

Health Insights Today

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Exercise and Fitness Report

When reading reports on new research, it is important to remember that no single study should be seen as providing the whole truth. The following reports offer helpful clues but in most cases further research is needed before firm conclusions can be drawn.

Calcium and Vitamin D Help Leg Strength in Elderly, Even Without Exercise

Brazilian researchers investigated the effects of a 6-month supplementation with calcium and cholecalciferol (Vitamin D3) on biochemical parameters and muscle strength of institutionalized elderly. This prospective, double-blind, placebo-controlled, randomized trial included Brazilian institutionalized people aged 60 years and older, who received 6 months (December to May) of daily calcium plus monthly placebo (calcium/placebo group) or daily calcium plus oral cholecalciferol (150,000 IU once a month during the first 2 months, followed by 90,000 IU once a month for the last 4 months; calcium/vitamin D group). Fasting blood samples for 25(OH)D, PTH and calcium determination were collected and muscle tests performed to measure the strength of hip flexors (SHF) and knee extensors (SKE) before and after the 6-month intervention.

Due to seasonal variations, serum 25(OH)D significantly enhanced in both groups after treatment, but the calcium/vitamin D group had significantly higher 25 (OH)D levels than the calcium/placebo group (84 vs. 33%). No cases of hypercalcemia were observed. While the calcium/placebo group showed no improvement in SHF and SKE at 6 months, SHF was increased in the calcium/vitamin D group by 16.4% and SKE by 24.6%.

Moreira-Pfrimer LD, Pedrosa MA, Teixeira L, Lazaretti-Castro M. Treatment of vitamin D deficiency increases lower limb muscle strength in institutionalized older people independently of regular physical activity: a randomized double-blind controlled trial. *Ann Nutr Metab.* 2009;54(4):291-300.

Pool Exercise Offers Mild Improvement for Fibromyalgia

A total of 134 women with fibromyalgia and 32 with chronic widespread pain were randomized to a 20-session pool exercise and a 6-session education program or to a control group undertaking the same education program. The primary outcomes were the Fibromyalgia Impact Questionnaire (FIQ) total score and the 6-minute walk test (6MWT). FIQ Pain and other health variables were included. The FIQ total improved in the intervention group, with an effect size of 0.32. Patients who had participated in at least 60% of the exercise sessions improved in the FIQ total the 6MWT (effect size 0.43) and FIQ Pain (effect size 0.69) compared with controls. Long-term follow-up revealed lasting, but small, improvement (effect size < 0.29) in the 6MWT among the active participants. Patients with milder stress, pain or depression improved most by treatment on the FIQ total compared with controls. The authors conclude that the exercise-education program showed significant, but small, improvement in the health status in patients with fibromyalgia and chronic widespread pain, compared with education only. Patients with milder symptoms improved most with this treatment.

Mannerkorpi K, Nordeman L, Ericsson A, Arndorw M. Pool exercise for patients with fibromyalgia or chronic widespread pain: a randomized controlled trial and subgroup analyses. *J Rehabil Med.* Sep 2009;41(9):751-760.

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Helicopter Pilots' Neck Pain Decreases with Exercise

Neck pain is a significant problem in modern military aviation. This study was a randomized, controlled trial with blinded outcome assessment, to evaluate the preventive efficacy of a neck/shoulder exercise regimen for neck pain in air force helicopter pilots. A 6-week intervention was followed up directly afterwards and after 12 months. Sixty-eight helicopter pilots on active flying duty with or without neck pain were randomly assigned to a supervised neck/shoulder exercise regimen or a control group receiving no such regimen. The key outcome was change in the prevalence of neck pain cases at the 12-month follow-up, rated for the previous week and the previous 3 months. Secondary outcomes included neck-flexor surface electromyographic activity during active craniocervical flexion and pain-related fear regarding physical activity.

Eighty-two percent (56/68) of the participants completed the intervention and provided data at month 12. Regression analysis showed a reduction in the prevalence of neck pain cases in the exercise group, which was significant for pain ratings during the previous week and previous 3 months. Electromyographic activity at the highest contraction level was significantly reduced in the exercise group, whereas no between-groups effect emerged for pain-related fear. Results from the secondary analysis showed that general strength training for more than 1 hour per week before the intervention predicted reduction in prevalence of pain at follow-up.

Ang BO, Monnier A, Harms-Ringdahl K. Neck/shoulder exercise for neck pain in air force helicopter pilots: a randomized controlled trial. *Spine*. Jul 15 2009;34(16):E544-551.

People Using Pedometers More Likely to Exercise

Australian researchers evaluated whether the daily use of pedometers (which measure the number of steps taken) could increase physical activity and improve health outcomes in sedentary overweight and obese women. Twenty six overweight and obese middle-aged women were randomized into two groups: The control group was not able to record their steps daily, while those in the pedometer group were asked to record the number of steps on a daily basis for 12 weeks.

The pedometer group significantly increased their steps/day, by 36%, at the end of the 12 weeks, whereas the control group's physical activity levels remained unchanged. There was no significant difference in weight or body fat composition in the pedometer group compared to the control group. However, there was a significant decrease in systolic blood pressure in the pedometer group (112.8 +/- 2.44 mm Hg) compared to the control group (117.3 +/- 2.03 mm Hg). The authors concluded that their pilot study shows that the combination of having step goals and immediate feedback from using a pedometer was effective in increasing physical activity levels in sedentary overweight and obese women.

Pal S, Cheng C, Egger G, Binns C, Donovan R. Using pedometers to increase physical activity in overweight and obese women: a pilot study. *BMC Public Health*. 2009;9:309.