) or mean differences (MD) or risk ratios or Peto odds ratios and 95% confidence intervals (CI). Where two or more studies provided data for an outcome, we carried out a meta-analysis.

MAIN RESULTS: The literature search yielded 1865 citations with five studies meeting the selection criteria. One of the studies that had three arms contributed data for two comparisons. In the included studies, there were 219 women participants with fibromyalgia, 95 of whom were assigned to resistance training programs. Three randomized trials compared 16 to 21 weeks of moderate- to high-intensity resistance training versus a control group. Two studies compared eight weeks of progressive resistance training (intensity as tolerated) using free weights or body weight resistance exercise versus aerobic training (ie, progressive treadmill walking, indoor and outdoor walking), and one study compared 12 weeks of low-intensity resistance training using hand weights (1 to 3 lbs (0.45 to 1.36 kg)) and elastic tubing versus flexibility exercise (static stretches to major

muscle groups).Statistically significant differences (MD; 95% CI) favoring the resistance training interventions over control group(s) were found in multidimensional function (Fibromyalgia Impact Questionnaire (FIQ) total decreased 16.75 units on a 100-point scale; 95% CI -23.31 to -10.19), self reported physical function (-6.29 units on a 100-point scale; 95% CI -10.45 to -2.13), pain (-3.3 cm on a 10-cm scale; 95% CI -6.35 to -0.26), tenderness (-1.84 out of 18 tender points; 95% CI -2.6 to -1.08), and muscle strength (27.32 kg force on bilateral concentric leg extension; 95% CI 18.28 to 36.36).Differences between the resistance training group(s) and the aerobic training groups were not statistically significant for multidimensional function (5.48 on a 100-point scale; 95% CI -0.92 to 11.88), self reported physical function (-1.48 units on a 100-point scale; 95% CI -6.69 to 3.74) or tenderness (SMD -0.13; 95% CI -0.55 to 0.30). There was a statistically significant reduction in pain (0.99 cm on a 10-cm scale; 95% CI 0.31 to 1.67) favoring the aerobic groups.Statistically significant differences were found between a resistance training group and a flexibility group favoring the resistance training group for multidimensional function (-6.49 FIQ units on a 100-point scale; 95% CI -12.57 to -0.41) and pain (-0.88 cm on a 10-cm scale; 95% CI -1.57 to -0.19), but not for tenderness (-0.46 out of 18 tender points; 95% CI -1.56 to 0.64) or strength (4.77 foot pounds torque on concentric knee extension; 95% CI -2.40 to 11.94). This evidence was classified low quality due to the low number of studies and risk of bias assessment. There were no statistically significant differences in attrition rates between the interventions. In general, adverse effects were poorly recorded, but no serious adverse effects were reported. Assessment of risk of bias was hampered by poor written descriptions (eg, allocation concealment, blinding of outcome assessors). The lack of a priori protocols and lack of care provider blinding were also identified as methodologic concerns.

AUTHORS' CONCLUSIONS: The evidence (rated as low quality) suggested that moderate- and moderate- to high-intensity resistance training improves multidimensional function, pain, tenderness, and muscle strength in women with fibromyalgia. The evidence (rated as low quality) also suggested that eight weeks of aerobic exercise was superior to moderate-intensity resistance training for improving pain in women with fibromyalgia. There was low-quality evidence that 12 weeks of low-intensity resistance training was superior to flexibility exercise training in women with fibromyalgia for improvements in pain and multidimensional function. There was low-quality evidence that women with fibromyalgia can safely perform moderate- to high-resistance training.

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