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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.

Never Too Old to Start Exercising

While recommendations encouraging physical activity (PA) set no upper age limit, there has been relatively little research evaluating the benefits of PA among the very old. A group of investigators in Israel examined the effects of continuing, increasing, or decreasing PA levels on survival, function, and health status among the very old. Subjects ranged in age from 70 to 88 years. Health, comorbidity (relevant illnesses), and functional status at ages 70, 78, and 85 years were assessed through the Jerusalem Longitudinal Cohort Study (1990-2008). A representative sample of 1861 people born in 1920 and 1921 enrolled in this prospective study, resulting in 17,109 person-years of follow-up for all-cause mortality. A significant survival benefit was associated with initiating PA at all ages. Participation in higher levels of PA, compared with being sedentary, did not show a dose-dependent association with mortality. The PA level at age 78 was associated with remaining independent while performing activities of daily living at age 85. The authors conclude that among the very old, not only continuing but also initiating PA was associated with better survival and function. Doctors should encourage PA into advanced old age.

Stessman J, Hammerman-Rozenberg, R, Cohen, A, Ein-Mor E, Jacobs JM. Physical Activity, Function, and Longevity Among the Very Old. *Arch Intern Med.* 2009;169(16):1476-1483

Beet Juice Helps Exercise

In a double-blind, placebo-controlled, crossover study involving 8 men aged 19-38 years, consumption of nitrate-rich beetroot juice may enhance exercise endurance. The participants were randomized to 500 mL per day of either beetroot juice (BR, containing 11.2 mM of nitrate) or a placebo juice (negligible nitrate content) for a period of 6 days, following which the interventions were crossed over for another 6 days. On the last 3 days of each intervention phase, the men completed a series of 'step' moderate-intensity and severe-intensity exercise tests. Dietary nitrate supplementation (beetroot juice) was associated with significantly greater plasma nitrite, significantly lower systolic blood pressure, and reduced muscle fractional O₂ extraction, compared with placebo. Additionally, beetroot juice consumption was found to significantly reduce the oxygen cost of moderate exercise and increase the time to task failure during severe exercise.

Dietary nitrate supplementation reduces the O₂ cost of low-intensity exercise and enhances tolerance to high-intensity exercise in humans," Bailey SJ, Jones AM et al. *J Appl Physiol* 2009; Aug 6; doi:10.1152/jappphysiol.00722.2009