

# 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.*

### Exercise Yields Improved Academic Focus in Preadolescents

Researchers at the University of Illinois studied the effect of moderate treadmill walking on behavioral and neuroelectric indexes of the cognitive control of attention and applied aspects of cognition involved in school-based academic performance. The exercise session consisted of 20 minutes of walking on a motor-driven treadmill at 60% of estimated maximum heart rate followed by cognitive testing once heart rate returned to within 10% of pre-exercise levels. Results indicated an improvement in response accuracy, larger P3 amplitude, and better performance on the academic achievement test following aerobic exercise relative to the resting session. Collectively, these findings indicate that single, acute bouts of moderately-intense aerobic exercise (i.e., walking) may improve the cognitive control of attention in preadolescent children, and support the use of moderate acute exercise for increasing attention and academic performance.

Hillman CH, Pontifex MB, Raine LB, Castelli DM, Hall EE, Kramer AF. The effect of acute treadmill walking on cognitive control and academic achievement in preadolescent children. *Neuroscience*. Mar 31 2009;159(3):1044-1054.

### Swimming May Not Bring Full Heart Benefits of Land-Based Exercise

Exercise recommendations involving swimming have been generated primarily from unjustified extrapolation of the data from other modes of exercise (e.g. walking and cycling). A review by Tanaka in *Sports Medicine* concludes that available evidence indicates that, similarly to other physically active adults, the coronary heart disease (CHD) risk profile is more favorable in swimmers than in sedentary people and that swim training results in the lowering of some CHD risk factors. However, the beneficial impact of regular swimming may be smaller than land-based exercises. In some cases, regular swimming does not appear to confer beneficial effects on some CHD risk factors. Moreover, swimming has not been associated with the reduced risks of developing CHD seen in land-based exercise. Thus, extrapolation of research findings using land-based exercises into swimming cannot be justified, based on the available research.

Tanaka H. Swimming exercise: impact of aquatic exercise on cardiovascular health. *Sports Med*. 2009;39(5):377-387.

### People with Osteoporosis Can Help Prevent Falls with Balance, Muscle Strengthening, and Weight-Bearing Exercises

A team of researchers in Holland reviewed all available research on the types of exercise best able to help people with osteoporosis to avoid disabling falls. They concluded that a combination of balance, muscle strengthening, and weight-bearing exercises was the best approach. Interventions with balance exercises reduced falls or fall-related fractures and improved balance in the majority of the studies. Muscle strengthening exercises were effective in improving lower extremity strength and back extensor strength; however, not all randomized controlled trials reported positive effects. Bone strength was improved by weight-bearing aerobic exercise with or without muscle strengthening exercise when the duration of the intervention was at least a year.

de Kam D, Smulders E, Weerdesteyn V, Smits-Engelsman BC. Exercise interventions to reduce fall-related fractures and their risk factors in individuals with low bone density: a systematic review of randomized controlled trials. *Osteoporos Int*. May 7 2009.