

Letter from the Editor

by Dixie L. Thompson, Ph.D., FACSM

Welcome to the Fall 2011 edition of the [ACSM Fit Society® Page](#), sponsored by [Liberty Mutual](#). The rising prevalence of chronic diseases makes it difficult for exercise professionals to prescribe a one-size-fits-all physical activity program. What's right for one person may not be right for another. Thus, the fall issue is focused on exercise after injury or when faced with a chronic condition. While physical activity can provide a multitude of benefits, there is no simple plan that works for everybody. In this issue, we'll share the basics of developing specialized exercise programs and how the Exercise is Medicine® initiative is changing the way health care providers look at prevention. We'll also discuss some of the specific issues surrounding exercise for children with concussions, older adults with co-morbidities and people with spinal cord injuries.

Please look over this information that ACSM experts have prepared for you and share it with friends and family. We hope these articles will help you understand your unique needs and identify the exercise program that's right for you!

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THEME: EXERCISE FOR SPECIAL POPULATIONS

Exercise is for Every Body

by Tom Spring, M.S., ACSM HFS/CES, FAACVPR



Health, wellness and fitness become a central focus when our communities and families face health challenges. The good news is that many chronic conditions can be positively affected by lifestyle choices, including exercise. If you are already very fit and active, or if you are just starting to think about exercise and physical activity, having a plan of action to promote good health is very important.

Why is regular exercise key to our health? The human body is made to move. There are documented exercise-related benefits to practically every system in the body. The benefits to the cardiovascular system, muscle and bone may receive the most attention, but

other systems also respond favorably to exercise. For example, the immune system of a trained person works better to fight both chronic and acute disease than the immune system of a sedentary person. Regardless of your age, sex, health status, genetics or race, being more physically active (as appropriate for you) will have a positive impact on your physiology, how your body works internally. This article will help you outline some key steps to better health and fitness.

Define Your Unique Goals, Program

First, you must have a goal. Many people decide to exercise after they learn that it might help them treat a health issue, such as obesity or diabetes. Some become fit to prevent a chronic disease deeply rooted in their family history. Others are active already, and they strive to achieve higher levels of performance at a given sport or activity. Whatever your motivation for starting or continuing an exercise program, having at least one clear, achievable goal is important. If you do not have a goal, your exercise will lack direction and purpose, and it will be difficult to sustain long-term. Many people have started an exercise program only to stop or "fall off the wagon" a few weeks later. Having a clear goal in mind will help provide the motivation to continue to exercise. Regardless of why you choose to exercise, building regular exercise into your daily routine is the most important ingredient to your success.

Next, evaluate where you are from a health standpoint. If you are under age 45 with no major health issues, and you are relatively fit, starting or adding to your exercise program should be safe for you. If you are older and still healthy (no cardiovascular disease, diabetes, cancer, etc.), but you have not exercised much recently, start with a walking program and some light resistance training to get your body primed for exercise. If you have chronic health issues, your first step should be to consult with your physician or health care

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provider for some direction on starting an exercise program.

Finally, your exercise program should be designed to help you meet your goals. This sounds complicated, but it does not need to be. For those just starting out with a goal of better health or lower blood pressure and cholesterol, your program should include some simple components. You could choose any moderate-intensity aerobic activity (walking, bicycling or swimming) that is sustained for more than ten minutes. These activities increase your energy expenditure above resting and are considered cardiovascular in nature. These types of exercises will cause an increase in your heart rate and breathing, but you should be able to carry on a conversation while performing these exercises. Exercises that stress individual muscles or movements using weight of any kind (i.e. dumbbells, body weight and bands)

for a short duration would be considered resistance training. At a minimum, your weekly routine should incorporate two days of resistance exercise and multiple days of aerobic exercise. If you have not been exercising previously, start with 10-20 minutes of walking, biking, rollerblading or other cardiovascular exercise, and add a minute or two to your time each week. Shoot for three sessions each week, and add a day after three or four weeks to increase your exercise volume. Combining resistance and cardiovascular exercises is crucial for your overall fitness.

If you are already active, consider adding intensity and new exercise techniques, or consult with a trained professional for more direction and ideas. Training for a specific event often helps revamp your program with a goal (i.e. marathon or triathlon) that allows you to set up a program with a timeline and



process. This is called periodization training, and it will enhance your exercise program and may provide a real boost to your motivation.

Listen to Your Body

Anyone with a chronic condition, such as cardiovascular disease, diabetes or arthritis, should first consult his/her physician prior to beginning an exercise program. Once you are

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AMERICAN COLLEGE OF SPORTS MEDICINE ACSM FIT SOCIETY® PAGE

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Q&A

by Anthony Luke, M.D., FACSM

Q: I have been very obese for a long time, and I've decided to undergo weight reduction surgery. I'd like to exercise again, as I haven't been physically active for a long time. Will I be able to exercise after the surgery?

A: Surgery for weight loss is a commonly discussed procedure for patients with extremely high weight. Surgery may be recommended for patients with severe obesity (BMI above 40) who have not responded to diet, exercise or weight loss medications, or for patients with a BMI between 35 and 40 who have a serious medical condition (including diabetes, severe joint pain or sleep apnea) that would subside with weight loss. Lap band procedures reduce the amount of food that you can eat at one time by surgically placing a band around the opening of the stomach. Gastric bypass surgery is a more intensive procedure where the stomach is made smaller and attached to the small intestine. Gastric bypass surgery helps you lose weight by reducing the amount of food you can eat (since the stomach is smaller) and reducing the number of calories you absorb (since there is a bypass of part of the intestine).

Both of these surgeries have shown positive results with weight reduction of approximately half the extra weight or more after surgery. A recent study by researchers at the University of Texas showed that about 50 percent of individuals who performed a high-volume exercise program ($\geq 2,000$ kcal/week) after the surgery had enhanced physical fitness. All patients reported better quality of life. Therefore, exercise is still a necessary portion of the post-operative plan.

Weighing less should also make it much easier for you to move around and do your everyday activities. Bypass surgery alone is not a solution for weight loss. It can train you to eat less, but you still have to do the work to lose weight and keep it off. To avoid complications from the procedure, you must follow the exercise and nutrition guidelines that your doctor and dietitian give you.

Exercise is a key to achieving the body you want after weight loss bariatric surgery. Getting started on a gradual exercise and physical activity plan is a very important part of bariatric surgery. An exercise plan should begin before and resume after (as soon as your doctor allows) bariatric surgery. A doctor should closely supervise your exercise or activity plan. Try to get at least 30 minutes of physical activity each day above and beyond what you typically do in a day.

Q: My nephew has cystic fibrosis, and his friends are ready for Little League. Is it safe for him to participate?

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Helping Young Athletes Cope with Concussion

by Mark Halstead, M.D., FAAP



With fall upon us, and football season in full swing, concussions in young athletes are once again a hot topic. Despite all the attention paid to concussions in football, athletes in other fall sports, such as soccer, volleyball and cheerleading, also are at risk for a concussion. More than 25 states now have laws to educate and protect players by requiring them to read materials on the signs and symptoms of concussions and mandating that they not return to play for a minimum of 24 hours after their concussion. These laws also require athletes to receive medical clearance from a health care professional before they can return to play.

Concussion Signs and Symptoms

The most common symptom that athletes report after a concussion is a headache. Some will have their headache right away, but others may take several hours or longer to develop. Another important thing to remember is that not every single player will get a headache

after their concussion, so it is important to know the other signs and symptoms.

Other common signs and symptoms include dizziness, sensitivity to bright light and sounds, feeling “foggy,” difficulty remembering things that happened before and/or after the injury, feeling sick to their stomach, being very tired, and confusion. A common myth in concussion diagnosis is that a player needed to be knocked out, or lose consciousness, to have a concussion. In fact, less than ten percent of athletes with a concussion will be knocked out.

It is important that athletes, coaches and parents be aware of these signs and symptoms, as there may not be an obvious outward sign of a concussion. It is also imperative that athletes are honest about their symptoms and report them immediately.

What to Do If You Suspect a Concussion

If an athlete is suspected to have a concussion, they should be immediately removed from the game or practice. They should not be allowed to return to activity the day of their injury. Any athlete who has a severe headache, is repeatedly vomiting, is difficult to arouse, has seizure activity, or has difficulty moving their arms or legs may have a more severe head injury and should be evaluated in the emergency department.

Following a concussion, if symptoms persist, the athlete should refrain from any physical activity that increases his/her heart rate. Exertion often aggravates symptoms, especially in the early days following the injury. The athlete should follow the advice of the health care professionals managing the injury to determine when it is the right time to return to physical activity.

A newer concept in dealing with concussions is called “cognitive rest.” This means that an athlete may need to reduce their mental activity to avoid increasing symptoms. Some examples of cognitive rest may include a shortened school day, reducing workloads in class, decreasing reading, spending less time in front of a computer or allowing for extra time to complete tests or assignments. Not every athlete will need all forms of cognitive rest, but athletes should avoid things that worsen their symptoms.

For athletes that are of driving age, another consideration is to have that athlete avoid driving until symptoms of the concussion are resolved. Reaction time is often delayed



following a concussion, so an athlete may be at higher risk for an accident if she/he drives.

When an Athlete Can Return to Play

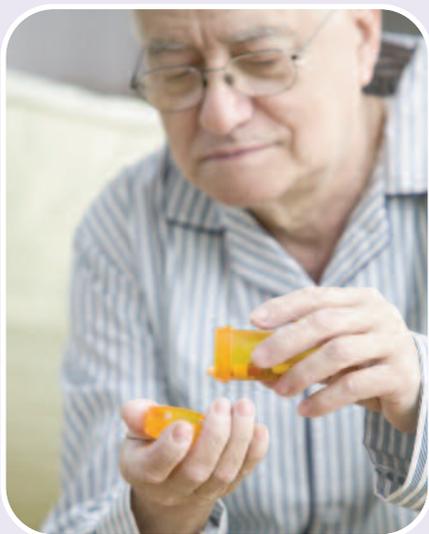
In order for an athlete to return to play, he/she must be free of symptoms of the concussion both at rest and with exertion. A return-to-activity progression is frequently used and increases the level of exertion and exposure to contact situations over a five-day period. Athletes may fill out a symptom checklist or take a computer test to assess their recovery. Most importantly, the athlete should receive clearance from a health care professional before returning to play. Ideally that health care professional is someone knowledgeable in the diagnosis and management of a concussion.

One concern about returning too soon from a concussion is developing second impact syndrome. This condition may develop if an athlete suffers a second head injury before the initial injury has healed. This may lead to a severe brain injury and even death.

With improved efforts in education, new laws being passed and better protective gear, hopefully we will see improved outcomes from youth sport concussions. Teammates can help by letting coaches know if someone doesn't seem right following a head injury. Coaches can help by not pressuring players to return before the athlete is ready and by encouraging their players to disclose symptoms. Finally, athletes can help themselves by being honest about and disclosing their symptoms and not returning to play before being cleared to do so.

Managing Co-Morbidities for the Older Adult

by A. Lynn Millar, PT., Ph.D., FACSM



A concern often voiced by older adults in regards to starting or maintaining an exercise program is their safety. As we age, the chances of having at least one health problem, if not multiple issues, greatly increases. While the number varies, by age 65, the majority of Americans has at least one chronic health problem, and almost half have more than one. The term for more than one chronic disease is “co-morbidity.” Some of the most common co-morbidities include cardiovascular disease and its risk factors (which include hypertension, obesity and hyperlipidemia), diabetes, peripheral vascular disease and arthritis. Unfortunately, individuals often fail to educate themselves and act on their health concerns, and many become increasingly sedentary. However, regular physical activity can help decrease many of the negative consequences brought about by age-related chronic health conditions.

Exercise reduces multiple disease risk factors and helps maintain function. Among other benefits, regular activity controls body weight, resting heart rate, blood pressure and blood sugar. Importantly, even low-level activity will produce some of these benefits. In other words, you do not need to participate in intense exercise to see healthy improvements.

While there are numerous fitness-related articles and books devoted to different chronic diseases, few specifically address what you should do when you have multiple co-morbidities. Managing co-morbidities, including developing an activity plan to help improve your health and function, can be accomplished many ways. One stepwise approach involves getting informed, consulting with your physician, getting organized, enlisting support, getting started and monitoring your response. Becoming more active may seem overwhelming; however, completing one step at a time can make the process doable.

1. Get informed. If you have more than one chronic disease, an educated, common-sense approach will allow you to safely and effectively participate in activity. Learn as much as you can about each of your diseases from a reliable source. This may be a national organization devoted to assisting individuals with that disease, such as the American Heart Association. Such organizations often have informational brochures and other educational materials. ACSM has a series of texts devoted to physical activity and specific chronic diseases, such as arthritis, hypertension and diabetes.

2. Consult. If you have not been very active previously, consult with your physician before starting exercise. The doctor can let you know if there are any contraindications or precautions related to each specific health problem. If you have not seen a doctor for a while, some tests may be necessary. Make sure that you discuss each co-morbidity with your physician. Otherwise, your doctor may be focused on what he or she considers the primary disease and overlook a possible interaction with another health concern.

3. Get organized. Make yourself a list of each health problem you have, the medications you take for that problem and the precautions that the physician has identified for each problem. For example, if you have hypertension, you first need to make sure that it is under control. Some medications will alter your heart rate and blood pressure response to exercise; thus, intensity of exercise will be determined by your perception, not by your heart rate. Further, find out what techniques are important to safely participate in an activity. For example, during resistance training, you need to avoid the Valsalva maneuver (breath holding while exerting force), as this can cause abnormal changes in blood

pressure. Then add in the precautions or concerns for the next disease. Let's say you also have diabetes and are on insulin. The timing of your activity will be important, as you may need to set the daily activity based upon when you eat and when you take your insulin.

4. Enlist support. Having support from family, friends or outside groups is invaluable. Find out if there are activities aimed at individuals with your specific conditions. Not only will the others in the group understand and be supportive of your specific needs, but because the instructors are educated about that disease, they can help you modify the activity. Certified instructors often learn about numerous disease processes and the modifications that need to be made, so they can help you adjust exercise based on your co-morbidities, even if the activity is advertised to one type of condition.

5. Get started. Now that you have covered the basics, you are ready to get started. If your support is through an exercise group, then this step is easier, as the starting point and activity is already identified. If you are going to start with a home-based program, keep it simple. Start with one activity, and do not overdo it. This is why walking is often used—it does not need much in the way of equipment (good shoes), it is functional and you can set the intensity or duration at a very low level to start.

6. Monitor your response. As you commence increasing your new activity program, keep a diary. Record the activity and your response, noting any unusual symptoms. While we all will have occasional pains or symptoms that do not seem normal, recurring or progressing symptoms may be significant. A diary is a simple way to identify patterns and improving symptoms. With some diseases this is extremely important, as your physician may need to adjust your medications as your body adapts to the positive changes that come with regular activity.

Importantly, do not let the presence of more than one chronic disease deter you from incorporating regular activity into your life. Take it one step at a time, and remember that change takes time.

After a Spinal Cord Injury: Regaining Independence Through Exercise

by Sue Sandwick, P.T., DPT, NCS



In the blink of an eye, life as you know it is changed forever. A freak accident has you lying motionless in a dark, whizzing MRI tube. As you lie on your back looking up, you try to move anything from your shoulders down to your toes, but you can't. In sharp contrast to your body, your mind is racing. *How did this happen? What will I do? What about the concert this Friday? What about graduation this summer? What about my relationship that has been going well? What about my future?* Your thoughts are interrupted by the neurosurgeon who tells you that your vertebrae are crushed, and your spinal cord is severely compressed. You need surgery immediately to stabilize your spine and to take the pressure off your spinal cord. As you wake after surgery, hope is slowly replaced by dread. There is no feeling in your legs, and they do not respond to your mental commands to move. The realization hits you like a ton of bricks: you will have to start over and learn to exist inside a completely different body.

After experiencing a spinal cord injury (SCI), most individuals live in a hospital-based rehabilitation unit for four to eight weeks and undergo extensive rehabilitation therapy. The aims of therapy are to restore functional ability and to gain the skills necessary to re-enter life. Traditionally, upon discharge from the rehabilitation unit, patients are given information about community disability services and are sent home with the expectation that they will re-enter their lives and become engaged, productive, active and healthy. In reality, once SCI patients are discharged, they generally do not become physically and socially active, and this predisposes them to significant health risks.

Studies have clearly demonstrated that people with SCIs are at increased risk of developing cardiovascular disease and diabetes. Physical inactivity that is related to impaired mobility very commonly leads to a sedentary lifestyle. This sedentary state predisposes SCI patients to a heightened risk for obesity, body composition changes (loss of lean body mass and increased fat mass), lower basal metabolic rate, blood lipid abnormalities, glucose intolerance and increased risk for pressure ulcers. In addition, decreased physical capacity leads to a loss of independence, which can lead to feelings of social isolation, ineffectiveness, hopelessness and depression. There is a need to address and solve transitional challenges for SCI patients, providing post-rehabilitation programming for mobility, access and ongoing health maintenance, as well as preparing individuals for an active life.

Based out of the University of Utah, TRAILS (Therapeutic Recreations And Independent Lifestyles) is an SCI outreach program designed to address this post-rehab need and to prepare individuals with SCIs to engage in active living through recreational experiences, adaptive sports, exercise and wellness programs, as well as comprehensive, SCI-specific education. These programs and resources have served as a continuum of care and a critical extension to hospital-based rehabilitation. TRAILS offers a variety of adapted sports and recreation programs, including year-round cross country skiing, handcycling/spinning, swimming and wheelchair tennis, as well as seasonal downhill skiing, kayaking and sail boating. These programs provide individualized adaptive equipment and assistance as necessary. Specialists in physical fitness, nutrition, massage and yoga are fully trained about SCIs and form a unique, supportive team that proactively engage SCI patients in individualized programming.



TRAILS is open to sharing these benefits and welcomes any individual who has experienced a SCI to participate. Currently, more than 700 individuals receive ongoing communication about activities and events. Clients, as well as their friends and family, are guided into appropriate programming, and the team assures a safe, appropriately adapted and successful experience. The hope and eventual goal is that these individuals will not only participate with TRAILS, but they will ultimately become more independently active.

Scientific evidence demonstrates the physical and psychological benefits of a well-rounded, activity-based wellness program, such as that of TRAILS. This programming not only activates a sedentary lifestyle but also can have a positive effect on one's overall risk for cardiovascular disease and chronic conditions via individualized strength training, cardiovascular conditioning, nutritional awareness, weight management and stress management.

"There's this stigma that comes with SCI that it's a death sentence. It isn't," says Stan Clawson, a TRAILS participant who was paralyzed 16 years ago. "When you leave the hospital, you look at the world through a cocktail straw. A comprehensive program like TRAILS shows people how to transition into a life of mobility and all the possibilities. Then, with each activity, your horizon opens up. You are looking through a windshield, then a convertible, and then you're flying. Walls break down and it pushes you into the growth zone, giving you a positive distraction. When you are kayaking on that lake, and your wheelchair is sitting there on the dock, you aren't thinking about the world of disability."

Exercise is Medicine®: A Focus on Prevention

by Elizabeth Joy, M.D., MPH, FACSM



According to a recently released study, it's estimated that half of all adults in the U.S. will be obese by the year 2030. The health consequences related to that number are staggering. Increasing rates of obesity would mean 7.8 million extra cases of diabetes, 6.8 million extra cases of coronary heart disease and stroke, and 539,000 extra cancer cases by 2030. That's not to mention a \$66 billion per year increase in health care costs by 2030. The underlying causes of our obesity epidemic are many, and our understanding of obesity is expanding. Yet our success in moving the population dial has been limited. It will take efforts from each sector in our society to make a meaningful difference in obesity rates.

The Exercise is Medicine (EIM) initiative, spearheaded by ACSM, improves the role that health care providers and health care systems play in promoting physical activity in patients and communities. Starting in 2008 under the leadership of former ACSM President Robert Sallis, M.D., EIM has been enormously successful in highlighting the critical role health care providers play in promoting a healthy lifestyle and physical activity. EIM now has a global presence and is working with partners on several continents to spread a worldwide message about the importance of physical activity in promoting health and preventing disease.

Much of medical care in the U.S. is centered on the treatment of chronic disease. It's estimated that lifestyle behaviors, including

tobacco use, poor diet and "motion deficit disorder," contribute to upwards of 40 percent of total health care costs. Yet, physicians spend little of their time in medical school, residency training and advanced fellowship training learning how to counsel patients on a healthy lifestyle. As a result, little time during a typical clinical encounter is spent dealing with the underlying causes of the chronic diseases plaguing the patient. To win the battle against obesity, chronic disease, and the associated morbidity and premature mortality, health care must develop, implement and test tools and systems that support diagnosis and treatment of unhealthy lifestyle behaviors.

This is where EIM comes in. The vision of EIM is to make physical activity and exercise a standard part of a global disease prevention and treatment medical paradigm. EIM advocates for physical activity to be considered by all health care providers as a vital sign in every patient visit and that patients are effectively counseled and referred as to their physical activity and health needs, thus leading to overall improvement in the public's health and long-term reduction in health care costs. To achieve these goals, EIM:

1. Creates a broad awareness that exercise is, indeed, medicine.
2. Makes "level of physical activity" a standard vital sign question at each patient visit.
3. Helps physicians and other health care providers become consistently effective in counseling and referring patients as to their physical activity needs.
4. Leads to policy changes in public and private sectors that support physical activity counseling and referrals in clinical settings.
5. Produces an expectation among the public and patients that their health care providers should, and will, ask about and prescribe exercise.
6. Appropriately encourages physicians and other health care providers to be physically active themselves.

EIM is working with global partners to create tools and systems that will support health care providers in their role promoting physical activity. Efforts are underway to create a system that will facilitate patient referral to health and fitness professionals for comprehensive exercise prescription.

Central to the success of EIM is expansion of the evidence base for the role of physical activity in the prevention of disease and the role of health care providers in increasing physical activity levels of patients. The Diabetes Prevention Trial is a compelling example of how physical activity can prevent chronic disease. In this study, 11 percent of patients taking a placebo developed diabetes,



nearly 8 percent of those taking metformin (a medication that promotes uptake of glucose into cells) became diabetic, but only about 5 percent of those who engaged in a 16-week lifestyle improvement program were diagnosed with diabetes. A central part of this program was 150 minutes per week of moderate-intensity physical activity. Overall, the lifestyle intervention reduced the incidence of Type 2 diabetes by 58 percent compared to placebo.

Likewise, there is support for the role of clinicians in increasing physical activity in their patients. A recent analysis of several research studies revealed that advice and counseling of patients in everyday clinical practice increased physical activity by 12-50 percent for at least six months after the counseling session. Considering the complexity of health care, chronic disease and the competing demands that require clinician attention in a typical 15-minute office visit, health care systems are developing strategies to promote healthy lifestyle outside the office visit. The Keep Minnesota Active Trial enrolled older adults, age 50-70, from the HealthPartners health care organization in Minnesota. Subjects were randomized to an interactive physical activity support program or usual care and followed for a two-year period. The trial demonstrated that the telephone- and mail-based physical activity maintenance intervention was effective at maintaining physical activity in both the short-term (six months) and long-term (12 and 24 months) relative to usual care. Thus, health care providers can make a real difference in the lifestyle choices of their patients.

Lifestyle behaviors, including poor diet and physical inactivity, are leading to higher rates of chronic disease. EIM seeks to increase physical activity through efforts aimed at changing the health care environment to one that supports physical activity promotion. Making physical activity a vital sign in clinical office visits, providing clinicians and patients with educational materials, and linking them with health and fitness professionals are just a few of the efforts underway within EIM. ACSM encourages all clinicians and health and fitness professionals to counsel their patients and clients that exercise is, indeed, medicine.

2011 Nutrition News from ACSM

by Nancy Clark, M.S., R.D., C.S.S.D., FACSM



ACSM is the world's largest organization of sports medicine and exercise science professionals. At ACSM's Annual Meeting in Denver, May 31-June 4, 2011, more than 6,000 exercise scientists, sports dietitians, physicians and other health professionals gathered to share their research. Here are a few of the nutrition highlights. More highlights are available at www.acsm.org.

- Looking for a way to get fit quickly? High-intensity interval training (HIIT) is effective, though it's hard work. Once you are fit, you can then reduce the exercise intensity to a more enjoyable (sustainable) level. Dr. Martin Gibala of McMaster University in Ontario does not believe HIIT is a heart attack waiting to happen, but he recommends untrained people first get a proper medical check-up.
- HIIT can be an effective part of a weight reduction program. Overweight men who did 20 minutes of HIIT (eight-second sprints with 12 seconds recovery) three times per week for 12 weeks achieved a seven percent drop in body fat. In another study with untrained, slightly overweight women ages 30-45, those who did high-intensity exercise lost more weight and body fat than those who did lower-intensity training. One benefit of high-intensity exercise is it can suppress the appetite (temporarily) compared to lower-intensity exercise.
- HIIT can create a significant afterburn. Men who expended roughly 500 calories during 47 minutes of vigorous exercise continued to burn 225 extra calories over the next 18.5 hours.
- When athletes lose weight, they lose muscle as well as fat. For example, soldiers during nine weeks of combat training lost nine pounds (4.2 kg), of which one-third was muscle loss and two-thirds was fat loss. They consumed about 15 percent fewer calories than required to maintain weight.
- Even bodybuilders and figure competitors do not lose just body fat when they "lean out." In the 12 weeks pre-competition, male bodybuilders lost about four lbs (1.8 kg) lean body mass and 11.5 lbs (5.2 kg) body fat. The female figure competitors lost about 5.5 lbs (2.6 kg) lean and about 6.4 lbs (2.9 kg) fat.
- Why do women struggle harder than men to lose undesired body fat? Perhaps because they are women. In the animal kingdom, female animals generate less body heat after overfeeding compared to the males. Research with humans suggests similar energy conservation. When four men and four women were overfed ice cream for three days (150 percent of energy balance needs), the men burned off some of the extra calories while the women conserved energy, making it easier for them to add body weight.
- Should you believe the calorie estimates displayed on exercise machines? Doubtful. Research shows that some exercise machines overestimate energy expenditure, particularly with women. This can lead to confusion and frustration for those trying to achieve energy balance.
- A novel way to burn a few extra calories is to sit on a stability ball while you are at work. At a call center (where 90 percent of the time is spent sitting), the employees who sat on the stability ball for five hours during the workday burned about 260 more calories per eight-hour shift. Theoretically, that could lead to loss of 26 pounds in a year! They burned about half a calorie more per minute sitting on a stability ball than sitting in a chair. The biggest barrier to using the stability balls was aggravation of pre-existing back pain.
- Trained cyclists who consumed equal calories of either a sports drink or banana chunks during a 75-kilometer cycling time trial performed similarly. The banana, however, offered a beneficial anti-inflammatory response. Natural foods generally offer more benefits than engineered sports foods.
- Chocolate milk is a popular recovery food that contains carbohydrates to refuel muscles and high-quality protein to build and repair muscles. Both full-fat and skim chocolate milk offer similar recovery benefits.
- Beer is a plant-based beverage that offers antioxidant and anti-inflammatory properties. Marathoners who drank 1-1.5 liters of non-alcoholic beer per day for three weeks prior to a marathon and two weeks after the marathon experienced less post-race inflammation and fewer colds. Non-alcoholic beer offers a wise way to enjoy the natural high of exercise along with positive health benefits.
- Have you ever wondered how much elite endurance athletes consume during an event? A post-event survey of Ironman triathletes, marathoners, long-distance cyclists and professional bike racers suggests the Ironmen consumed about 70 grams (280 calories) of carbohydrate per hour; the cyclists consumed 53 grams (212 calories) per hour; and the marathoners consumed 35 grams (140 calories) per hour. The endurance athletes who consumed the most energy had the best performances.
- How common are intestinal problems during endurance events? About 31 percent of the Ironman competitors reported GI serious problems, compared to 14 percent of the half-Ironman competitors, four percent of the cyclists, and four percent of the marathoners. Those with a history of GI distress reported the most symptoms, as well as those who exercised in higher heat.
- If you are going to be competing in the heat, you might want to pre-cool your body. One way to do that is to enjoy an ice slurry. Runners who consumed about 14-ounces of ice slurry before they exercised in the heat were able to run about one percent faster during a ten kilometer (6.2 mile) race.
- Female athletes commonly restrict their food intake. Among 44 female high school cross-country runners (16 years-old):
 - 39 percent restricted food, thinking being lighter would help them perform better.
 - 42 percent reported missed or absent menstrual periods in the past year—a sign of being under-fueled.
 - They were eight times more likely to believe missing multiple periods was a sign they were in better shape.These young women need to be educated about the medical problems associated with missed menstrual periods!
- To resume menses, amenorrheic women need to correct the energy deficit. Those who drank a 360-calorie carbohydrate-protein supplement resumed menses, on average, in about 2.5 months (± 2 months). The longer they had been amenorrheic, the longer they needed to resume menses.

Q&A (continued from page 2)

A: Cystic fibrosis (CF) is the most common genetic disease in North America. It affects a gene that regulates chloride transport. An abnormality may effect secretions in the lungs, gastrointestinal tract, endocrine system and reproductive system. Patients lose a lot of salt in their sweat, which is how doctors often make the diagnosis.

Most individuals are diagnosed by age ten, and lung disease often affects individuals in their 20s. In order for children with CF to lead safe and normal lives, adults should encourage them to participate in physical activity, though consultation with a sport medicine physician or pediatric respirologist is suggested since exercise testing may be recommended in individuals with severe CF. Coughing during exercise should not necessarily stop activity. Individuals may even participate in endurance events such as marathon running. Like for most medical conditions, exercise usually has positive effects, helping individuals with conditioning, symptoms and confidence. For your nephew, I say "play ball!"

Every Body (continued from page 2)

cleared to exercise and have your doctor's recommendations, there are a few things to consider. First, progress slowly by adding time, exercises and intensity to your routine with caution. Be sure your body has time to adjust to the stress exercise is providing. For example, if you are diabetic, check your blood sugar levels regularly to determine how well the levels are being controlled. Monitor your heart rate, and stay within a targeted heart rate range and below your pain threshold. These tips can help avoid over-taxing your system. Increasing exercise volume or intensity too quickly can lead to injury. But when done correctly, the health benefits you gain from exercise far outweigh risk of injury.

If you have any new pain or discomfort during or after exercise, you may need to rest or adjust your program. If joint pain appears during or after exercise, find ways to change your program to avoid the pain. Consult your physician or an exercise professional for direction and advice if you experience pain with exercise. Pain is your body's signal that

something is not right, so it is wise to listen to what your body is telling you. Although the likelihood of a heart attack during exercise is very small, all people should ensure they know the signs and symptoms of a heart attack. If these symptoms are present, seek medical attention immediately.

Importantly, your chosen exercise plan should be personally fun and interesting. If you don't enjoy the exercise, it will be very difficult to maintain your routine. Finding a partner or group with that has similar goals, fitness levels or health issues can be an important key to maintaining your commitment to exercise. An exercise buddy or support group is a great way to stay consistent and keep up the exercise on days you may not feel like it. Developing an exercise plan that fits your goals and needs is key, and exercise truly can have a positive effect on every body if it is done correctly and safely.



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