

**Stamm TA, Machold KP, et al. Joint Protection and Home Hand Exercises Improve Hand Function in Patients With Hand Osteoarthritis: A Randomized Controlled Trial. Arthritis Care Res 2002;47:44-49.**

Design: Randomized Clinical Trial

Population/sample size/setting:

- 40 patients (25 women, 5 men, mean age 60) treated for osteoarthritis of the hand in the rheumatology department of the University of Vienna
- Eligible if they met American College of Rheumatology criteria for hand OA
- Excluded if they had evidence of any rheumatic disease other than OA; had elevated C-reactive protein above 0.5 mg/dl, or had swelling of any hand joint

Main outcome measures:

- Randomized to receive either joint protection and exercise (JPE, n=20) or a control intervention (n=20)
- Randomization done after matching participants on age and sex
- Control group received oral and written information about hand OA, and a piece of Dycem (nonslip matting) for opening jars for a period of 3 months
- JPE group received instruction in protecting joints during activities of daily living, such as wringing a cloth, opening jars, cans, or boxes with Dycem, using an angled knife for cutting food
- JPE also learned 7 hand exercises to do at home 10 times daily, keeping an exercise diary to control adherence to program; most of the exercises were non-resistive (range of motion of joints without resistance was emphasized)
- Primary outcome was grip strength improvement measured 3 months after baseline by an assessor blinded to group assignment
- JPE group showed more improvement in grip strength over baseline than did the control group; the proportion of patients with increase of grip strength of at least 10% was greater for the JPE than for the control group (16 of 20 in both hands for JPE vs. control group improvements of 5 of 20 in the right and 4 of 20 in the left hand)
- Pain VAS scores and hand function scores did not differ significantly between groups

Authors' conclusions:

- JPE improved grip strength more than instruction alone
- Grip strength is a good predictor of hand function
- Exercises with low resistance are likely to be better for patients with low muscle strength; resistive exercises may stress hand joints and exacerbate hand OA

Comments:

- While there was more improvement in grip strength in the JPE group than in the control group, the JPE group had lower grip strength at baseline

- The grip strengths of the hands in the two groups was nearly equal at the end of 3 months
- Some of the improvement in the JPE group therefore may have reflected regression to the mean
- Even though the baseline differences were not statistically significant at baseline, the preferred way of analyzing grip strength data would have been analysis of covariance, using baseline grip strength as a covariate
- Method of randomization was not clear; the groups were "matched" by age and sex, which may or may not have meant stratified randomization; the allocation concealment is also not clear
- Nevertheless, the JPE exercises are physiologically reasonable, and education in how to protect joints while doing daily activities is likely to be beneficial

Assessment: Inadequate for an evidence statement (randomization not well described, analysis of results may have been misleading); recommendations for exercise and education will depend on consensus