Build a Bigger Brain

How Healthy Living Makes You Smarter

Disclaimer

This talk is intended only as an informative guide for those wishing to know more about health issues. In no way is this talk intended to replace, countermand, or conflict with the advice given to you by your own healthcare provider including Physician, Nurse Practitioner, Physician Assistant, Registered Dietician, and other licensed professionals.

Keep in mind that results vary from person to person. This talk is not intended as a substitute for medical or nutritional advice from a healthcare provider or dietician. Some people have a medical history and/or condition and/or nutritional requirements that warrant individualized recommendations and, in some cases, medications and healthcare surveillance.

Do not start, stop, or change medication and dietary recommendations without professional medical and/or Registered Dietician advice. A healthcare provider should be consulted if you are on medication or if there are any symptoms that may require diagnosis or medical attention. Do not change your diet if you are ill, or on medication except under the supervision of a healthcare provider. Neither this, nor any other talk or discussion forum is intended to take the place of personalized medical care of treatment provided by your healthcare provider.

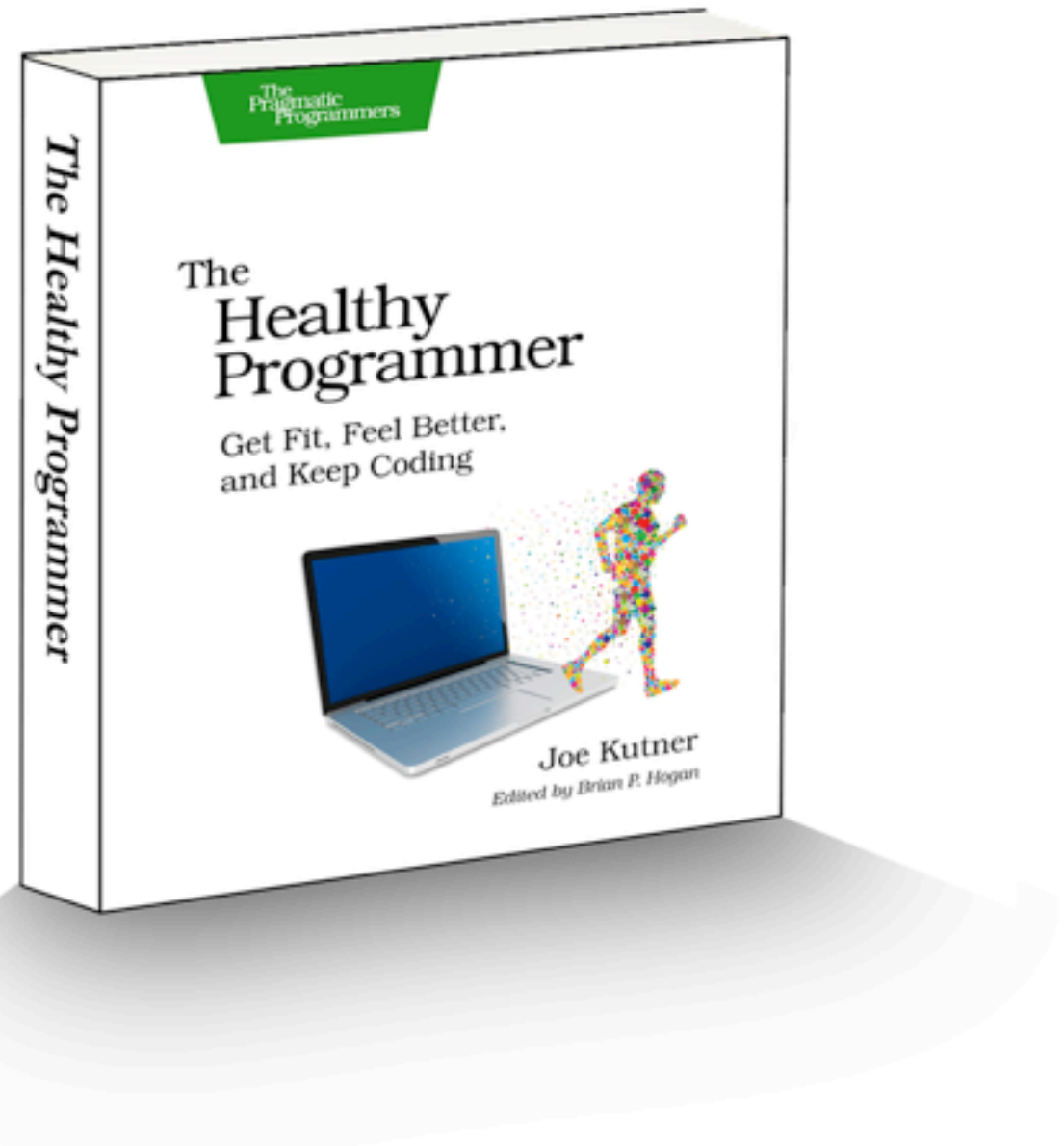
This talk was current as of January, 2013 and as new information becomes available through research, experience, or changes to product contents, some of the data in this book may become invalid. You should seek the most up to date information on your medical care and treatment from your health care professional. The ultimate decision concerning care should be made between you and your healthcare provider.

Information in this talk is general and is offered with no guarantees on the part of the speak. The speaker disclaim all liability in connection with the use of this talk.

I’m not a doctor

I'm a programmer

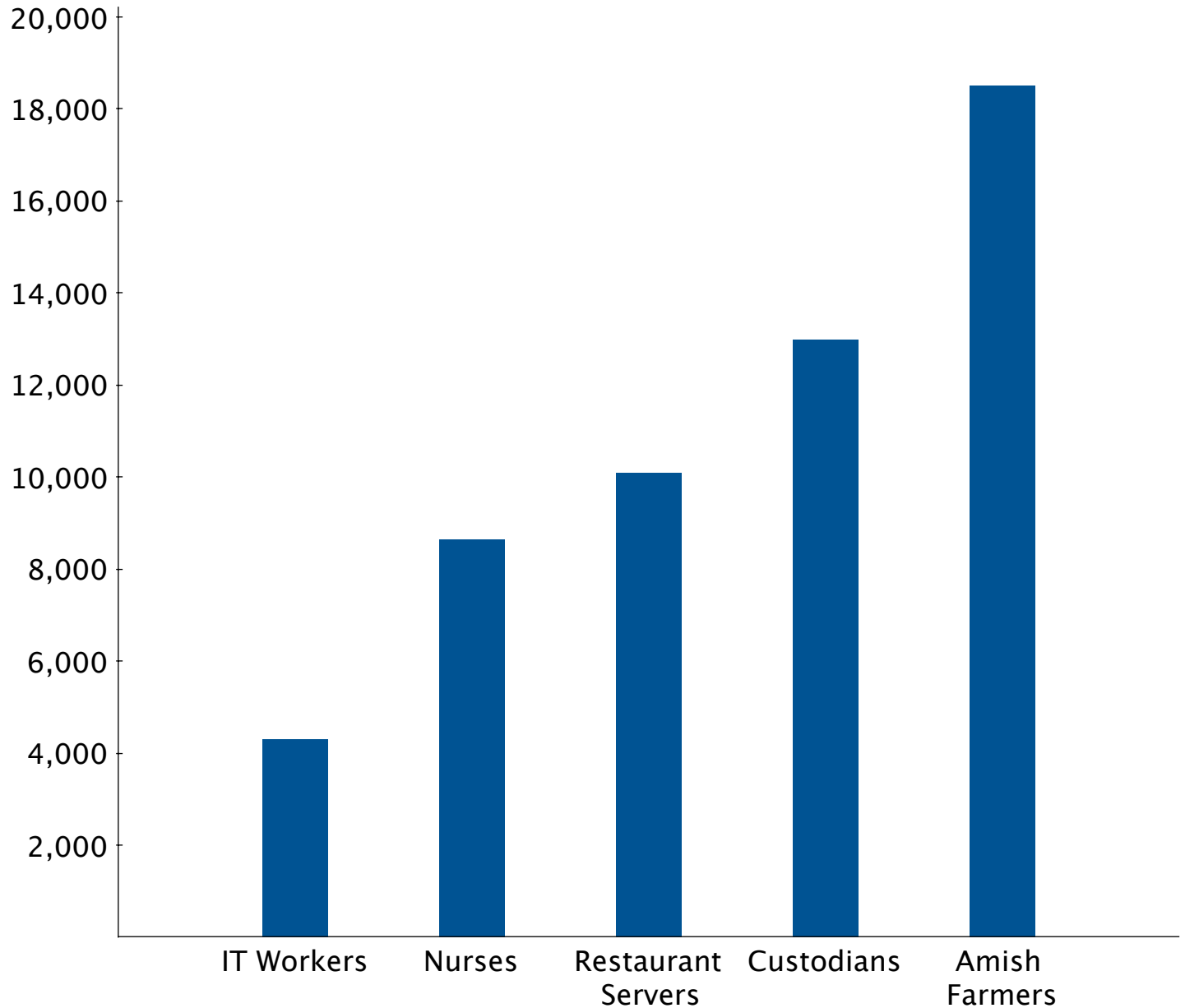
Joe Kutner
@codefinger


The Healthy Programmer
The Pragmatic Programmers
The
Healthy
Programmer
Get Fit, Feel Better,
and Keep Coding
Joe Kutner
Edited by Brian P. Hogan


OHIO

“4:30. Time for milking.”

steps per day



246 Japanese citizens

5 month walking program

Increased physical fitness by 20%

Significant drop in blood pressure

Lifestyle-related diseases decreased by 20%

ORIGINAL ARTICLE

Effects of High-Intensity Interval Walking Training on Physical Fitness and Blood Pressure in Middle-Aged and Older People

KEN-ICHI NEMOTO, MS; HIROKAZU GEN-NO, PHD; SHIZUE MASUKI, PHD; KAZUNOBU OKAZAKI, PHD; AND HIROSHI NOSE, MD, PHD

OBJECTIVE: To examine whether high-intensity interval walking training increased thigh muscle strength and peak aerobic capacity and reduced blood pressure more than moderate-intensity continuous walking training.

PARTICIPANTS AND METHODS: From May 18, 2004, to October 15, 2004 (5-month study period), 60 men and 186 women with a mean ± SD age of 63±6 years were randomly divided into 3 groups: no walking training, moderate-intensity continuous walking training, and high-intensity interval walking training. Participants in the moderate-intensity continuous walking training group were instructed to walk at approximately 50% of their peak aerobic capacity for walking, using a pedometer to verify that they took 8000 steps or more per day for 4 or more days per week. Those in the high-intensity interval walking training group, who

enough to increase peak aerobic capacity ($\dot{V}O_{2peak}$) and other markers of physical fitness. Indeed, a higher intensity of aerobic exercise (>50% $\dot{V}O_{2peak}$) has been recommended in recent guidelines to increase $\dot{V}O_{2peak}$ in older people.[2] However, few regimens in the field provide this increased intensity of aerobic exercise while providing the ease of participation of walking.

Walking at submaximal velocity could be one such regimen. We found that the heart rate (HR) in older men and women walking at the maximal velocity almost reached the age-expected maximal values,[3] suggesting that $\dot{V}O_{2peak}$ would be increased in older people if walking training was performed at a

For editorial comment, see page 797

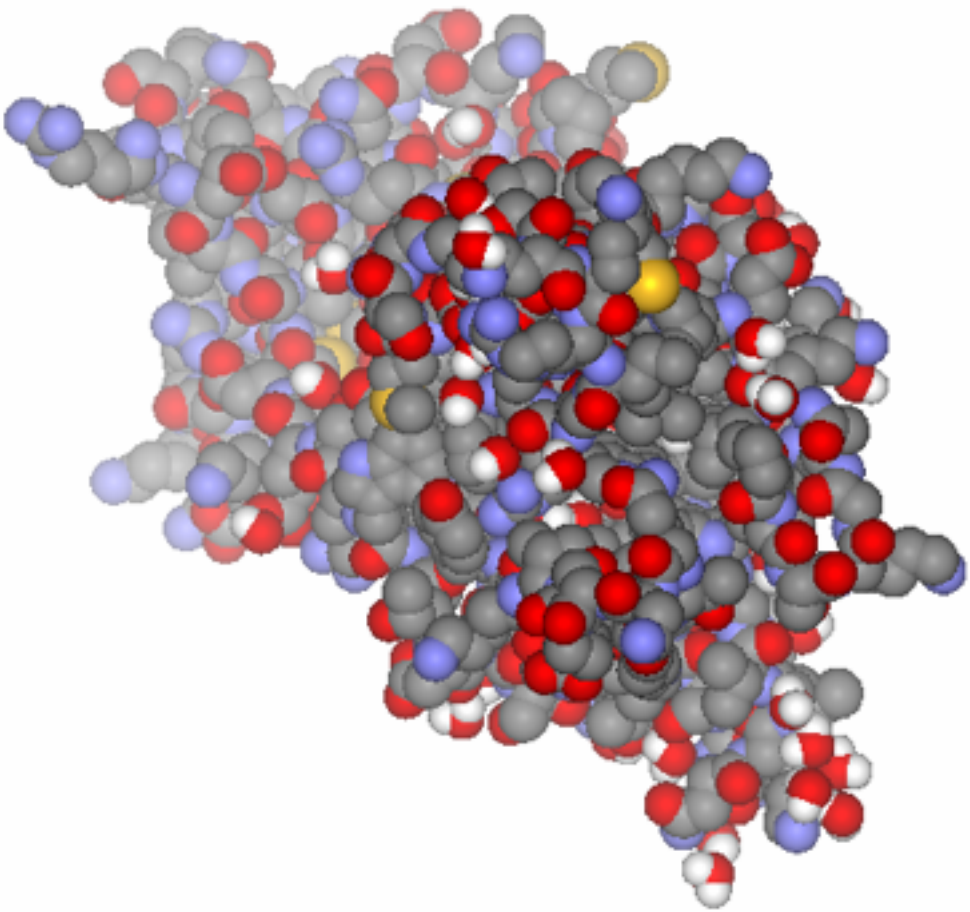
WALK

- 10,000 steps/day
- 1,000 steps in a 10-min period
- 20-min of moderate activity every day

Exercise improves cognition

BDNF

Miracle-Gro for the Brain



Cognitive Flexibility

35 minutes on a treadmill

60% of HR(max)

Significant short term improvement in cognitive flexibility

The Effect of a Single Aerobic Training Session on Cognitive Flexibility in Late Middle-Aged Adults

Y. Netz[1]
R. Tomer[2]
S. Axelrad[1]
E. Argov[1]
O. Inbar[1]

Behavioral Sciences

Abstract

Research has shown that aerobic exercise enhances cognitive function, specifically executive functions. This study examines the effect of acute aerobic exercise on cognitive flexibility – an executive function – in late middle-aged individuals. Fourteen men and 45 women aged 50–64, were randomly assigned to moderate exercise (60% of heart rate reserve), moderately-intense (70% of heart rate reserve) exercise, and movie-watching control groups after a maximal exercise test. Prior to and following the exercise or control sessions participants performed two cognitive tasks: the Alternate Uses assessing cognitive flexibility and the Digit Span Forward subtest from the Wechsler Adult Intelligence Scale – Revised assessing attention span. Results indicated significant improvement in Alternate Uses in the exercise groups but not in the control group. No group differences were indicated on the Digit Span. These results provide partial support for the benefit of acute aerobic exercise on cognitive flexibility.

Key words
Alternate uses · single bout · exercise · advanced age

Introduction

It has been proposed [8] that exercise increases the efficiency of effortful cognitive processes. Consequently, automatic processes, or processes that are less effortful, are unaffected by exercise, since there is presumably little need for increased efficiency in environments. This logic suggests that tasks requiring considerable effort, such as executive control due to the increased memory resources [14,18]. Two studies also reported improvements in cognitive flexibility [13,31], although they did not provide any information on exercise intensity during the experiment.

Executive control processes are mediated by the prefrontal regions of the brain [22, p.89]. Researchers studying the aging process have reported substantially larger reductions in gray-matter volume in the prefrontal and frontal regions, than in sensory cortical regions in old age [27]. Studies of functional brain employing positron emission tomography have reported

To stand, or not to stand?

- Strains the circulatory system
- Should only be used for short intervals (20-min)
- Increases caloric expenditure
- Promotes active behaviors

Sitting is not the metabolic equivalent of breaking even

It's killing us

17,013 Canadians

12 years

Participants who sat the most were 50% more likely to die prematurely

Sitting Time and Mortality from All Causes, Cardiovascular Disease, and Cancer

PETER T. KATZMARZYK[1], TIMOTHY S. CHURCH[1], CORA L. CRAIG[2], and CLAUDE BOUCHARD[1]

[1]*Pennington Biomedical Research Center, Baton Rouge, LA; and* [2]*Canadian Fitness and Lifestyle Research Institute, Ottawa, Ontario, CANADA*

ABSTRACT

KATZMARZYK, P. T., T. S. CHURCH, C. L. CRAIG, and C. BOUCHARD. Sitting Time and Mortality from All Causes, Cardiovascular Disease, and Cancer. *Med. Sci. Sports Exerc.*, Vol. 41, No. 5, pp. 998–1005, 2009. **Purpose**: Although moderate-to-vigorous physical activity is related to premature mortality, the relationship between sedentary behaviors and mortality has not been fully explored and may represent a different paradigm than that associated with lack of exercise. We prospectively examined sitting time and mortality in a representative sample of 17,013 Canadians 18–90 yr of age. **Methods**: Evaluation of daily sitting time (almost none of the time, one fourth of the time, half of the time, three fourths of the time, almost all of the time), leisure time physical activity, smoking status, and alcohol consumption was conducted at baseline. Participants were followed prospectively for an average of 12.0 yr for the ascertainment of mortality status. **Results**: There were 1832 deaths (759 of cardiovascular disease (CVD) and 547 of cancer) during 204,732 person-yr of follow-up. After adjustment for potential confounders, there was a progressively higher risk of mortality across higher levels of sitting time from all causes (hazard ratios (HR): 1.00, 1.00, 1.11, 1.36, 1.54; *P* for trend <0.0001) and CVD (HR: 1.00, 1.01, 1.22, 1.47, 1.54; *P* for trend <0.0001) but not cancer. Similar results were obtained when stratified by sex, age, smoking status, and body mass index. Age-adjusted all-cause mortality rates per 10,000 person-yr of follow-up were 87, 86, 105, 130, and 161 (*P* for trend <0.0001) in physically inactive participants and 75, 69, 76, 98, 105 (*P* for trend = 0.008) in active participants across sitting time categories. **Conclusions**: These data demonstrate a dose–response association between sitting time and mortality from all causes and CVD, independent of leisure time physical activity. In addition to the promotion of moderate-to-vigorous physical activity and a healthy weight, physicians should discourage sitting for extended periods. **Key Words**: PHYSICAL ACTIVITY, SEDENTARY BEHAVIOR, COHORT, DEATH, SURVIVAL

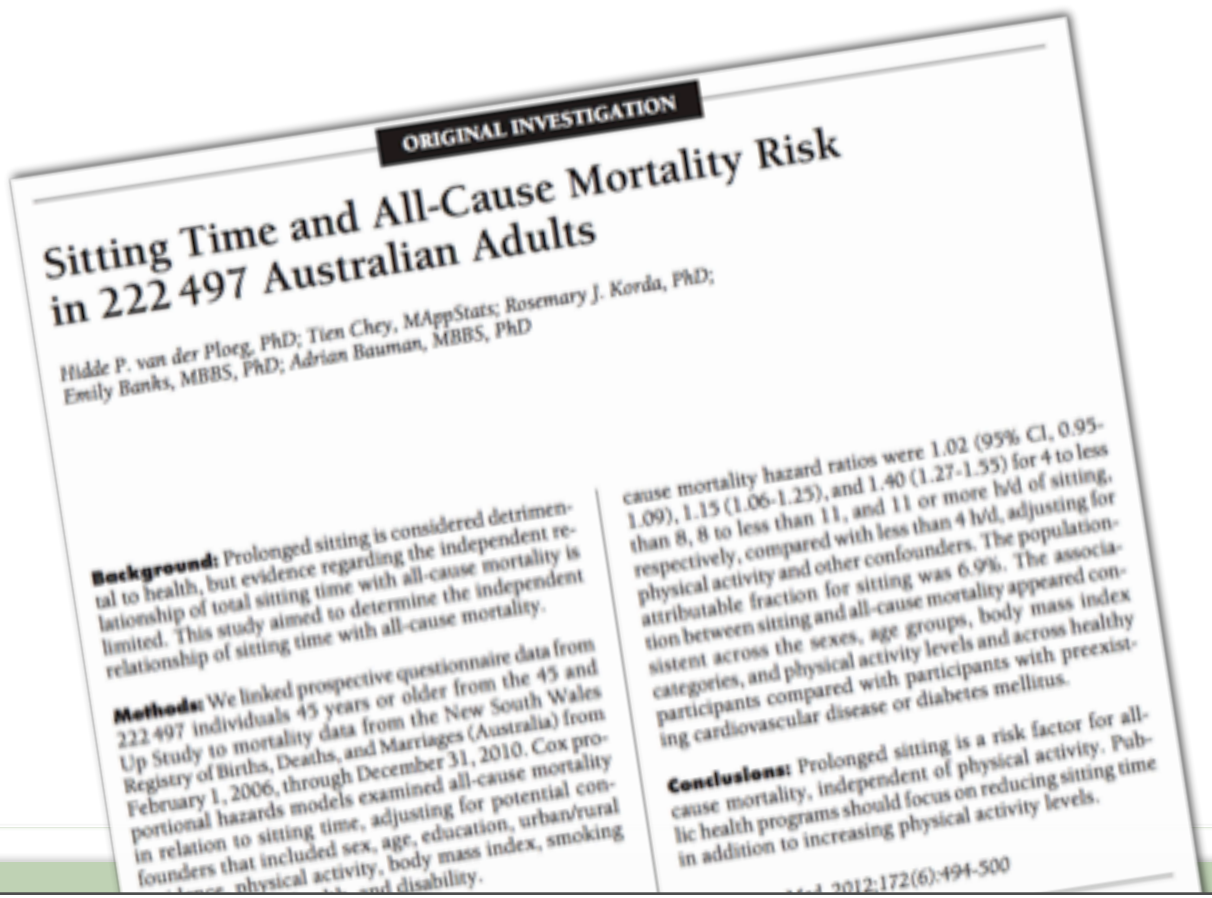
...rrent public health recommendations for physical ...accumulating adequate levels of ...ctivity. For exam-

Although there is good evidence that higher levels of moderate-to-vigorous physical activity lead to substantial health benefits, there is increasing interest in identifying the health risks associated with sedentary behaviors (9,10, ...pursuits represent a unique aspect of ...be viewed as simply the ex- ...ium. For

222,497 Australians

4 years

38% higher mortality risk in people who sat between 8 and 11 hours per day



ORIGINAL INVESTIGATION

Sitting Time and All-Cause Mortality Risk in 222 497 Australian Adults

Hidde P. van der Ploeg, PhD; Tien Chey, MAppStats; Rosemary J. Korda, PhD; Emily Banks, MBBS, PhD; Adrian Bauman, MBBS, PhD

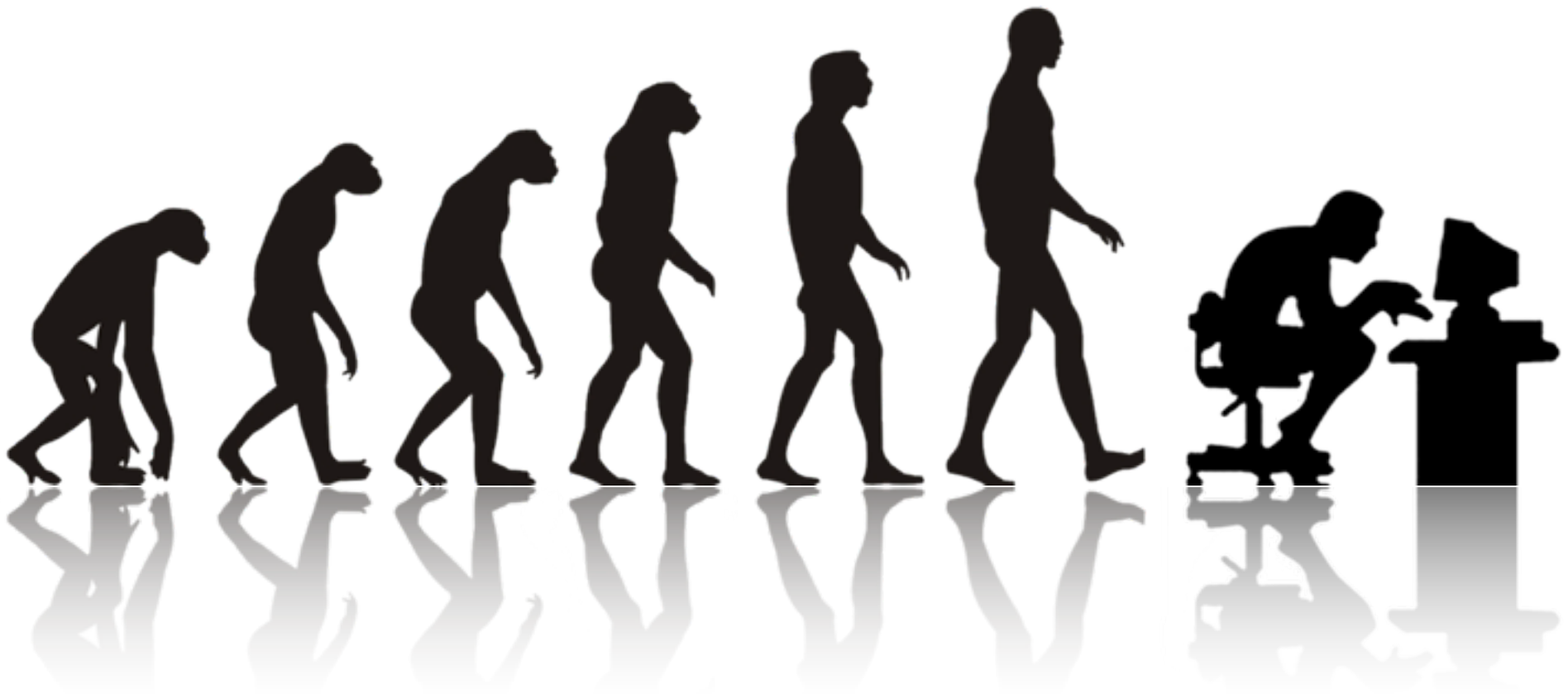
Background: Prolonged sitting is considered detrimental to health, but evidence regarding the independent relationship of total sitting time with all-cause mortality is limited. This study aimed to determine the independent relationship of sitting time with all-cause mortality.

Methods: We linked prospective questionnaire data from 222 497 individuals 45 years or older from the 45 and Up Study to mortality data from the New South Wales Registry of Births, Deaths, and Marriages (Australia) from February 1, 2006, through December 31, 2010. Cox proportional hazards models examined all-cause mortality in relation to sitting time, adjusting for potential confounders that included sex, age, education, urban/rural [illegible] physical activity, body mass index, smoking [illegible] and disability.

cause mortality hazard ratios were 1.02 (95% CI, 0.95-1.09), 1.15 (1.06-1.25), and 1.40 (1.27-1.55) for 4 to less than 8, 8 to less than 11, and 11 or more h/d of sitting, respectively, compared with less than 4 h/d, adjusting for physical activity and other confounders. The population-attributable fraction for sitting was 6.9%. The association between sitting and all-cause mortality appeared consistent across the sexes, age groups, body mass index categories, and physical activity levels and across healthy participants compared with participants with preexisting cardiovascular disease or diabetes mellitus.

Conclusions: Prolonged sitting is a risk factor for all-cause mortality, independent of physical activity. Public health programs should focus on reducing sitting time in addition to increasing physical activity levels.

[illegible] 2012;172(6):494-500



MOVE

- 5 minutes of every hour
- Change positions every 20 minutes

C. P. E. BACH

Essay on the

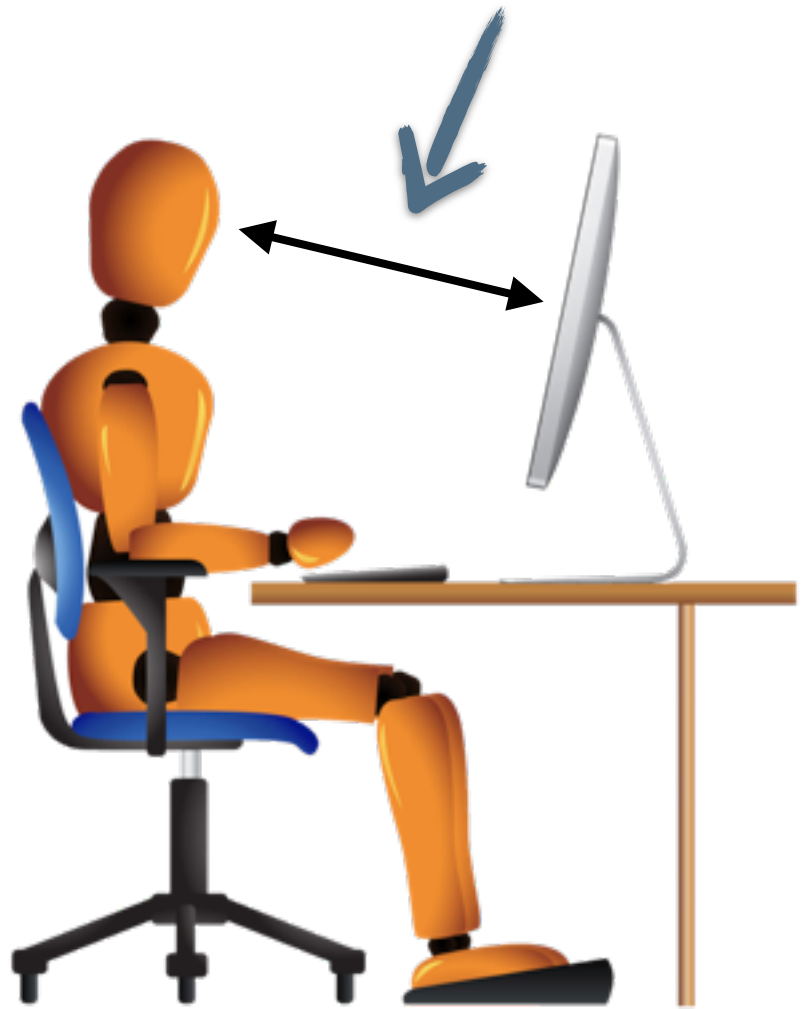
TRUE ART OF PLAYING KEYBOARD INSTRUMENTS

TRANSLATED AND EDITED BY

WILLIAM J. MITCHELL

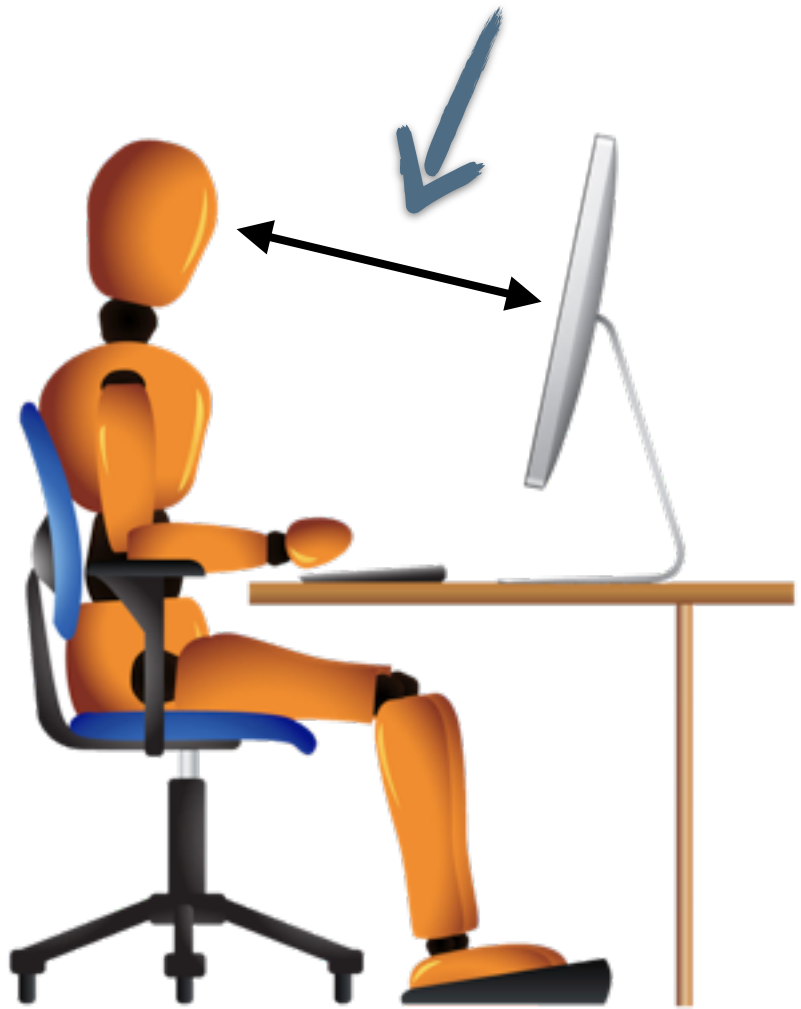
Elbows level with wrists

Monitor 20-40 inches from eyes



Elbows level with wrists

Monitor 20-40 inches from eyes



Elbows level with wrists

Feet supported

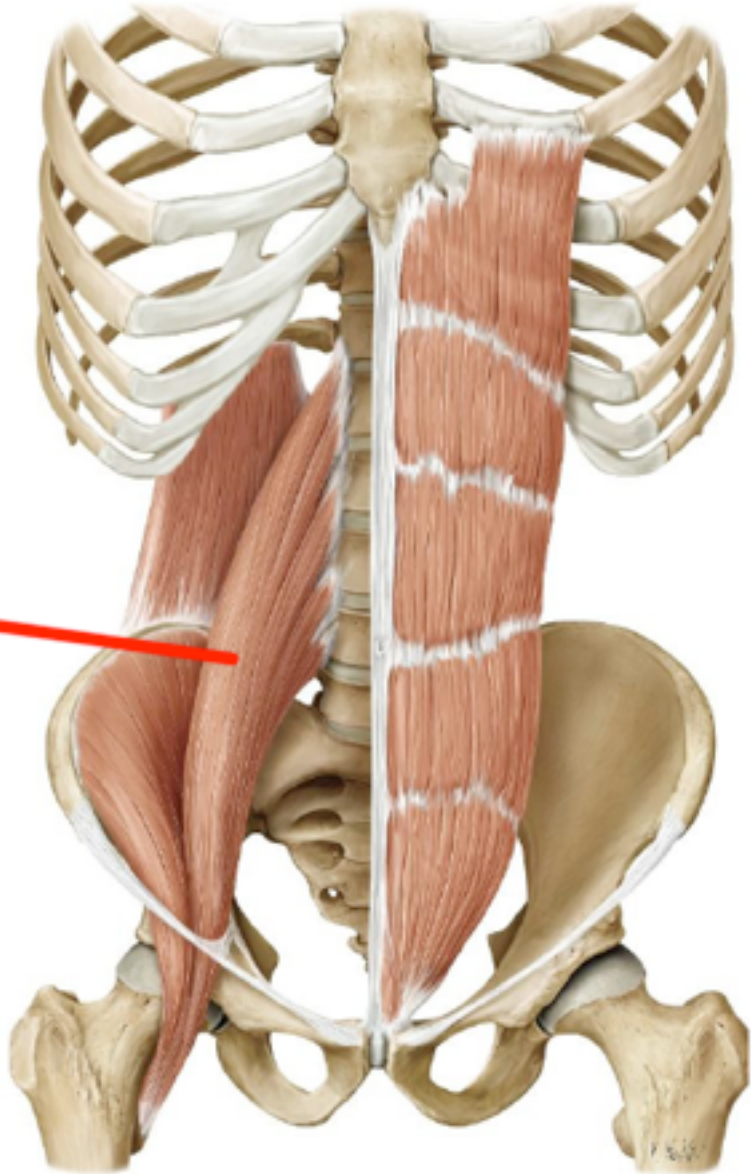
Monitor 20-40 inches from eyes

Elbows level with wrists

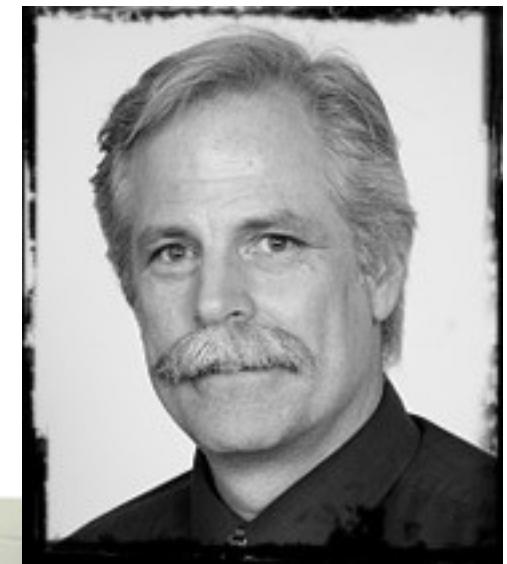
Hips level with knees

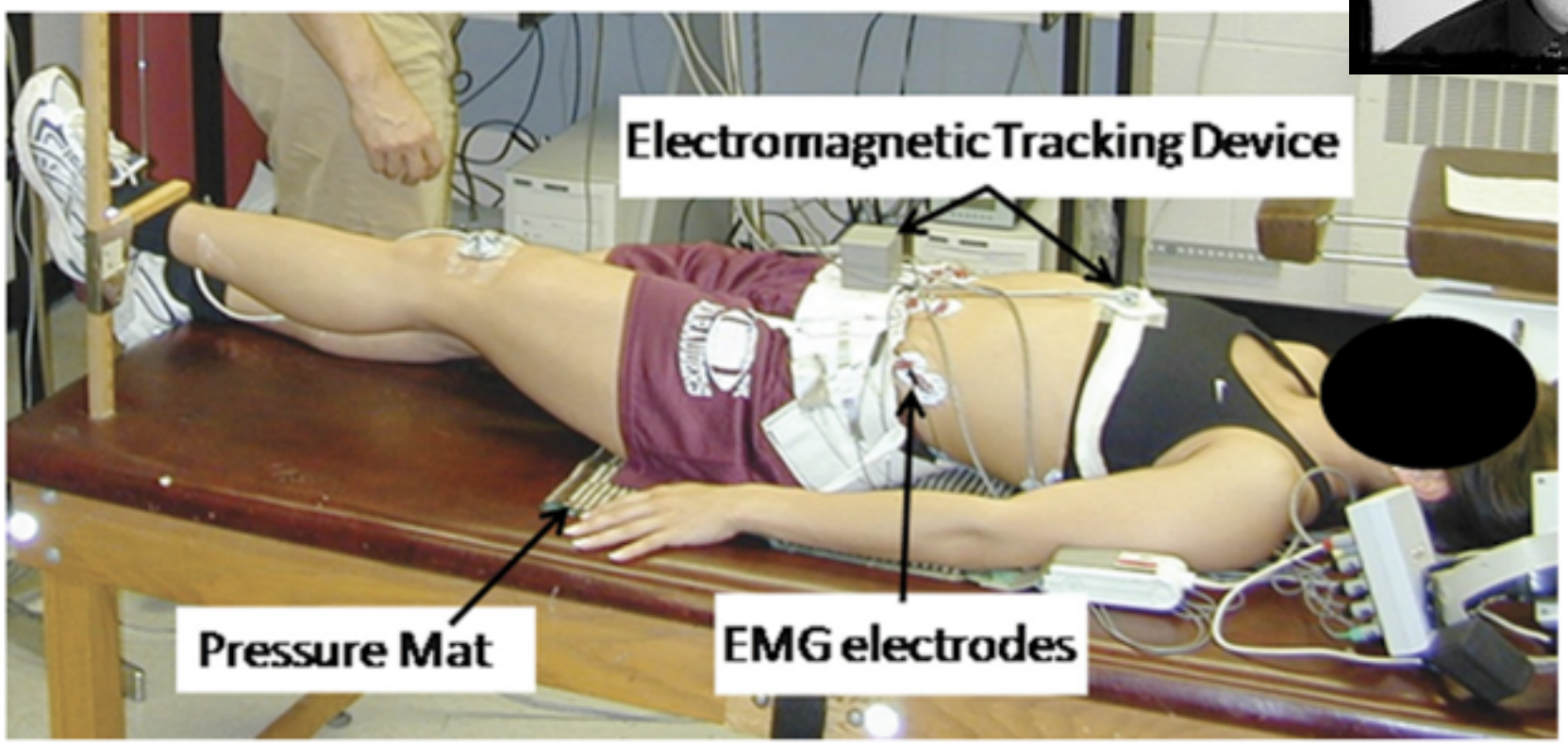
Feet supported

Psoas Major



Health != Performance





The Big 3

Side Bridge

Bird Dog

Curl-Up

BUILD

- Do the “Big 3” exercises each day

Pomodoro Workout

Pomodoro Technique

- Set a timer for 20-min
- Work on a task
- Stop when the timer ends
- Take a 5 minute break

Pomodoro ~~Technique~~ Workout

- Set a timer for 20-min
- Work on a task
- Stop when the timer ends
- Take a 5 minute **EXERCISE** break

The Healthy Programmer iPhone App

- Pomodoro Timer
- Checklist
- List of Exercises
- Log Book

SCALE

- Set a personal record every day
- Kaizen for your health

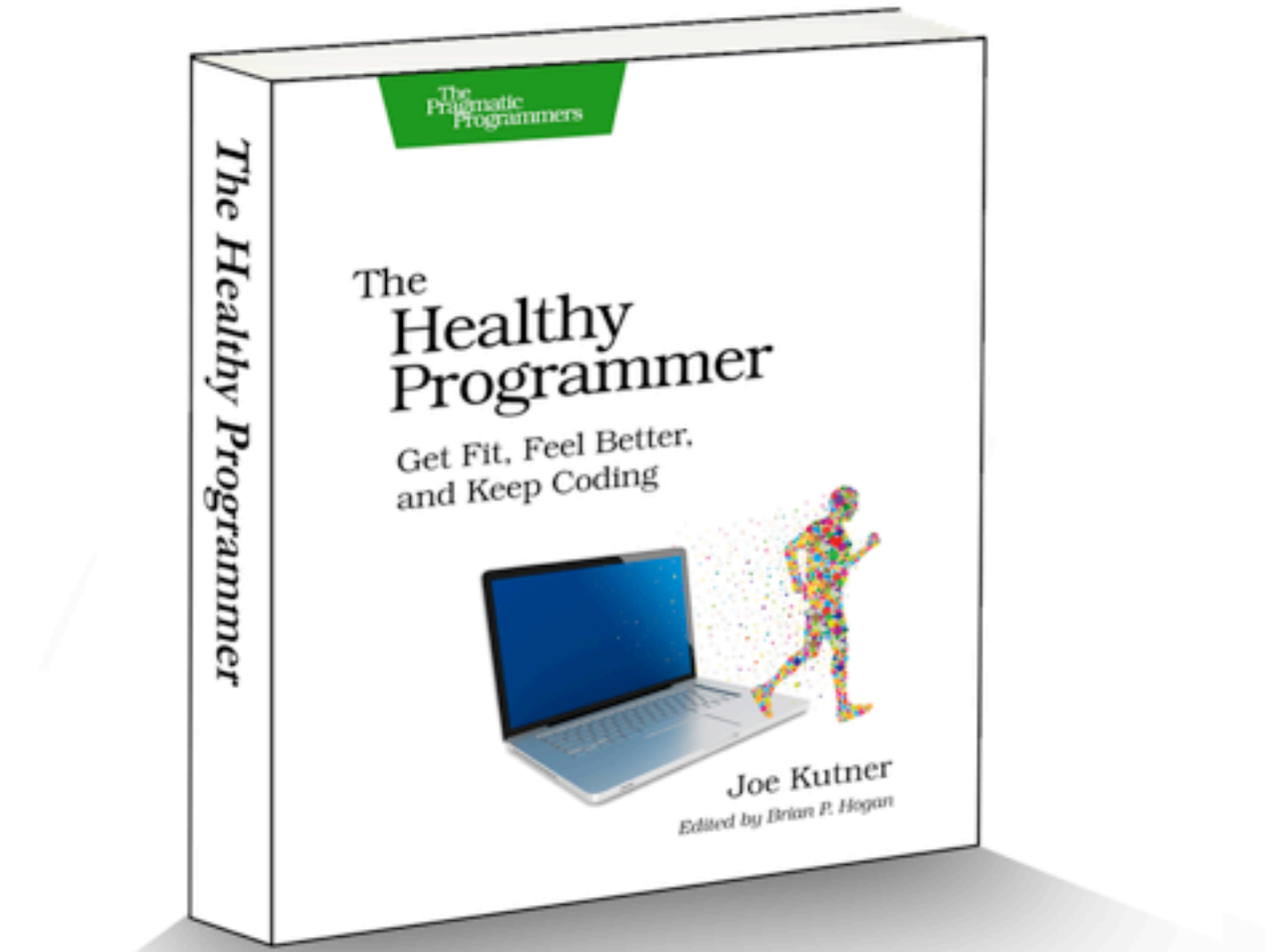
WALK

MOVE

BUILD

SCALE

healthyprog.com



No Questions

Talk to Me