

Tutorial:

How Much Exercise Do I Need?

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Exercise Guidelines

- **Previous exercise recommendation (AHA 1981, ACSM 1985):**
 - **intense or vigorous exercise**
 - **at least 20 minutes continuously**
 - **at least 3 times per week**

Exercise Guidelines

- **Exercise recommendation**
(CDC and ACSM 1995; U.S. Surgeon General 1996)

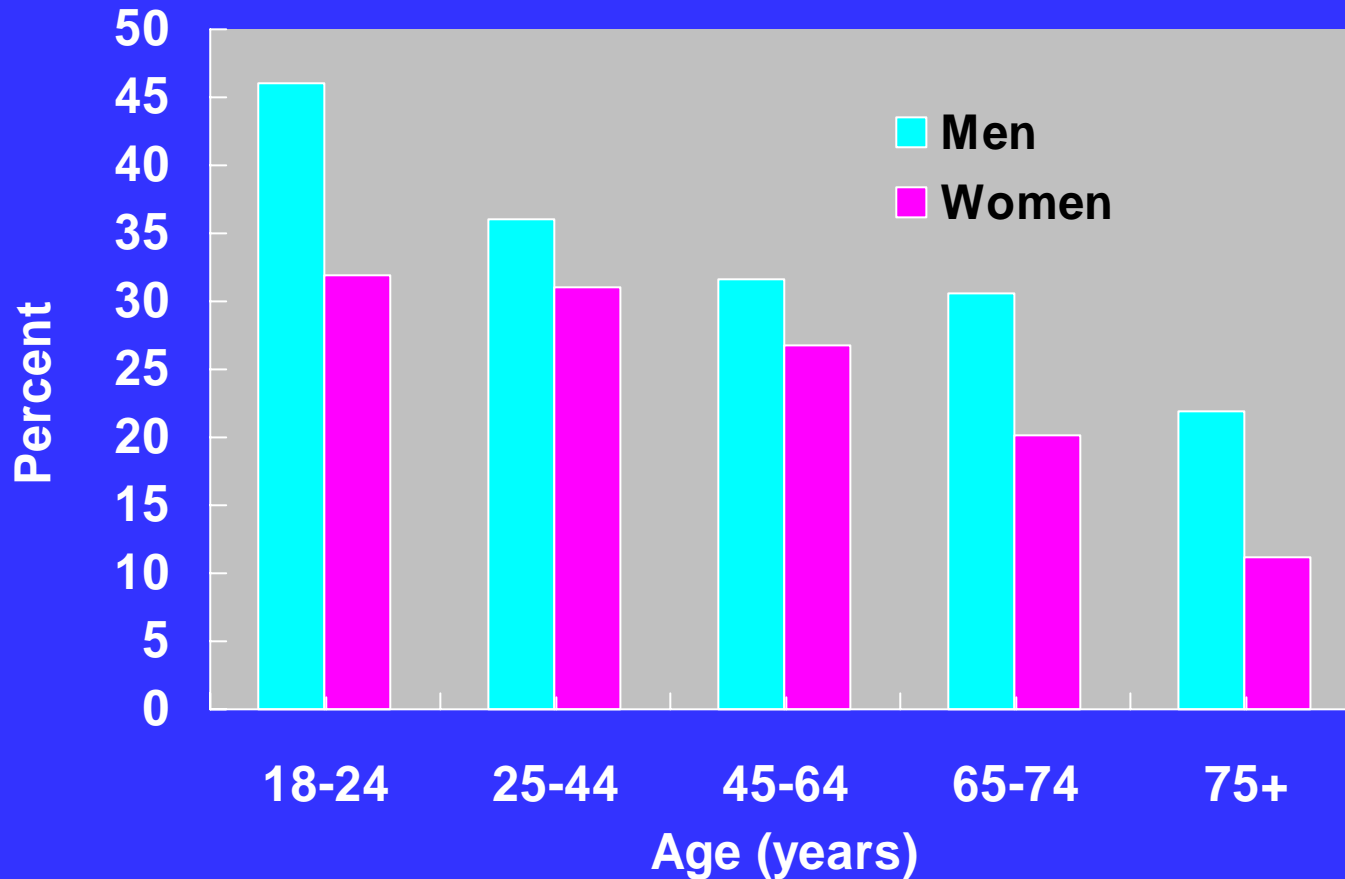
“Every adult should accumulate 30 minutes or more of moderate-intensity physical activity on most, preferably all, days of the week.”

- **Recent IOM guidelines on diet, September 02, call for at least 1 hr/day of moderate physical activity.**
- **These guidelines are meant to keep weight in healthy range.**
- **30 min/day still sufficient for cardiac health, but insufficient to maintain healthy weight.**

World Health Organization, 2004

- **At least 30 minutes of regular, moderate-intensity physical activity on most days reduces the risk of cardiovascular disease, diabetes, colon cancer, and breast cancer.**
- **Muscle strengthening and balance training can reduce falls and increase functional status among older adults.**
- **More activity may be required for weight control.**

Percent of U.S. Adults Engaging in Regular Leisure-time Physical Activity,* by Gender and Age, 1997-98



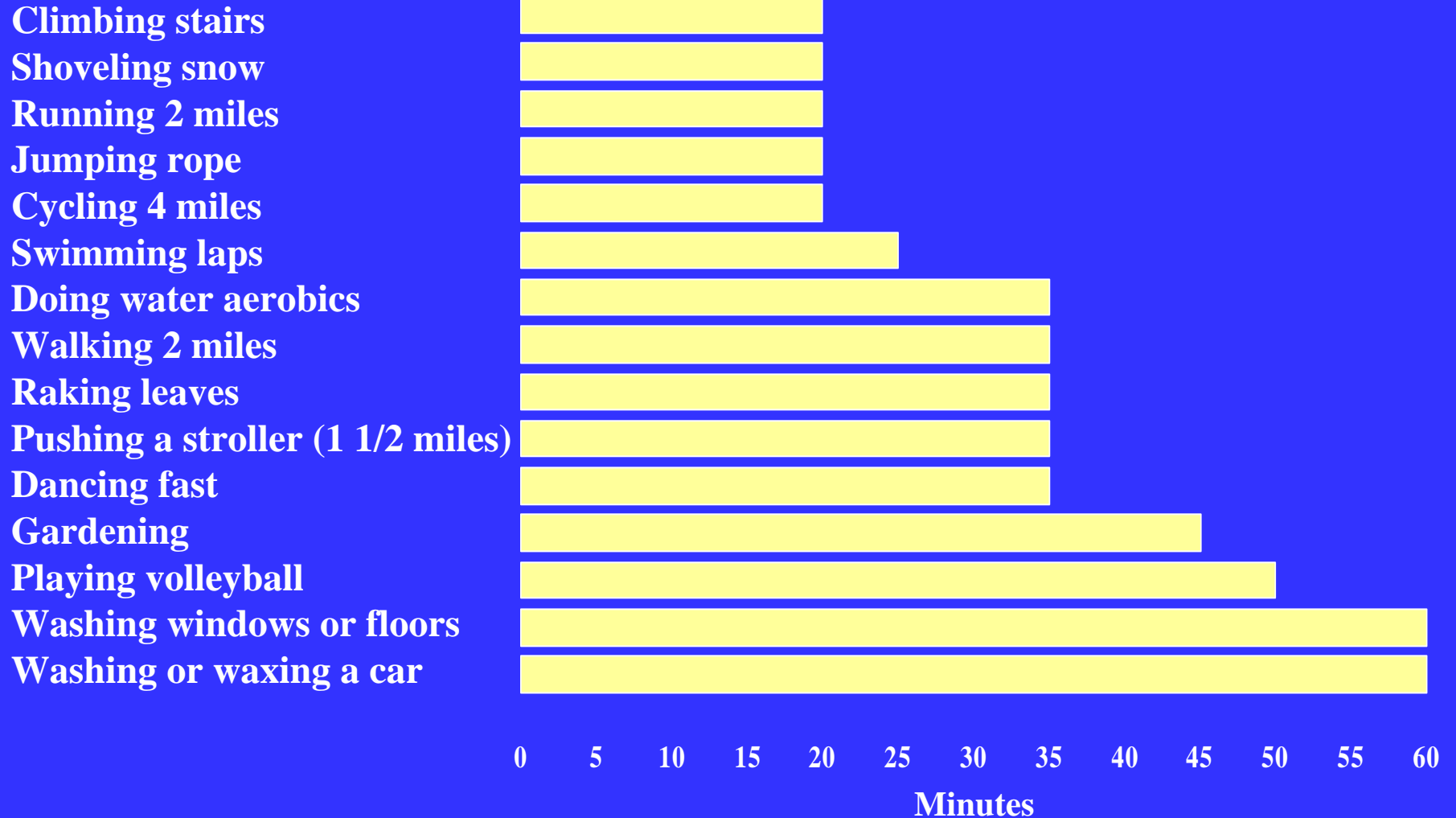
* Regular activity=light-to-moderate activity 5 times per week for 30 min each time, or vigorous activity 3 times or more per week for 20 min each time.

Exit





Number of Minutes of Activity to Burn 150 Calories



Physical Activity

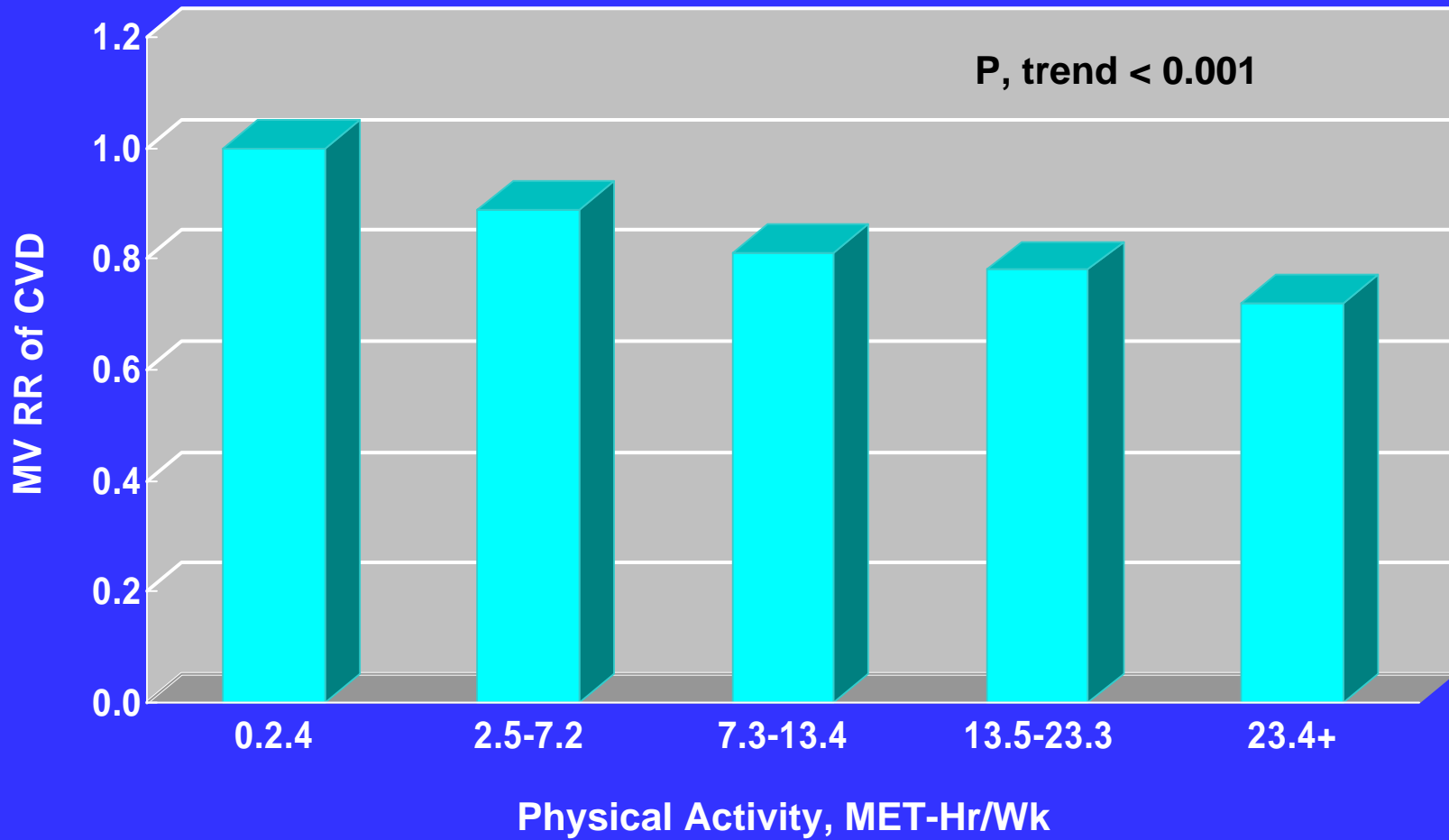
- **Biological mechanisms:**
 - **improvements in lipid profile**
 - **blood pressure lowering**
 - **improvement in glucose tolerance**
 - **reduction in adiposity**
 - **enhanced fibrinolytic activity**
 - **stress reduction**

Physical Activity

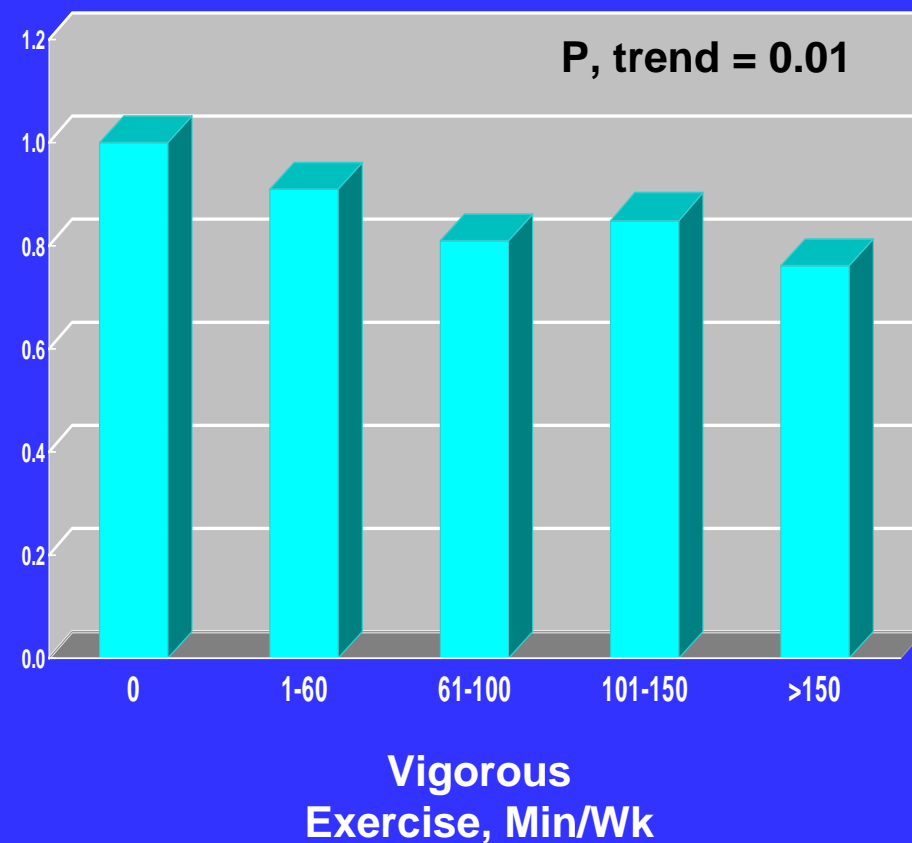
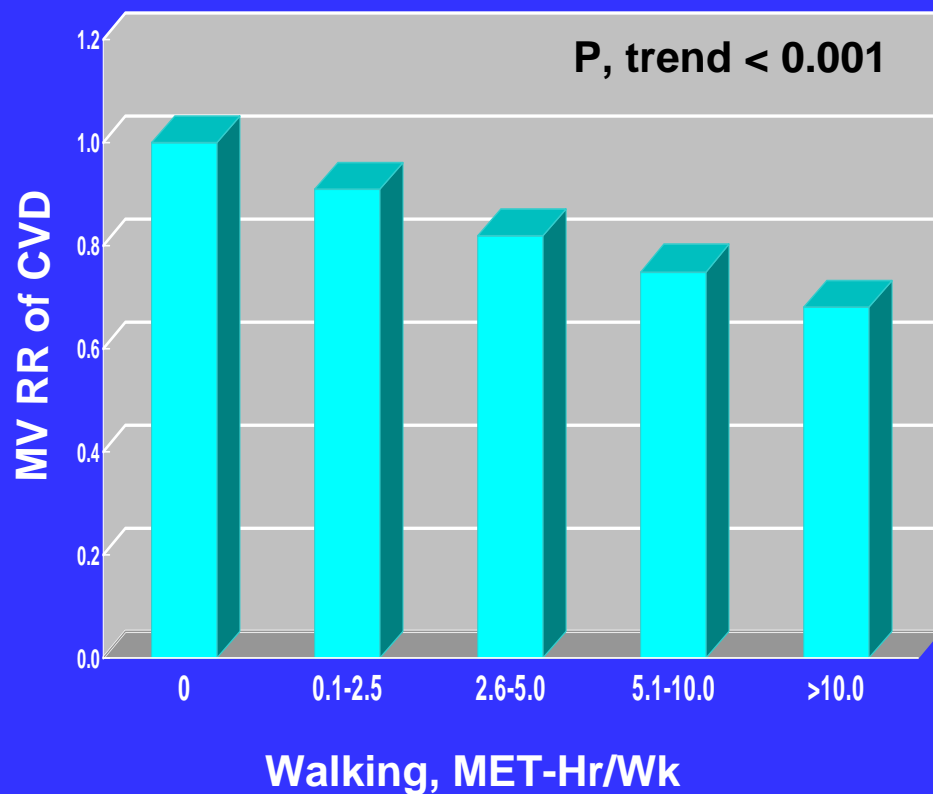
- **Reduces risk of:**
 - **coronary heart disease**
 - **stroke**
 - **diabetes mellitus (type 2)**
 - **osteoporosis**
 - **certain types of cancer
(colorectal, breast, prostate)**

Women's Health Initiative

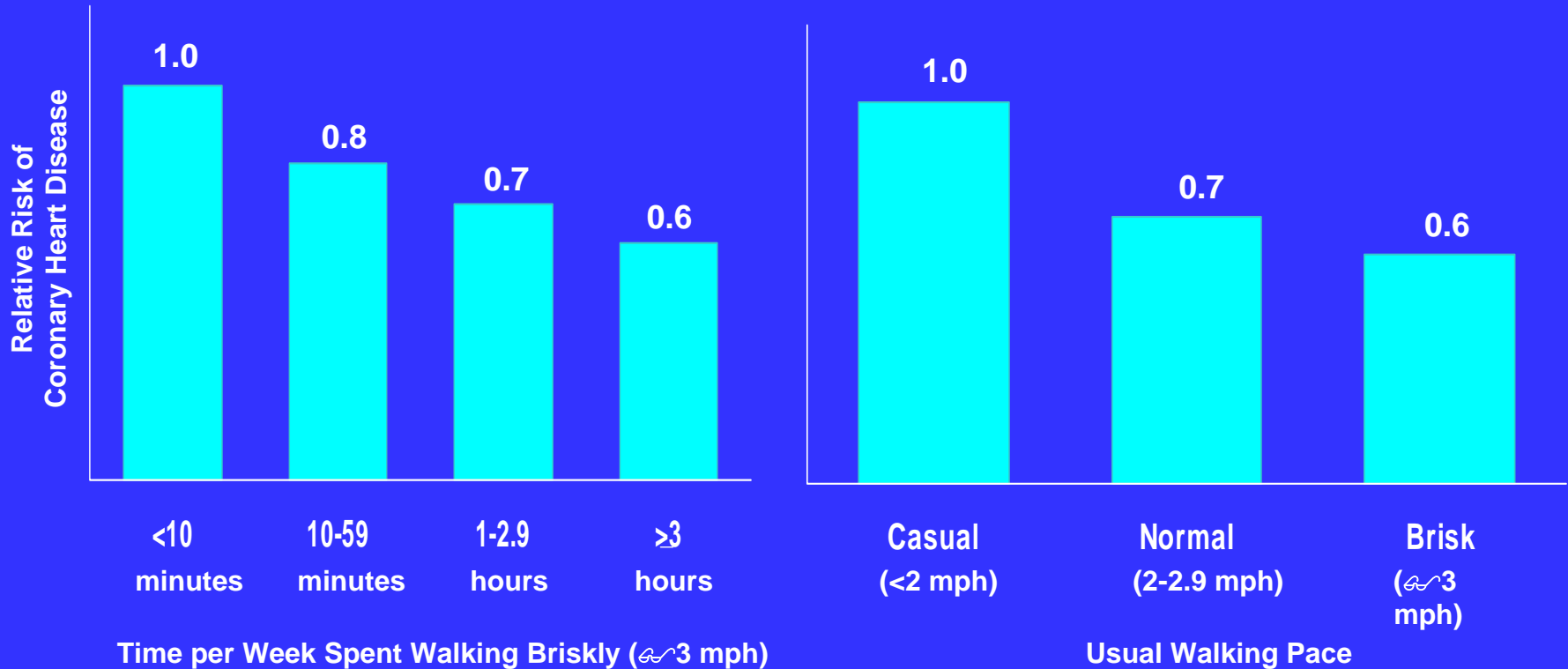
(J Manson, et al. *NEJM* 2002)



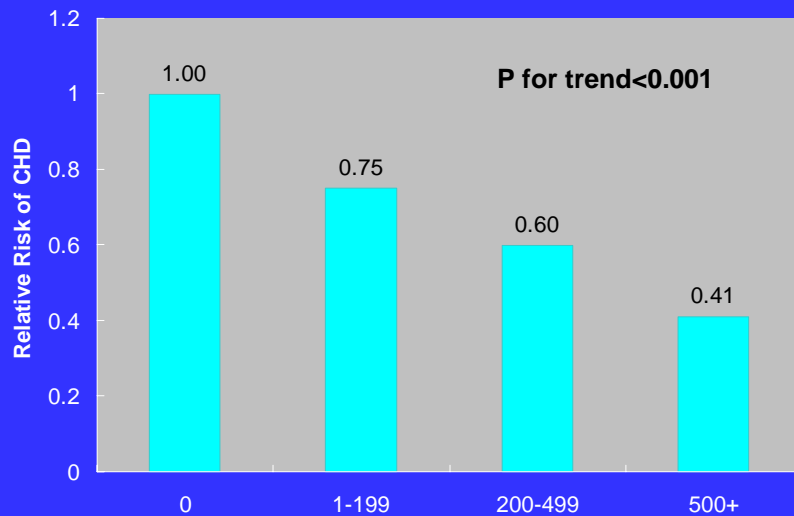
Walking vs Vigorous Exercise and Risk of CVD: Women's Health Initiative (J Manson, et al. *NEJM* 2002)



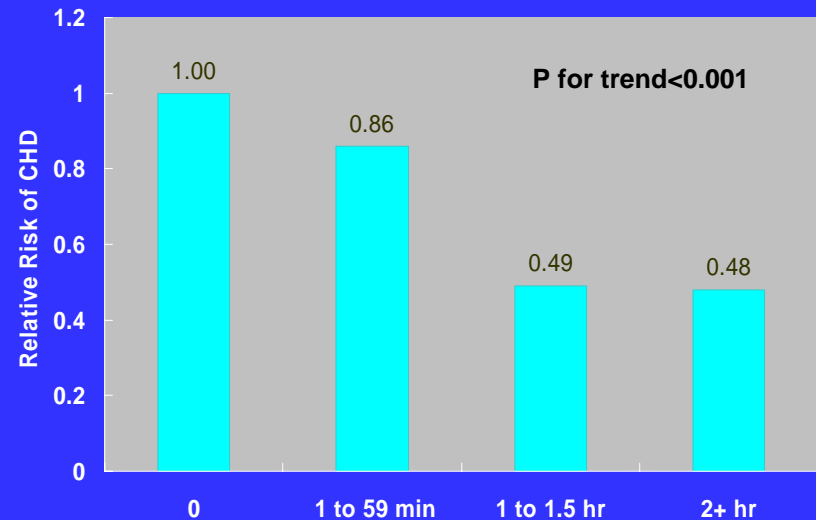
Walking and the Risk of Heart Disease: Nurses' Health Study (J Manson, et al. *NEJM* 1999)



Relative Risk of Coronary Heart Disease (CHD) Vigorous Activity vs Walking: Women's Health Study (Lee, et al. *JAMA* 2001)

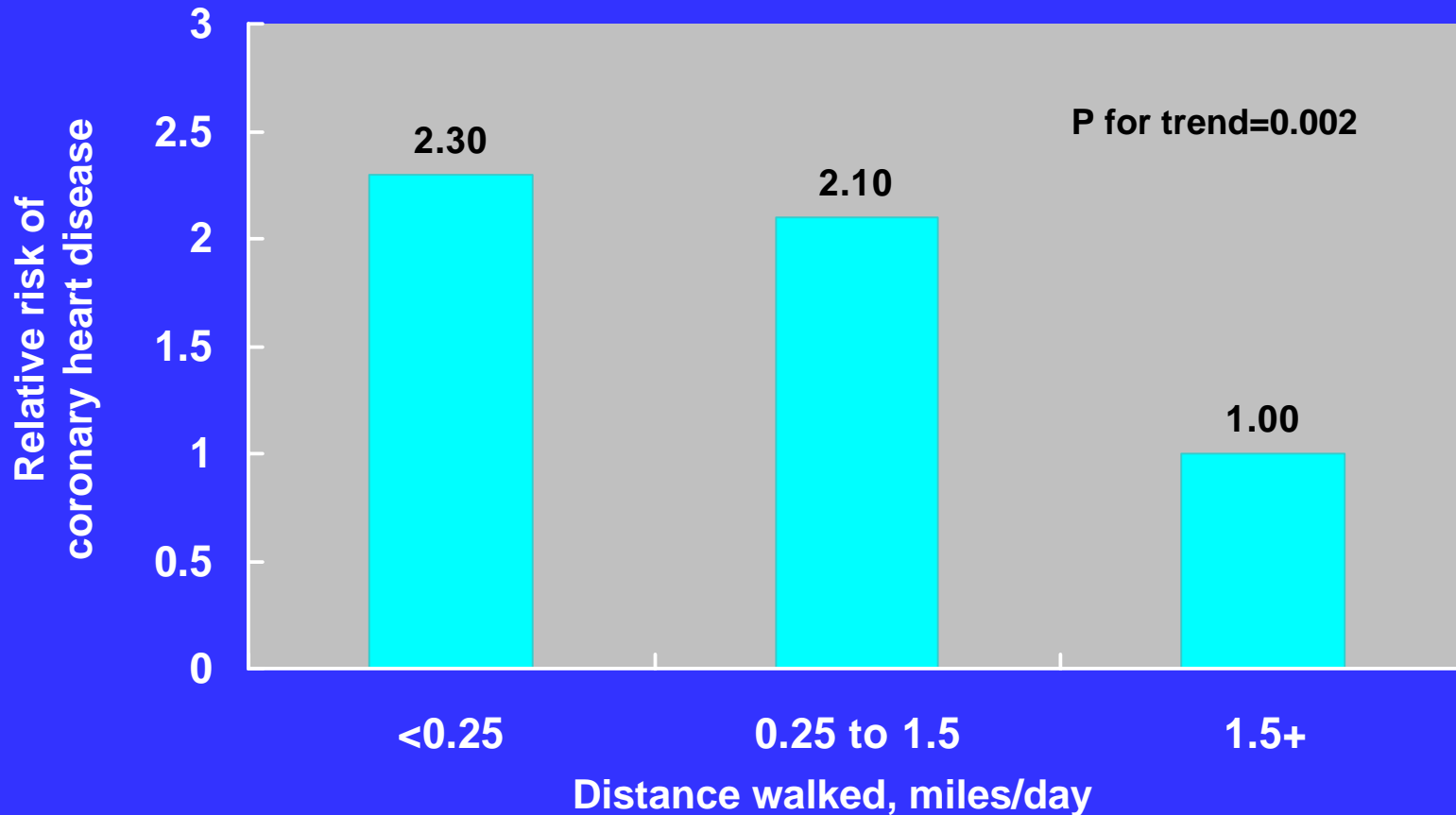


Energy expended on vigorous recreational activities (kcal/week)



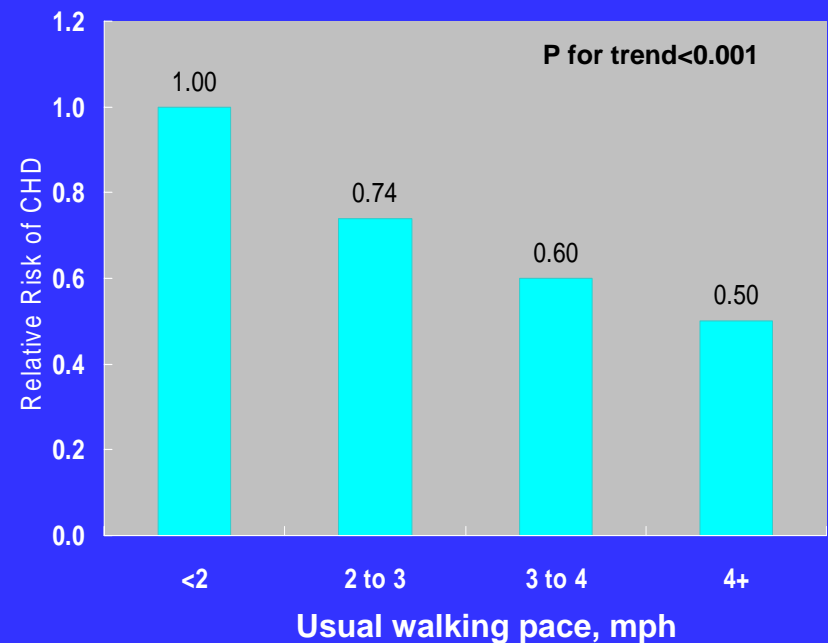
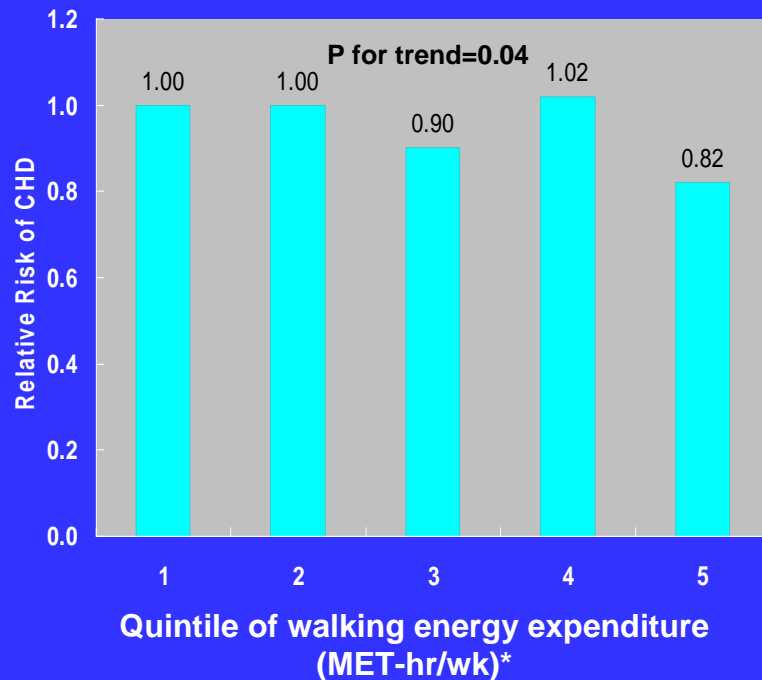
Time spent walking per week

Relative risks of coronary heart disease according to daily walking distance among elderly men in the Honolulu Heart Program



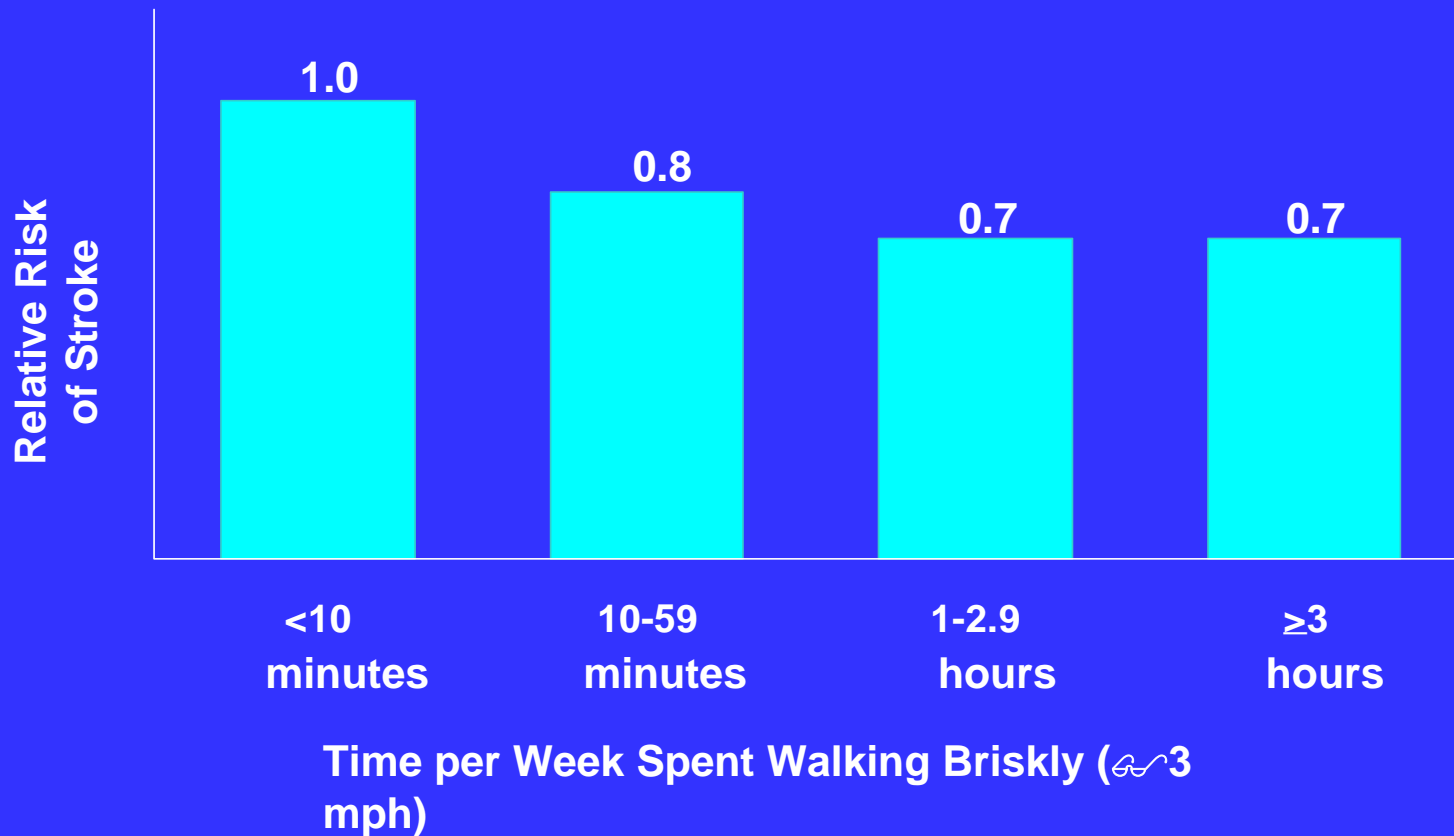
Source: Hakim AA et al. *Circulation* 1999;100:9-13.

Relative risk of coronary heart disease according to quintile of walking energy expenditure (left panel) and usual walking pace (right panel) among men in the Health Professionals' Follow-up Study



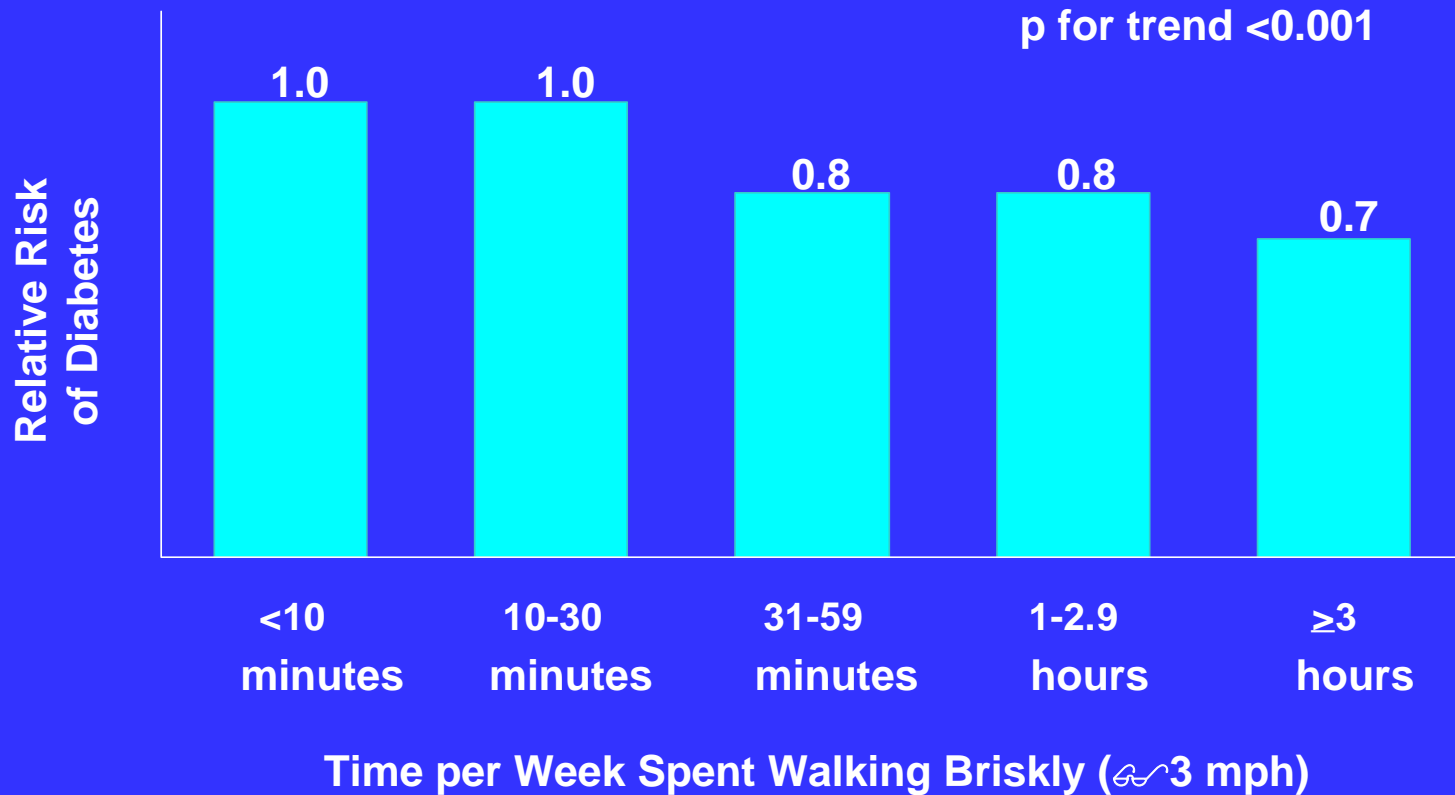
*Quintiles: 0-1.19, 1.20-3.49, 3.50-6.99, 7.00-14.74, 14.75+ MET-hr/wk

Walking and the Risk of Stroke

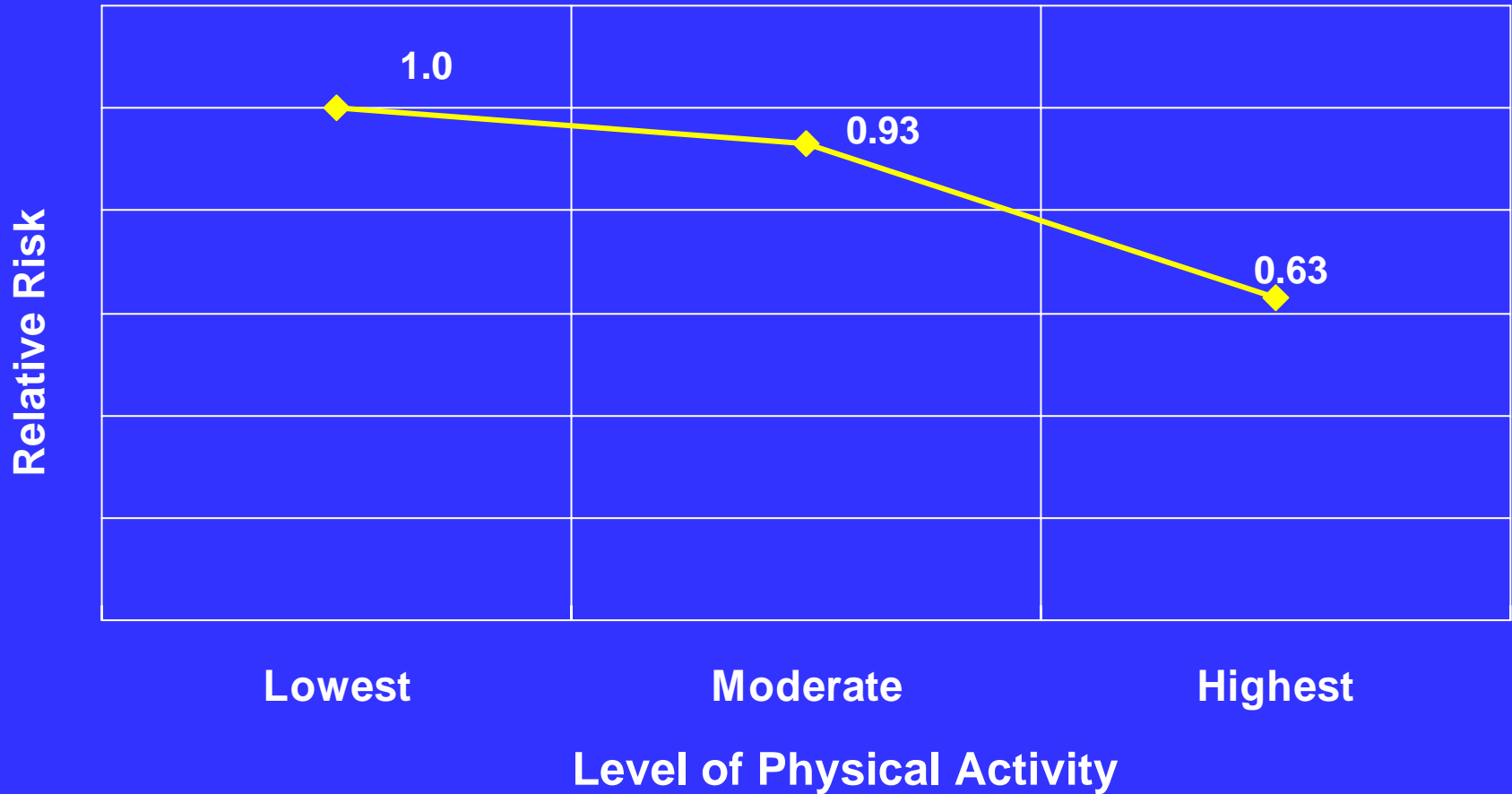


Source: Hu FB, et al. Nurses' Health Study; JAMA 2000

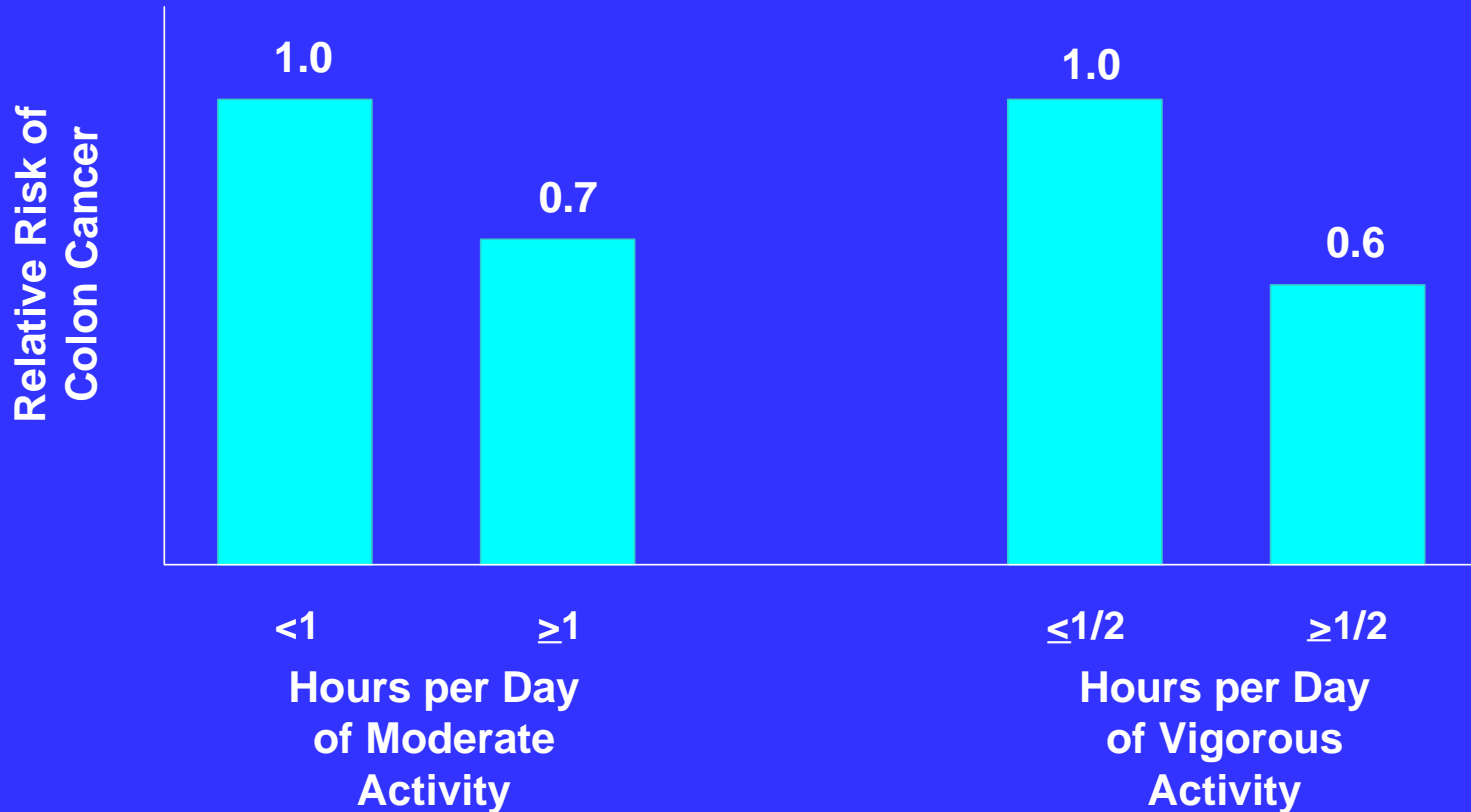
Walking and the Risk of Type 2 (Adult-Onset) Diabetes



Exercise and a Woman's Risk of Breast Cancer

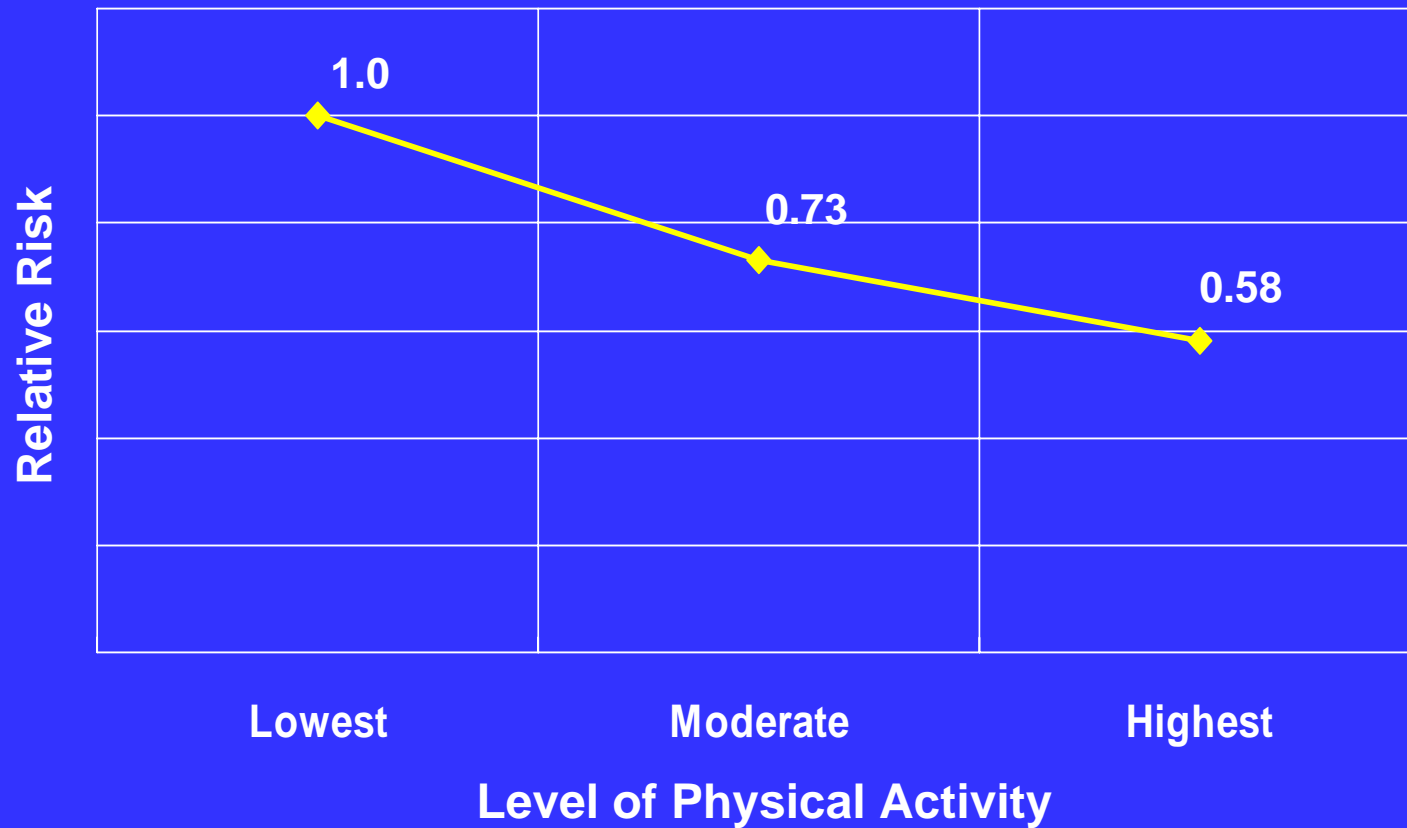


Physical Activity and the Risk of Colon Cancer



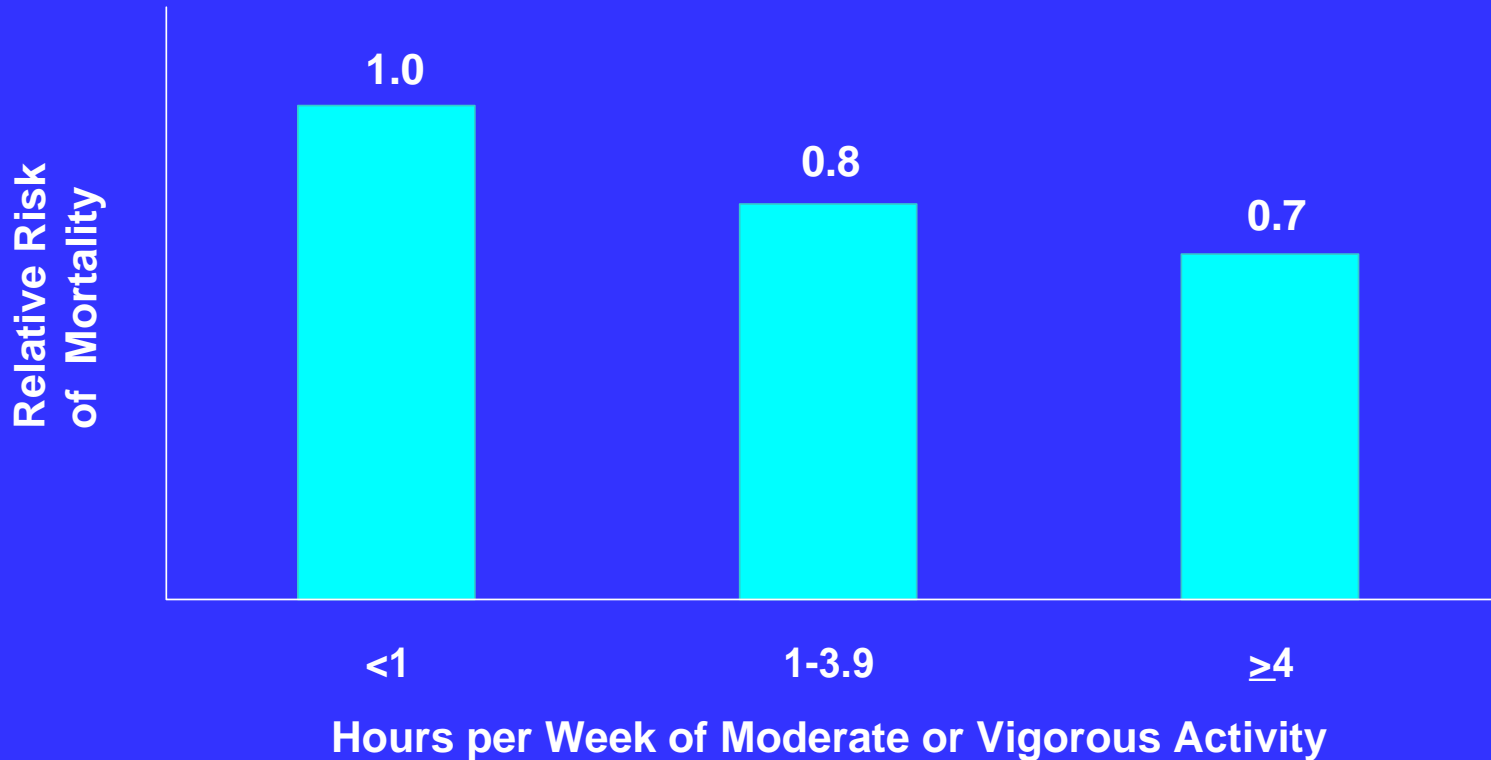
Source: Nurses' Health Study/Harvard's Brigham and Women's Hospital

Exercise and a Woman's Risk of Hip Fracture



Source: Adapted from a study of the Osteoporotic Fractures Research Group; *Ann Intern Med* 1998

Physical Activity and the Risk of Premature Mortality

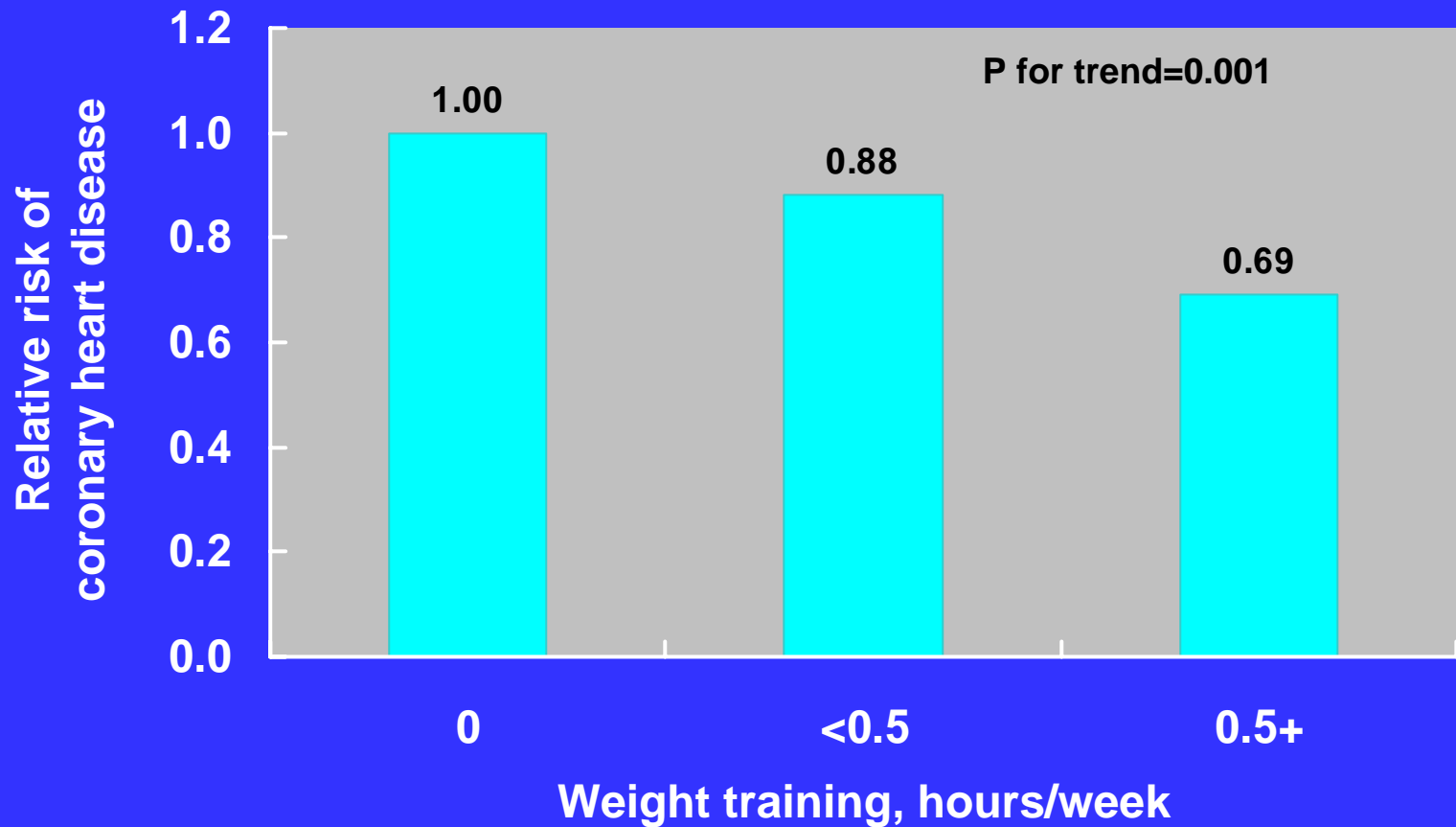


Source: Rockhill B, et al. Nurses' Health Study; Am J Pub Health 2001

Short versus Long Bouts of Exercise: Randomized Trials

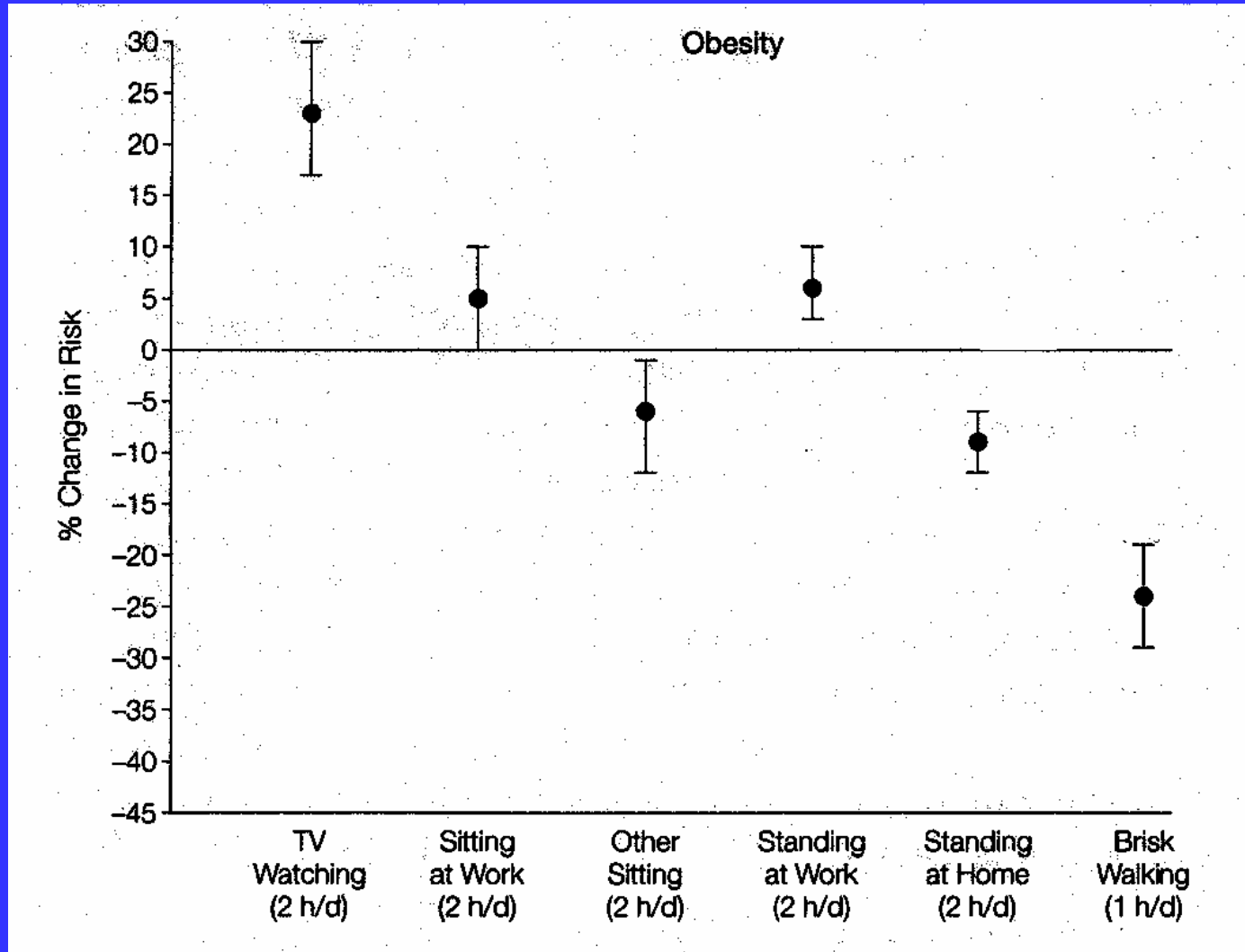
- **Meta-analysis: “Small randomized controlled trials showed that improvements in measures of cardiorespiratory fitness did not differ significantly between training regimens based on long or short sessions.”** Hardman AE. *Med Sci Sports Exerc* 2001;33:S421-7.
- **“ ... Three short bouts (10 min) of brisk walking accumulated throughout the day are at least as effective as one continuous bout of equal total duration in reducing cardiovascular risk and improving aspects of mood in previously sedentary individuals.”** Murphy M et al. *Med Sci Sports Exerc* 2002;34:1468-74.

Relative Risks of Coronary Heart Disease According to Time Spent Weight Training Among Men in the Health Professionals' Follow-up Study

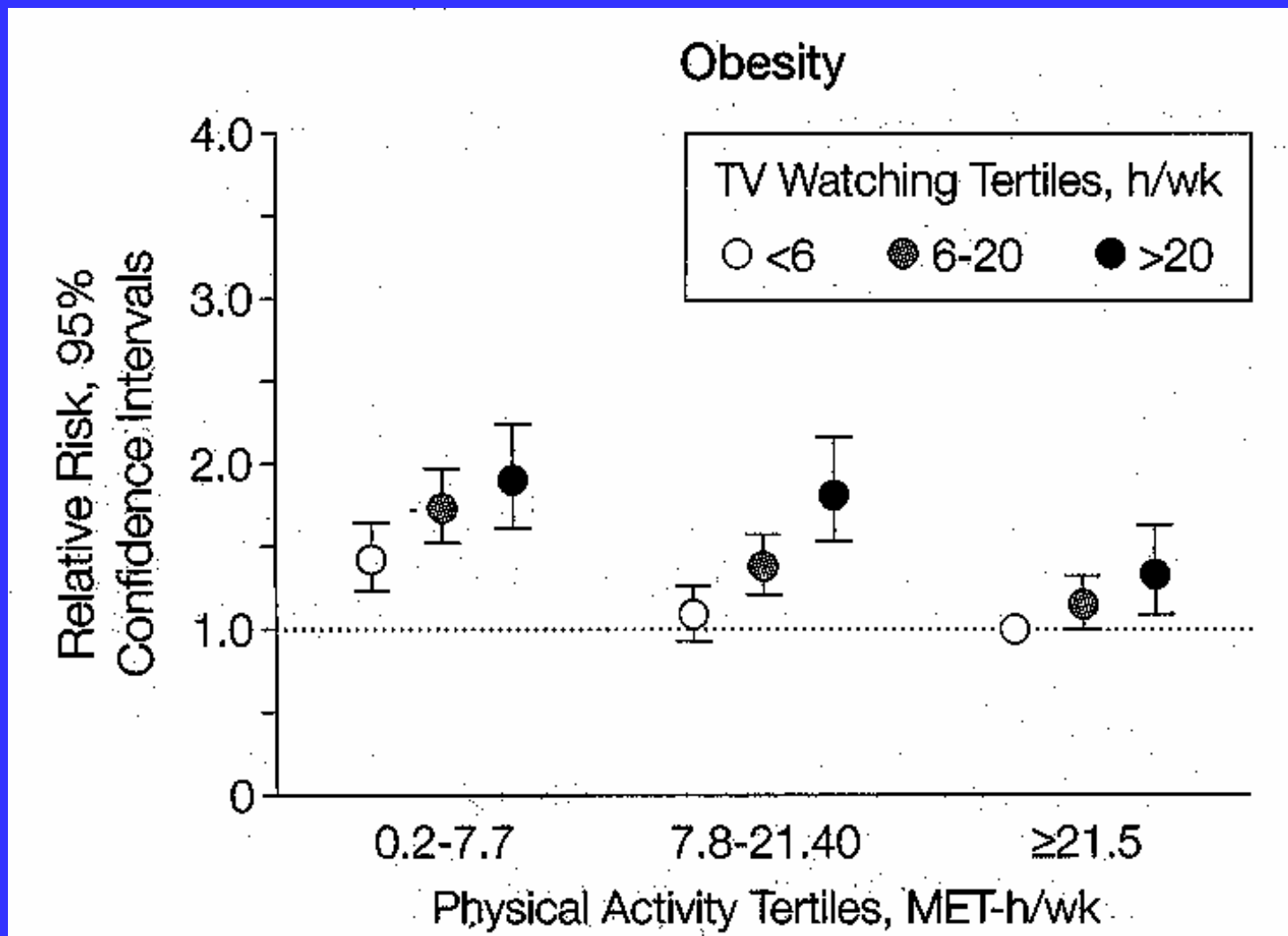


Source: Tanasescu M, et al. JAMA 2002;288:1994-2000.

Percentage Change in Risk of Developing Obesity According to TV Watching and Other Sedentary Behaviors



Relative Risk of Developing Obesity According to Time Spent Watching TV and Physical Activity Level



Strategies to ↑ Activity

- **Get a pedometer**

**Aim for 10,000 steps/d
(2,500 steps = ~1 mile)**

5,000 steps in "structured" activity

5,000 steps in "lifestyle" activity

- **Strength training**

15-20 minutes 2-3 x/week

Strategies

- **Make activity a priority in your life**
- **Develop the self-identity of an exerciser**
- **Set clear and realistic goals**
- **Write down your goals (calendar can be helpful)**
- **Try to exercise at the same time each day to make it a habit**
- **Expect setbacks and don't let them derail you**
- **Reward yourself**
- ★ **Staying healthy is the most important thing you can do for the people you love. ★**

Top Ten Tips for Adding Walking to a Busy Schedule

- **Park your car at the farthest end of the parking lot and walk.**
- **Get off the subway or bus a stop early and walk a few blocks to work.**
- **Take a walk during your lunch break, alone or with a walking partner.**
- **Take the stairs rather than the elevator.**
- **Take your dog for a walk.**
- **At the mall, walk briskly around the perimeters while you window-shop.**
- **Instead of having a cup of coffee with a friend or colleague, get together for a walk and talk.**
- **Combine walking time with family time; push your children in a stroller or have them bicycle along as you walk.**
- **Trade child care with a neighbor so you can both have an opportunity to go outside and walk.**
- **Join (or start) a community or neighborhood walking club.**

Community-Based Strategies for Promoting Physical Activity

Schools:

- Advocate for required daily physical education for all students.
- Petition to allow school gymnasiums to be open on evenings and weekends for community recreation.
- Car-pool to provide students' transportation to and from sports practice and playing fields.

Workplace:

- Advocate for employers and health care organizations to create benefit packages that include wellness programs and reimbursement for fees associated with health clubs and other recreational activities.

Neighborhoods:

- Advocate for community sidewalks, walking trails, bicycling paths, safe parks with good lighting and police patrols.
- Start (or join) a neighborhood or community walking program.