E is for Exercise – The Health Benefits of Physical Activity

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The 1990s will be remembered as the decade in which the medical profession formally recognized the fact that physical activity is vital to your body's health. It is ironic that it took this long for clinicians and scientists to reach this conclusion, as Hippocrates (460-377 B.C.), a prominent physician and athlete, had strongly endorsed physical activity and proper nutrition as essential to health more than 2,000 years earlier!

Physical inactivity: A major risk factor for coronary artery disease

The first acknowledgment from the modern medical profession came in 1992, when the American Heart Association proclaimed physical inactivity a major risk factor for coronary artery disease, placing it alongside smoking, abnormal blood lipids, and hypertension. In 1994, the Centers for Disease Control and Prevention (CDCP) in collaboration with the American College of Sports Medicine (ACSM) held a press conference to announce the importance of physical activity as a public health initiative and subsequently published a consensus statement by a panel of experts in 1995. The National Institutes of Health (National Heart, Lung, and Blood Institute) followed suit and released a consensus statement in 1996. The statement advocated physical activity as important for cardiovascular health. Finally, in 1996, coinciding with the start of the Olympic Games in Atlanta, the Surgeon General released a written report on the health benefits of physical activity. This was a landmark report recognizing the importance of physical activity in reducing the risk for chronic degenerative diseases. See the box on page 5 for a summary of this report.

Why fitness training is good for your heart

What are the benefits of an active lifestyle, including fitness training? When sedentary people engage in a program of physical activity, both systolic and diastolic blood pressures are reduced by 5 to 10 mmHg within only 10 to 20 weeks. Total cholesterol (TC), LDL-cholesterol (LDL-C – the bad cholesterol), and triglycerides (TG) are decreased by 5% to 10% of their initial values. HDL-cholesterol (HDL-C – the good cholesterol) is increased by 5% to 10%. Most importantly, the ratio of TC/HDL-C decreases as you become more active, with a low ratio being associated with a lower risk for coronary artery disease (CAD).

With increased physical activity, there is an increase in insulin sensitivity and a decrease in insulin resistance. This simply means that for a given amount of insulin, more glucose (sugar) will be removed from the blood into the cells, thus maintaining lower blood glucose levels. Overall, the body can better control blood glucose levels. Diabetes is associated with increased insulin resistance and decreased insulin sensitivity, thus physical activity lowers the risk of diabetes.

Your scale weight tells only part of the story

As you become more active, there will be a reduction in your body fat stores, and when you lose fat you have a lower risk of high blood pressure, heart disease, diabetes, kidney disease, gall bladder disease and joint disorders. Often, your scale weight does not accurately reflect the magnitude of the loss in body fat, since physical activity generally stimulates an increase in muscle and bone mass at the same time your body fat stores are decreasing. It is not unusual to lose only 3 to 4 pounds of weight after 10 to 20 weeks of increased physical activity. However, the fat loss could be as much as 5 to 7 pounds with an accompanying increase of 2 to 3 pounds of muscle and bone. As muscle increases, so does your resting metabolic rate, which is an added bonus for weight control. Exercise also strengthens your bones and reduces the risk of osteoporosis.

In addition to gaining some muscle mass, exercise training can improve muscle strength, joint flexibility, and balance, all of which are vital for older adults who wish to maintain their mobility and their

The Surgeon General's Report on Physical Activity and Health

In July 1996, the U.S. Surgeon General's office released its official Report on Physical Activity and Health. This detailed report resulted in the following major conclusions:

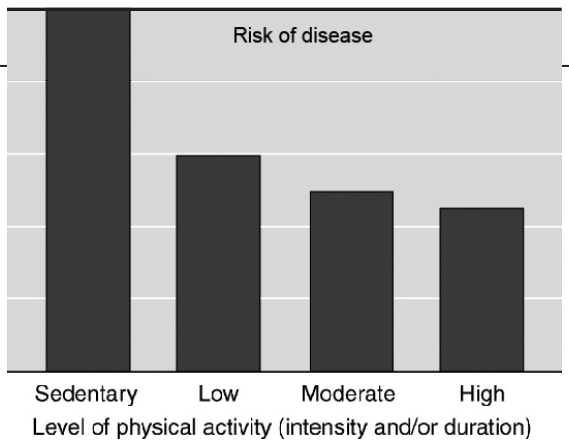
1. People of all ages, both male and female, benefit from regular physical activity.
2. Significant health benefits can be obtained by including a moderate amount of physical activity (e.g., 30 min of brisk walking or 15 min of running) on most, if not all, days of the week. Through a modest increase in daily activity, most Americans can improve their health and quality of life.
3. Additional health benefits can be gained through greater amounts of physical activity. People who can maintain a regular regimen of activity that is of longer duration or of more vigorous intensity are likely to derive greater benefit.
4. Physical activity reduces the risk of premature mortality in general and of coronary artery disease, hypertension, colon cancer, and diabetes mellitus in particular. Physical activity also improves mental health and is important for the health of muscles, bones, and joints.
5. More than 60% of American adults are not regularly physically active. In fact, 25% of all adults are not active at all.
6. Nearly half of American youths 12 to 21 years of age are not vigorously active on a regular basis. Moreover, physical activity declines dramatically during adolescence.
7. Daily enrollment in physical education classes has declined among high school students from 42% in 1991 to 25% in 1995.
8. Research on understanding and promoting physical activity is at an early stage, but some interventions to promote physical activity through schools, work sites, and healthcare settings have been evaluated and found to be successful.

independence. Aging is associated with a decline in muscle mass and strength such that some older persons have difficulty even rising from a seated position. And we all know how balance can deteriorate with aging and lead to falls, broken bones and even death. Fitness training can help prevent or delay these adverse effects of aging.

Finally, for many people, engaging in a regular program of physical activity seems to be important for their mental health; they simply feel better when they exercise regularly. Some undoubtedly feel good about the fact that they are taking charge of their lifestyles, whereas others gain an enhanced sense of self esteem because they believe they look better when they are fit. Changes in hormones or brain chemistry may also play a role in making people feel better when they exercise regularly. Even the risk for Alzheimer's is reduced!

The benefits of getting off the couch

How much physical activity or exercise do you need to improve your health? The bottom line: doing something is far better than doing nothing. Scientists estimate if they can just get sedentary people into even low-level activity, the health benefits are substantial. The following figure illustrates the reduction in risk of chronic degenerative diseases as you move from a totally sedentary lifestyle to an active lifestyle. While more is better, the greatest benefits accrue when you move from a sedentary lifestyle to modestly active lifestyle. As little as 30 minutes of moderate activity per day on most days of the week will result in marked benefits. Further, the 30 minutes can be cumulative throughout the day, e.g., two 15-minute sessions, or three 10-minute sessions. ♥



The risk for disease goes down as you become more active: The greatest benefits accrue when you move from a sedentary lifestyle to moderately active lifestyle.

Further reading:
Wilmore, J.H. & Costill, D.L. (2004). Physiology of Sport and Exercise, 3rd edition, Champaign, IL: Human Kinetics Publishers.

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