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Common exercise prescription for management of weight and osteoarthritis: A Systematic Review

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Abstract

Background: Obesity and osteoarthritis are two debilitating conditions that are increasing in prevalence. Obese populations are at an increased risk for developing osteoarthritis in later life. Exercise has been shown to be successful in improving both weight status and musculoskeletal pain, yet it remains unclear if there is an exercise intervention that results in improved weight status while preventing the development of osteoarthritis.

Objective: The purpose of this systematic review is to investigate the existence of a natural overlap in exercise prescription for obese and osteoarthritic populations and recommend an evidence-based exercise intervention for the management of weight and prevention of musculoskeletal pain.

Methods: A structured electronic review was conducted using the following electronic databases: MEDLINE, PubMed, and SPORTDiscus. Two searches were performed using the search strings “obes*” AND “exercise” AND “interven*” AND “musculoskeletal pain OR knee pain OR hip pain” and “osteoarth*” AND “exercise” AND “interven*” AND “musculoskeletal pain OR knee pain OR hip pain”. Studies were then reviewed using inclusion/exclusion criteria (exclusion criteria: menopausal, cancer, review, obesity related co-morbidities, animal studies; inclusion criteria: studies had to be randomised controlled trials, participants aged 18-50, include non-exercise control, and outcomes must include physical function or musculoskeletal pain). Included studies were ranked by change in measured outcome variables (descending order); a summary of recommended exercise prescription was based on common prescription used in the interventions with greatest change. A Downs and Black checklist was completed for all studies included in this review to assess methodological quality.

Results: Twenty-one studies met inclusion criteria and were included in this review (obesity n = 11; OA n = 7; obesity & OA n = 3). Exercise significantly improved weight status and/or musculoskeletal pain. Similarities in exercise intensity (40-80% VO_{2max}), frequency (3 times per week), duration (30-60 minutes), and exercise mode (treadmill, cross-trainer, stationary bike, aquatic exercise) were observed between studies.

Conclusion: Substantial overlap in exercise prescription for obese and OA populations exist. These findings suggest that moderate intensity exercise for 30-60 minutes, 3 times per weeks can achieve effective improvements in weight and musculoskeletal pain. Exercise and weight loss are effective treatments for obesity and musculoskeletal symptoms and should be recommended to all at-risk individuals.

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