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Moderate Exercise: The Health Benefits Part II

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Your Life Your Health

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(Author's Note: The content of this two part series on exercise was suggested by an article published on *WebMD Medscape* which is an educational service for healthcare providers. It was originally posted on 3/28/06 and was authored by Harvey Simon, MD. For more information about "cardiometabolic exercise" see Harvey B. Simon's, MD, FACP, *The No Sweat Exercise Plan. Lose Weight, Get Healthy, and Live Longer*, published by McGraw-Hill in 2006)

There is no question that moderate exercise has enormous health benefits. The following summary of twenty two studies shows that "getting moving," is the foundation of good health.

Recent Studies of Moderate Daily Activities

Population Group	Type and Amount of Activities	Observed Benefit
10,269 Harvard alumni	Walking at least 9 miles a week	22% lower death rate
	Climbing at least 55 flights of stairs a week	33% lower death rate ^[9]
836 residents of King County, Washington	Gardening at least 1 hour/week	66% lower risk for sudden cardiac death
	Walking at least 1 hour/week	73% lower risk for sudden cardiac death ^[10]
1453 middle-aged Finnish men	At least 2.2 hours of leisure time activity a week	69% lower risk for heart attack
4484 Icelandic men aged 45-80	Spending at least 43 minutes a day on leisure time physical activity after age 40	16% lower risk for stroke ^[11]
73,743 American women aged 50-79	Walking for at least 2.5 hours per week	30% lower risk for cardiovascular events ^[12]
44,452 American male health professionals	Walking at least 30 minutes/day	18% lower risk for coronary artery disease
39,372 American female health professionals	Walking at least 1 hour/week	51% lower risk for coronary artery disease ^[13]
72,488 American female nurses	Walking at least 3 hours/week	35% lower risk for heart attack and cardiac death

		34% lower risk for stroke ^[14]
30,640 Danish men and women aged 20-93	Spending 2-4 hours/week on light leisure time activity	32% lower mortality rate ^[15]
4311 British men aged 40-59	Performing light-to-moderate physical activity	35% to 39% lower mortality rate ^[16]
1404 female residents of Framingham, Massachusetts	Performing moderate physical activity	37% lower mortality rate ^[17]
802 Dutch men, aged 64-84	Walking or biking at least 1 hour/week	29% lower mortality rate ^[18]
707 retired Hawaiian men, aged 61-81	Walking at least 2 miles/day	50% lower mortality rate ^[19]
9518 older American women	Walking up to 10 miles/week	29% lower mortality rate ^[20]
229 postmenopausal American women	Walking 1 mile/day or more (a 10- year randomized clinical trial)	82% lower risk for heart disease ^[21]
7951 pairs of Finnish twins	Exercising at least 30 minutes on at least 6 days/month	43% lower mortality rate ^[22]
6017 Japanese men, aged 35-60	Walking (to work) for 21 minutes or more on work days	29% lower risk of developing hypertension ^[23]
1645 Americans aged 65 and older	Walking more than 4 hours/week	27% lower mortality rate 31% lower risk for hospitalization for heart disease ^[24]
3206 Swedish men and women aged 65 and older	Performing physical activity at least once a week	40% lower mortality rate ^[25]
3316 Finnish men and women with type 2 diabetes	Performing moderate leisure time physical activity	18% lower mortality rate ^[26]
1204 Swedish men and 550 women aged 45-70	Walking or performing demanding household work	54% (men) and 84% (women), lowers risk for heart attacks ^[27]
2229 European men and women aged 70-90	Performing moderate physical activity	37% lower mortality rate

Source: Simon HB. The No Sweat Exercise Plan. Lose Weight, Get Healthy, and Live Longer. New York: McGraw-Hill; 2006.

The clear health benefits of exercise have been demonstrated in animal models. Randomized clinical trials in humans prove that regular exercise can produce a broad range of physiologic changes and improvements in risk factors (cholesterol, blood sugar, body fat, blood pressure, etc) that can be expected to improve health and reduce the risk for many diseases.

We don't have the advantage of randomized clinical trials that evaluate the effects of exercise on cardiac events and mortality in healthy people. However, 48 such trials have been conducted in patients with proven coronary artery disease. According to these studies, about half of the 8940 patients were randomly assigned to receive the best medical and surgical care available, whereas the others got the same standard of care plus enrollment in cardiac rehabilitation programs that were based on moderate exercise. The exercisers came out on top; in all, they enjoyed a 26% reduction in the risk for death from heart disease and a 20% reduction in the overall death rate. It's powerful evidence that exercise protects the heart -- and what's good for ailing hearts should be at least as beneficial for healthy ones.

If cardiovascular risk reduction was the only benefit of moderate exercise, it would still be vitally important for every physically able individual. But there are many other benefits. Exercise is an essential partner with diet for people who need to lose weight. And many studies also suggest that "no-sweat" exercise can help reduce the risk for stroke (by 21% to 34%), diabetes (16% to 50%), dementia (15% to 50%), fractures (40%), breast cancer (20% to 30%), and colon cancer (30% to 40%).

If that's not enough to get Americans moving, consider that exercise is also the only known way to slow the physiologic changes associated with the aging process in humans. While most people want to take a pill, a vitamin or a shot to find the "fountain of youth," it is right in their feet – get moving. You will longer, better and "weller." None of the benefits of exercise require aerobic intensity; in science, as in the fable, the tortoise will do very nicely indeed.

A 2005 analysis of data from the famed Framingham Heart Study reports that people who exercise regularly enjoy 3.7 years of additional life expectancy as compared with sedentary individuals. An intensity equivalent to walking at a pace of 17 minutes per mile was sufficient. And another 2005 study showed that moderate exercise (walking 8.6 miles a week at 40% to 55% of maximum heart rate) will even increase the VO₂ max (although not to the same degree as aerobic training).

Cardiometabolic Exercise

One of the barriers to getting our patients moving is the academic distinction between *exercise* (defined as formal structured activity designed to promote fitness) and *physical activity* (defined as everything else). In our busy world, most people do not believe that they are able to set aside time for formal exercise, especially intense workouts. In fact, the distinction is both arbitrary and misleading. Any physically active undertaking will contribute to health if it is part of an active lifestyle. Raking the lawn and cross-country skiing are at opposite poles of a single spectrum of benefit. For maximum protection, activities at the low end of the spectrum require more time than those at the high end, but they also are safer and less likely to produce injuries -- and the health benefits are remarkably similar.

What should we call the broad spectrum of activities that contribute to health? The familiar terms (aerobic, anaerobic, endurance, isometric, and isotonic) are not quite right. Dr. Simon proposed the term *cardiometabolic exercise* (CME) to emphasize the health benefits of everything from moderate activity to aerobic training, from washing the car to hitting the elliptical. And the term is meant to emphasize that even at the low end of the spectrum, exercise has major benefits for the cardiovascular system (coronary artery disease, hypertension, stroke, arrhythmias, peripheral artery disease, etc) and metabolism (body fat, glucose homeostasis and insulin levels, lipids, etc).

The CME system should help people set realistic individual goals instead of wondering what to make of "guidelines" that call for 30-90 minutes of exercise a day. For general health and gradual weight loss, aim for 150 points a day or about 1000 points a week. For faster weight loss, reduce dietary calories more sharply and/or aim for 300 CME points a day.

The system encourages people to view physically active tasks as opportunities, not punishments. Climbing stairs instead of riding the elevator is but one example of a healthful choice that incorporates exercise into the fabric of daily life. We should encourage our patients to choose whatever activities work for them as long as they get enough exercise to maintain good health. As people experience the subjective benefits of moderate exercise, some will go on to aerobic training or sports participation.

CME Points for Selected Activities

Activity	Pace	Duration	CME Points
Daily Activities			
Carpentry	Moderate	30 minutes	100
Cleaning	Heavy	30 minutes	150
Digging in yard	Moderate	30 minutes	190
Dusting	Moderate	30 minutes	75
Mowing lawn	Pushing hand mower	30 minutes	200
	Pushing power mower	30 minutes	145
Raking lawn	Moderate	30 minutes	130
Stair climbing	Moderate, upstairs	10 minutes	100
	Moderate, downstairs	10 minutes	30
Washing car by hand	Moderate	30 minutes	100
Recreational Activities			
Aerobic dance	Moderate	30 minutes	200
Biking	Moderate	30 minutes	250
Calisthenics	Moderate	30 minutes	130
Golfing	Pulling clubs	30 minutes	145

Jogging	12 minutes/mile	30 minutes	200
Rope jumping	Moderate	15 minutes	200
Skiing	Downhill or water	30 minutes	200
	Cross-country	30 minutes	315
Swimming	Moderate	30 minutes	230
Tennis	Doubles	30 minutes	160
	Singles	30 minutes	200
Walking	Moderate	30 minutes	125
Yoga (Hatha)	Moderate	30 minutes	130

CME = cardiometabolic exercise

In 460 BC, Hippocrates said: "If we could give every individual the right amount of nourishment and exercise, not too little and not too much, we would have found the safest way to health." In 2466 years, this has not changed. Remember, it is your life and it is your health.