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Dynamic exercise programs (aerobic capacity and/or muscle strength training) in patients with rheumatoid arthritis

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ABSTRACT

Background

An up-to-date overview of the effectiveness and safety of dynamic exercise therapy (exercise therapy with a sufficient intensity, duration, and frequency to establish improvement in aerobic capacity and/or muscle strength) is lacking.

Objectives

To assess the effectiveness and safety of short-term (< three months) and long-term (> three months) dynamic exercise therapy programs (aerobic capacity and/or muscle strength training), either land or water-based, for people with RA. To do this we updated a previous Cochrane review (van den Ende 1998) and made categories for the different forms of dynamic exercise programs.

Search methods

A literature search (to December 2008) within various databases was performed in order to identify randomised controlled trials (RCTs).

Selection criteria

RCTs that included an exercise program fulfilling the following criteria were selected: a) frequency at least twice weekly for > 20 minutes; b) duration > 6 weeks; c) aerobic exercise intensity > 55% of the maximum heart rate and/or muscle strengthening exercises starting at 30% to 50% of one repetition maximum; and d) performed under supervision. Moreover, the RCT included one or more of the following outcome measures: functional ability, aerobic capacity, muscle strength, pain, disease activity or radiological damage.

Data collection and analysis

Two review authors independently selected eligible studies, rated the methodological quality, and extracted data. A qualitative analysis (best-evidence synthesis) was performed and, where appropriate, a quantitative data analysis (pooled effect sizes).

Main results

In total, eight studies were included in this updated review (two additional studies). Four of the eight studies fulfilled at least 8/10 methodological criteria. In this updated review four different dynamic exercise programs were found: (1) short-term, land-based aerobic capacity training, which results show moderate evidence for a positive effect on aerobic capacity (pooled effect size 0.99 (95% CI 0.29 to 1.68). (2) short-term, land-based aerobic capacity and muscle strength training, which results show moderate evidence for a positive effect on aerobic capacity show moderate evidence for a positive effect on aerobic capacity show moderate evidence for a positive effect on aerobic capacity and muscle strength training, which results show moderate evidence for a positive effect on aerobic capacity and muscle strength (pooled effect size 0.47 (95% CI 0.01 to 0.93). (3) short-term, water-based aerobic capacity



training, which results show limited evidence for a positive effect on functional ability and aerobic capacity. (4) long-term, land-based aerobic capacity and muscle strength training, which results show moderate evidence for a positive effect on aerobic capacity and muscle strength. With respect to safety, no deleterious effects were found in any of the included studies.

Authors' conclusions

Based on the evidence, aerobic capacity training combined with muscle strength training is recommended as routine practice in patients with RA.

PLAIN LANGUAGE SUMMARY

Dynamic exercise programs (aerobic capacity and/or muscle strength training) in patients with rheumatoid arthritis

This summary of a Cochrane review presents what we know from research about the effect of exercise on Rheumatoid Arthritis (RA).

The review shows that in people with rheumatoid arthritis:

- Aerobic exercise and muscle strength training on land probably improve pain and physical function slightly in the short term.

- There were no harmful side effects (such as increased pain or damage to your joints) of exercise found in this review. This was true for exercising on land or in the water, although most of the studies were not long enough to tell if exercise might cause joint damage.

What is dynamic exercise and what is rheumatoid arthritis?

Dynamic exercise therapy programs means activities with enough intensity, duration, and frequency to improve stamina or muscle strength. Exercise can be any activity that enhances physical fitness. Exercise which gives you more energy, endurance or stamina is often called aerobic exercise. People exercise for many different reasons including weight loss, strengthening muscles and for general fitness.

When you have rheumatoid arthritis, your immune system, which normally fights infection, attacks the lining of your joints. This makes your joints swollen, stiff and painful. The small joints of your hands and feet are usually affected first. There is no cure for RA at present, so treatments such as exercise aim to relieve pain and stiffness and improve your ability to move.

Best estimate of what happens to people with rheumatoid arthritis who take part in a short term land-based dynamic exercise program:

Pain (higher scores mean worse or more severe pain)

- People who took part rated their pain to be about half a point lower on a scale of 0 to 10 after 12 weeks (6% absolute improvement).

- People who took part in a dynamic exercise program rated their pain to be about half a point on a scale of 0 to 10.
- People who did not exercise rated their pain to be 1 on a scale of 0 to 10.

Physical Function (higher score means worse physical function)

- People who took part rated their physical function to be about half a point lower on a scale of 0 to 3 after 12 weeks (6% absolute improvement).

- People who took part in a dynamic exercise program rated their physical function to be about 1.5 on a scale of 0 to 3.

- People who did not exercise rated their physical function to be 1 on a scale of 0 to 3.