



To: City Development

From: Adrian Davis

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Subject: Essential Evidence on a page: No. 63 Dose response to physical activity

Top line: There is a relationship between the amount of physical activity, disease risk and premature death. In short, even a little physical activity is good; more is better.

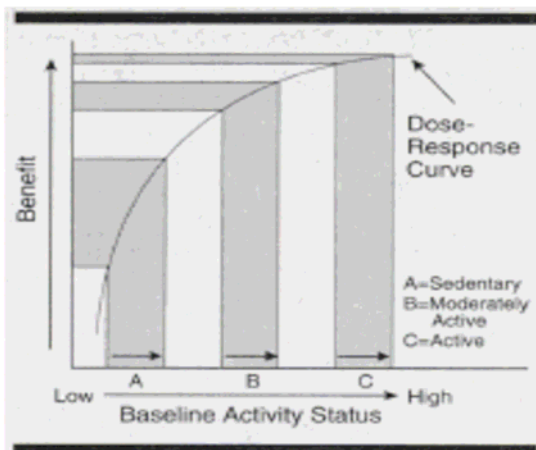
The concept of *dose* is important in medicine. In the treatment of many conditions, doctors typically start with a dose of a drug believed to be the minimum effective dose. If the patient does not respond, this initial dose may then be increased to a maximum dose, beyond which the adverse effects of the drug are unacceptable for treatment. Thus, all marketed drugs require data on their ability to produce the desired effect and safety.¹

Physical activity, while not a drug, can behave like one—it causes many physiological changes in the body beneficial for health, helps prevent the development of many chronic diseases, and is a suitable treatment for many diseases, including cardiovascular disease, cancer, and diabetes. Health care professionals are encouraged to prescribe physical activity for health.

Various studies have demonstrated that physically active adults, compared with sedentary counterparts, tend to develop and maintain higher levels of physical fitness. Research has demonstrated protective effects of varying strength between physical activity and risk for several chronic diseases, including coronary heart disease, hypertension, non-insulin-dependent diabetes mellitus, osteoporosis, colon (and bowel) cancer, and anxiety and depression.²

Other studies have shown that low levels of habitual physical activity and low levels of physical fitness are associated with markedly increased death rates. A midlife increase in physical activity is associated with a decreased risk of death. It has been estimated that as

many as 250,000 deaths per year in the United States, approximately 12% of the total, are attributable to a lack of regular physical activity.



In a study of sedentary obese women taking up walking and cycling even among the activity group doing least per week (72 mins) their risk of developing coronary heart disease was halved compared with those remaining sedentary.³ Such data should be encouraging to sedentary individuals because they indicate that an achievable dose of physical activity may be sufficient to begin reaping health benefits.

¹ Lee, I. 2007 Dose-response relation between physical activity and fitness: Even a little is good; more is better, *Journal of the American Medical Association*, 297(19): 2137-2139.

² Physical activity and public health. A recommendation from the Centre for Disease Control and Prevention and the American College of Sports Medicine, 1995 *Journal of the American Medical Association*, 273(5): 402-407.

³ Church, T., Earnest, C., Skinner, J., Blair, S. 2007 Effects of different doses of physical activity on cardio-respiratory fitness among sedentary, overweight or obese post-menopausal women with elevated blood pressure: a randomised controlled trial, 1995 *Journal of the American Medical Association*, 297(5): 2081-2091.

