Well Worth it
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Health and Fitness

American College of Sports Medicine

Strength, Power, and the Baby Boomer

As we begin the new millennium, we face many challenges relating to the health and fitness of a rapidly aging society. Perhaps the greatest challenge is helping the “baby boomers” age gracefully, adding life to their years. The baby boomers are the largest generation in U.S. history, representing one-third of our present population. Around 2011 the first of the baby boom generation will turn 65. By 2030, boomers will enter their seventies and eighties, doubling the number of elderly adults, with one out of every five adults over 65 years of age. Further, the “oldest-old” (those over 85 years) are estimated to grow from five million presently, to over 20 million. Baby boomers do not need to age quietly. Boomers have economic and political power as well as the power to reject the stereotype of ageism, frailty and inactivity. They can continue to pursue vigorous, active lives well into old age. Life extension is an admirable goal, but not at the expense of good health and quality of life. Crucial to the boomers’ enjoyment of their golden years are maintaining and improving muscular strength and power through resistance training. Whether performing daily chores or playing a round of golf, muscular strength and power significantly impact the boomer’s ability to function with vigor, enjoying life to the fullest.

Muscular Strength

Strength refers to the muscle’s ability to generate force at a given velocity. Adequate strength levels are necessary to perform activities of daily living (e.g., carrying groceries or laundry, gardening, shoveling snow) and to participate in recreational and fitness activities such as walking, hiking, or carrying golf clubs. Increased strength also reduces cardiovascular stress while lifting and carrying a given weight and increases muscular endurance during work or play.

Muscular Power

Power is the product of force and velocity and represents the amount of work a muscle can produce per unit of time. Power is strongly related to many functional activities that require strength with speed such as lifting boxes, climbing stairs, rising from a chair, walking, or preventing falls. Many recreational pursuits of baby boomers are also strongly related to muscle power (e.g., golf, tennis, bowling, playing with grandchildren). As the baby boomers move into the sixth decade of life, the decline in muscle strength and power typically associated with aging becomes a matter of increasing importance. Loss of muscle strength and power leads to declining activity, increased frailty and functional dependence – a vicious cycle that can often lead to nursing home admission. Further consequences include gait and balance problems, risk of falls and fractures, and an increased risk of chronic diseases such as osteoporosis and diabetes. On the positive side, resistance training has proven to be a safe, economical, and beneficial addition to the older adult’s fitness regimen. Research has consistently shown that if the basic requirements of intensity and duration are met, resistance training results in similar gains in strength and power in older and younger adults. These results mean that for the boomer it is never too late to start a well designed, individualized resistance training program. A medical checkup is always a good idea before starting a resistance-training program.

Healthy Eating

Alternatives to low-fat diets just as effective

New England Journal of Medicine

In a 2-year study comparing different diets, low-carbohydrate and Mediterranean diets proved to be as safe and at least as effective as a low-fat diet in achieving weight loss.

The favorable effects of the low-carbohydrate diet on body fats and of the Mediterranean diet on blood sugar levels suggest that consideration of personal preferences and metabolic factors could be used to tailor a diet to the individual, Dr. Iris Shai and colleagues report in The New England Journal of Medicine.

The study was conducted with the assistance of a dietitian in a workplace setting in Israel between July 2005 and June 2007.

The 322 study participants were 86 percent male, had an average age of 52 and most were obese. Forty-six subjects were diabetic and 118 had coronary heart disease.

The low-fat diet restricted calories to 1500 per day for women and 1800 per day for men, with up to 30 percent of calories obtained from fat.

The Mediterranean diet was rich in vegetables and low in red meat, with the same calorie restrictions as in the low-fat diet and up to 35 percent of calories from fat, including olive oil and about half a dozen nuts - less than 20 grams per day.

The low-carbohydrate diet did not restrict calories and allowed 20 grams of carbohydrates per day during the first 2 months and after holidays, increasing to a maximum of 120 grams per day.

"Although participants actually decreased their total daily calories consumed by a similar amount, net weight loss from the low-fat diet after 2 years was only 6.5 pounds (2.9 kg) compared to 10 pounds (4.4 kg) on the Mediterranean diet, and 10.3 pounds (4.7 kg) on the low-carbohydrate diet," Shai from Ben-Gurion University of the Negev in Beer-Sheva told Reuters Health. "These weight reduction rates are comparable to results from physician-prescribed weight loss medications."

The maximum weight reduction occurred within 6 months, followed by a partial rebound and then a plateau. Other health-related factors, including blood pressure, physical activity, and biomarkers for cardiovascular and liver disease continued to improve throughout the 2-year trial. "This suggests that a healthy diet has beneficial effects beyond weight loss," Shai said.

The greatest improvements in lipid levels occurred with the low-carbohydrate diet, whereas the most favorable changes in fasting blood sugar and insulin levels among diabetics were associated with the Mediterranean diet.

"Clearly, one diet doesn't fit all," Shai noted.

To identify the diet that is likely to work best for individual patients, she recommends that, after describing the regimens, "physicians should ask questions regarding individual preferences (e.g., whether they have a hard time in counting calories and can try counting carbs), diet history (failures), and metabolic goals."

"Whatever the choice is, the patient should stick with his or her own diet strategy and continue to be followed" by their health care provider or dietitian.

Keeping It Real

Cardiorespiratory Physiology and Conditioning:
THE BASICS
Physiologist and Master Trainer, Douglas Brooks

Although exercise to challenge the cardiorespiratory system may seem like the simple part of an exercise program, that's not necessarily the case. Changing the training regimen allows you to break up the boredom many people feel toward aerobic exercise while improving their results. A more sophisticated approach enhances your value to clients who need you to help with program variations. And it's a good mental challenge for you.
Most types of cells, including the heart, nerves and brain, can produce energy only aerobically. That is why a constant supply of oxygen to these cells is necessary. For example, if the delivery of oxygen to a portion of the heart is stopped, that area of the heart suffers a heart attack or myocardial infraction. If the brain stops getting oxygen, a stroke occurs in the deprived area. Nearly all cells in the body require a constant supply of oxygen. Because of this, the aerobic energy system is the predominant energy system in the body.
A healthy cardiorespiratory system that is challenged by appropriate physical activity and not compromised by a poor diet ensures an adequate supply and use of oxygen for most of the body's functions and oxygen-demanding tissues.
Cardiorespiratory training or aerobic conditioning moves the body toward being a more "efficient machine" in relation to its ability to carry out everyday tasks and recreation.
The cardiorespiratory (C-R) system (often referred to as the cardiovascular system) is really a transport network in the body. Cardio refers to the heart and its pumping force that circulates the blood through an amazing network of blood vessels. Respiratory refers to the lungs and the exchange of gases. Oxygen and carbon dioxide are exchanged in the lungs, as well as in the cells of the body.
The C-R system consists of the heart, lungs, arteries (carrying oxygen-loaded blood away from the heart throughout the body), capillaries (exchanging gases, nutrients and byproducts between the bloodstream and cells) and veins (carrying oxygen-depleted blood back to the heart).
An important purpose of the cardiorespiratory system is to deliver oxygen to the various tissues of the body, both at rest and during a broad spectrum of exercise intensities, from low level to high level.
Blood is the vehicle that delivers oxygen and nutrients (like fat and carbohydrate) to the cells in the body where they are needed to produce ATP. Blood also picks up metabolic byproducts of energy metabolism, including lactic acid, water and carbon dioxide. In contrast to a waste product that has no usefulness and is difficult to dispose of, byproducts such as carbon dioxide can easily be carried to the lungs and breathed out of the body, and water can be sweated out of the body or breathed out (expelled air is saturated with humidity or water). And, lactic acid is carried to the liver where it is metabolized or oxidized.
Adenosine triphosphate (ATP) is a high energy compound formed from the oxidation of fat and carbohydrate. It is used as the energy supply for muscles and body functions. When a muscle contracts and exerts force, the energy used to drive the contraction come from ATP. However, since the amount of ATP stored in the muscle is small, your body begins to immediately produce more ATP by breaking down carbohydrate and fat. Otherwise, the duration of activity would be severely limited. ATP is ultimately the body's only energy source, and is supplied both aerobically and anerobically.
Lactic acid is not a waste product. Its production at higher intensity levels allows you to work out at harder levels than can be sustained with aerobic metabolism.

Did You Know?

THE TYPE OF CARBS YOU EAT AFFECTS FAT STORAGE

By Dr. Annette Colby

A popular trend in nutritional counseling touts the value of avoiding carbohydrates such as pasta, carrots and potatoes because they have a "glycemic" effect. In theory, they quickly raise blood sugar, stimulate the body to secrete too much insulin and this, in turn, is said to promote fat storage.
The glycemic index (GI) looks at how high and how fast blood sugar, or glucose, is raised after carbohydrates are eaten. The more slowly glucose enters the bloodstream, the less dramatic the spike in blood sugar. The GI was developed to help control diabetes, and is now a useful tool for people wanting to lose weight, increase their energy levels and improve sports perfomance.

The GI is a ranking of foods on a scale from 0 to 100 according to the extent to which they raise blood sugar levels after eating. Foods with a high GI (70 and above) are those that break down quickly and cause a spike in blood sugar levels. Foods with a low GI (55 and below) break down more slowly and steadily, providing a sustained supply of energy.

Foods that rank as "high" on the GI include soda, white bread, cookies, refined cereals, baked potatoes and carrots. Foods that rank as "moderate" on the GI include most types of pasta, baked beans, green peas, sweet potatoes, orange juice, blueberries and rice. "Low" GI foods include beans, vegetables, high-fiber, low-sugar cereals, low-fat unsweetened plain yogurt, grapefruit, apples and tomatoes.

High GI foods are also beneficial immediately after exercise.; numerous studies have shown that eating high GI foods during the first two hours after exercise quickly restores the body's carbohydrate stores that were used up for during intense exercise. These foods include potatoes, high-glucose sports drinks, and most bread.

As a general guideline, low GI carbohydrates are best eaten before exercise. They enter the bloodstream slowly and provide sustained longer-term energy, helping maintain stable blood sugar levels during extended exercise periods (greater than one hour). The GI can be a useful tool to improve blood glucose balance. Overall, reducing the quantity of highly processed high-glycemic carbohydrates is recommended.

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