

# High-intensity exercise for rheumatoid arthritis was associated with less joint damage of the hands and feet than physical therapy

de Jong Z, Munneke M, Zwinderman AH, et al. Long term high intensity exercise and damage of small joints in rheumatoid arthritis. *Ann Rheum Dis.* 2004;63:1399-405.

**QUESTION**

In patients with rheumatoid arthritis (RA), what is the long-term effect of high-intensity, weight-bearing exercise on joint damage of the hands and feet compared with usual-care physical therapy?

**METHODS**

**Design:** Randomized controlled trial (Rheumatoid Arthritis Patients In Training [RAPIT] study).

**Allocation:** Unclear allocation concealment.\*

**Blinding:** Blinded (outcome assessor).\*

**Follow-up period:** 2 years.

**Setting:** A university medical center in the Netherlands.

**Patients:** 281 completers (mean age 54 y, 80% women) of the 309 patients enrolled in the RAPIT study. Inclusion criteria were age 20 to 70 years, RA according to American college of Rheumatology (ACR) criteria, ACR functional class I to III, stable disease-modifying antirheumatic drug intake in the past 3 months, and no prosthesis of a weight-bearing joint.

**Intervention:** Supervised, intensive, bi-weekly group exercise ( $n = 136$ ) or usual care with treatment by a physical therapist

if deemed necessary by the attending physician ( $n = 145$ ).

**Outcomes:** Radiologically confirmed joint damage of the hands and feet using the Larsen score (0 [no joint space narrowing] to 200 [maximum possible damage]) and the number of damaged joints (0 [no joint with score > 0] to 32 [each joint assessed as damaged]).

**Patient follow-up:** 272 patients (88% of the original randomization group and 97% of the completers).

**MAIN RESULTS**

During 2-year follow-up, 34% of patients in the exercise group and 55% of patients in the usual-care group were treated by a physical therapist at least once. The exercise group had a smaller increase than the usual-care group in joint damage in the hands and feet

(mean difference in change on Larsen score  $-2.1$ ,  $P = 0.045$ ). Fewer patients in the exercise group exceeded the threshold for relevant progression in joint damage than did patients in the usual-care group (Table). Exercise and usual care did not differ for increase in the total number of damaged joints (0.8 vs 1.3,  $P = 0.142$ ).

**CONCLUSION**

In patients with rheumatoid arthritis, long-term, high-intensity, weight-bearing exercise resulted in less joint damage of the hands and feet than usual-care physical therapy.

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\*See Glossary.

**High-intensity weight-bearing exercise vs usual-care physical therapy for rheumatoid arthritis at 2 years†**

Outcome	Exercise	Usual care	RRR (95% CI)	NNT (CI)
Proportion of patients exceeding the threshold for relevant progression in joint damage‡	11%	22%	52% (23 to 91)	10 (6 to 67)

†Abbreviations defined in Glossary; RRR, NNT, and CI calculated from data in article.

‡Based on the smallest detectable difference of the change score.

**COMMENTARY**

Updated ACR guidelines on the management of RA recommend that an optimal treatment strategy include physical therapy and regular participation in dynamic and aerobic exercise programs in addition to pharmacologic interventions (1). Since the evidence base for RA management is much more complete for pharmacologic than nonpharmacologic interventions, this study by de Jong and colleagues is encouraging.

Historically, it has been suggested that inflamed joints should be rested for fear that aerobic exercise will exacerbate inflammation and damage the joints (2). However, this study found no increase in the rate of joint damage. Indeed, the rate of progression was less in the exercise group than in the usual-care group. Although both groups had increased joint damage at 2 years, the exercise group had less radiologic damage. This reduced rate of progression of damage in the joints of the feet led the authors to conclude that exercise may have a protective effect on the feet.

The joint damage score is a surrogate outcome and does not tell us whether a difference in score will predict any change in such clinical outcomes as pain or function. The authors disaggregate the mean scores into an 11% absolute difference in the "proportion of patients exceeding the threshold for relevant progression in joint damage." However, the surrogate for a clinically relevant measure of damage (the smallest

detectable difference of the change score as a relevant progression of radiologic damage) was obtained through a consensus of experts and still needs validation to show that it predicts clinical events. The study was underpowered to assess the effects of exercise on joint erosion or to find a clinically relevant effect.

Although the results of this study help to increase confidence that high-intensity, weight-bearing exercises are not harmful for patients with RA and may even have a protective effect on the feet, caution should still be used in recommending exercise for patients with higher baseline joint damage and disease activity. The possible protective effect of exercise needs further exploration.

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**References**

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