

Direction of the Evidence

What Is a Good Way to Improve the Quality of Your Life and Add Years to Your Life??

By Ron Feise, DC

Martin CK, Church TS, Thompson AM, Earnest CP, Blair SN. Exercise dose and quality of life: a randomized controlled trial. *Arch Intern Med* 2009;169:269-78.

Synopsis. This was a randomized controlled dose-response trial that investigated the effects of exercise on quality of life (QOL). The effect of 50%, 100%, and 150% of the physical activity recommendation on QOL was examined in a 6-month study. Participants were 430 sedentary overweight or obese post-menopausal women with elevated systolic blood pressure randomized to a non-exercise control group or 1 of 3 exercise groups: exercise energy expenditure of 4, 8, or 12 kilo calories per kilogram of body weight per week. Eight aspects of physical and mental QOL were measured at baseline and at month 6 with the use of the Medical Outcomes Study 36-Item Short Form Health Survey.

Change in all mental and physical aspects of QOL, except bodily pain, was dose dependent (trend analyses were significant, and exercise dose was a significant predictor of QOL change). Higher doses of exercise were associated with larger improvements in mental and physical aspects of QOL.

Controlling for weight change did not attenuate the exercise-QOL association.

Research Quality. Overall, this study had reasonable methodological rigor.

Quality Details. This study used the following: 1) appropriate design; 2) clearly stated inclusion and exclusion criteria; 3) randomization assignment; 4) treatment methods described; 5) valid, reliable, and relevant outcome measures; 6) blind outcome observers; 7) suitable measurement period; 8) acceptable sample size; 9) groups clinically similar at the start of the trial; 10) acceptable loss to follow-up; and 11) intention-to-treat analysis.

Conclusion. Exercise-induced QOL improvements were dose dependent and independent of weight change.

Comment. It is not just important to live long but also to have good quality of life. These findings suggest that increasing physical activity is an effective tool to improve QOL. Interestingly, even approximately 70 min/wk (4 kilo calories per kilogram of body weight per week) of exercise was associated with an improvement in QOL for several scales, compared with the non-exercise control group.

Regular physical activity and higher levels of cardiorespiratory fitness are associated with lower risk for premature mortality, and exercise training has been demonstrated to improve a number of important risk factors, such as cognitive decline, cardiorespiratory fitness, weight, high-density lipoprotein cholesterol level, and fasting insulin level.¹⁻⁶

Physical activity promotes quality of life, health, and longevity. Increasing participation in regular exercise has been a major public health goal in the United States for decades.^{7,8} The Office of the U.S. Surgeon General, the Centers for Disease Control and Prevention, and the American College of Sports Medicine all endorse a minimum of 30 minutes of moderate activity 5 days a week.^{9,10} Nationally, representative survey data indicate that more than 50% of the adult U.S. population does not meet the lower physical activity recommendations, a proportion that has remained essentially unchanged throughout the past decade.¹¹ Commonly reported barriers to activity participation include the perceived lack of benefit of exercise. Doctors concerned about wellness might want to proactively edu-

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cate their patients on the benefits of physical activity.

Warning. Practitioners should not automatically use information from research studies (especially abstracts) to make decisions about patient care because health care literature suffers from inconsistent quality and frequently distorts research findings. Before relying on the findings of a research study, a practitioner

should perform a critical appraisal to determine whether the conclusion is supported by the study's data. He or she should also locate and examine previous relevant research in order to integrate the current findings and form a conclusion based on the preponderance of quality evidence. Even conclusions from multiple studies do not provide a definitive answer.

Instead, they indicate the *direction* of the evidence. ■

This review is an excerpt from Direction of the Evidence, published by the Institute of Evidence-Based Chiropractic, whose aim is the integration of science into chiropractic practice to improve patient outcomes. Dr. Feise can be reached at rjf@chiroevidence.com.

References

1. Church TS, Earnest CP, Skinner JS, Blair SN. Effects of different doses of physical activity on cardiorespiratory fitness among sedentary, overweight, or obese postmenopausal women with elevated blood pressure: a randomized controlled trial. *JAMA* 2007;297:2081-2091.
2. Cornelissen VA, Fagard RH. Effects of endurance training on blood pressure, blood pressure-regulating mechanisms, and cardiovascular risk factors. *Hypertension* 2005;46:667-675.
3. Lautenschlager NT, Cox KL, Flicker L, Foster JK, van Bockxmeer FM, Xiao J, Greenop KR, Almeida OP. Effect of physical activity on cognitive function in older adults at risk for Alzheimer disease: a randomized trial. *JAMA* 2008;300:1027-37.
4. Abbott RD, White LR, Ross GW, Masaki KH, Curb JD, Petrovitch H. Walking and dementia in physically capable elderly men. *JAMA* 2004;292:1447-1453.
5. Larson EB, Wang L, Bowen JD, et al. Exercise is associated with reduced risk for incident dementia among persons 65 years of age and older. *Ann Intern Med* 2006;144:73-81.
6. Weuve J, Kang JH, Manson JE, Breteler MMB, Ware JH, Grodstein F. Physical activity, including walking, and cognitive function in older women. *JAMA* 2004;292:1454-1461.
7. Bauman AE. Updating the evidence that physical activity is good for health: an epidemiological review 2000-2003. *J Sci Med Sport* 2004;7:6-19.
8. American College of Sports Medicine. American College of Sports Medicine position statement on the recommended quantity and quality of exercise for developing and maintaining fitness in healthy adults. *Med Sci Sports* 1978;10:vii-x.
9. Pate RR, Pratt M, Blair SN, et al. Physical activity and public health: a recommendation from the Centers for Disease Control and Prevention and the American College of Sports Medicine. *JAMA* 1995;273:402-407.
10. NIH Consensus Development Panel on Physical Activity and Cardiovascular Health. Physical activity and cardiovascular health. *JAMA* 1996;276:241-246.
11. Centers for Disease Control and Prevention. Adult participation in recommended levels of physical activity—United States, 2001 and 2003. *MMWR Morb Mortal Wkly Rep* 2005;54:1208-1212.