

THE BEST TIME TO EXERCISE

Contrary to popular belief, women aren't the only ones with biological clocks. Everyone has them, and we all heed their ticking on a daily basis.

If you are a regular exerciser, you may have already determined your most productive time to exercise and follow a routine that works best for you.

On the other hand, if your exercise time varies from day to day, and it's wearing you out instead of pumping you up, you may be interested in the work of scientists who are studying the proverbial internal clock and how to best determine what time of day you should schedule your workouts.

Rhythm: It's Not Just for Dancing

The secret appears to lie in circadian rhythms, the daily cycles that the human body follows. These rhythms originate in the hypothalamus and regulate everything from body temperature and metabolism to blood pressure.

The rhythms result from the firing rate of neurons. They have conformed to the 24-hour light-to-dark cycle, and may be regulated and re-regulated each day according to the environment.

Warm Is Better

It is the influence of circadian rhythms on body temperature that seems to yield the most control over the quality of a workout. When body temperature is at its highest, your workouts will likely be more productive; when your temperature is low, chances are your exercise session may be less than optimal.

Body temperature is at its lowest about one to three hours before most of us wake up in the morning, in contrast to late afternoon when body temperature reaches its peak. (To determine your own circadian peak, refer to the box to the right.)

Studies have consistently shown that exercise during these late-in-the-day hours produces better performance and more power. Muscles are warm and more flexible, perceived exertion is low, reaction time is quicker, strength is at its peak and resting heart rate and blood pressure are low.

Don't Fix It If It's Not Broken

First of all, don't change your schedule if you feel good beginning your day with exercise. Everyone agrees that exercise at any time is better than no exercise at all. In fact, people who exercise in the morning are more successful at making it a habit.



Find Your Peak

To determine your own circadian peak in body temperature, record your temperature every couple of hours for five to six consecutive days. Body temperature usually fluctuates by plus or minus 1.5 degrees throughout the day. Try exercising during the period three hours before and after your highest temperature. If you are an early bird or a night owl, you may notice that your temperature peaks one to two hours before or after the norm (between 4 p.m. and 6 p.m.); you can adjust your exercise time accordingly.

And, though it has been suggested that morning exercise may put some people at higher risk for heart attack, further research indicates that there is simply a generalized increased risk of heart attacks in the morning. If your schedule favors an early workout, emphasize stretching and a good warm-up to ensure that your body is ready for action.

Other Considerations

If stress relief is your goal, exercise always works, all the time. And if you're wondering when it's best to train for an upcoming event, it all depends on what time you'll actually be competing. If an upcoming marathon begins at 7:00 a.m., try training at that time of day.

Though training at any time of day will raise performance levels, research has shown that the ability to maintain sustained exercise is adaptive to circadian rhythms. In other words, consistently training in the morning will allow you to sustain exercise during a morning marathon longer than if you train in the evening.

Additional Resources

WebMD: www.webmd.com/fitness-exercise/features/whats-the-best-time-to-exercise

About.com: www.walking.about.com/od/fitness/a/besttimeex.htm

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THE RIGHT EXERCISE PROGRAM FOR YOU STARTS HERE

What do you want to get out of an exercise program?

The answer to that question defines what kind of program will work best for you in the long run.

Ask yourself, "What do I want to accomplish?" Do you want to lose weight? Get in shape and stay in shape? Maybe you'd like to reduce some of the stress in your life. Or perhaps you're serious about improving your overall health or increasing your muscular strength.

The good news is that every one of those goals can be accomplished. Each one can be the start of a fun exercise program you can enjoy and from which you can benefit.

Is your goal weight control? Then start with a low-impact or non-impact aerobic activity and work up to at least 30 minutes almost every day. If your goal is strengthening your muscles, there are plenty of strength-conditioning programs that include the use of free weights, weight machines, exercise tubing or calisthenics.

If your goal is improved flexibility, you could try yoga or a simple stretching routine that covers all of your major muscle groups.

Maybe you know what you want to accomplish, but don't know how to get started. That's where we can help. The American Council on Exercise (ACE) has more than 50,000 certified personal trainers and group fitness instructors all over the world who can help you get started with the program that best meets your goal. Call 800-825-3636 or visit www.acefitness.org for more information.

But before you take that step, check with

your doctor, especially if you're a man over 45 or a woman over 55 or have any health problems, like high blood pressure, high cholesterol, diabetes, a family history of heart disease, or even if you smoke. It's a good idea to have your personal physician give the idea of an exercise program a thumbs-up before you begin.

Where's the best place to exercise?

What's better, your home or a health club? Actually, one place isn't better than another. The choice really comes down to where you will be most comfortable and best able to accomplish your exercise goals. Here are some things to consider when you're making your decision.

Home Exercise Economics

Exercising at home can be more economical than exercising at a health club. Invest in a good pair of running or walking shoes, some adjustable dumbbells and an exercise mat, and you're ready to go. For some people, the best part of home exercise is the privacy.

If you're the kind of person who can stick with an exercise program alone at home, that's your answer. But if you do better with the stimulation of others, or if you enjoy being with a group of people who share your interests, consider a full-service club.

More Equipment and Professional Guidance at a Club

For some people, a health or fitness club works a lot better than home. Clubs have a variety of exercise options, professional fitness instructors to keep you working in the right direction and other people who share a common interest.

One of the nice things about a club is that you can work it into your schedule. Go early in the morning before work or stop off on your way home.

The only drawback could be the cost of health club membership. You'll have to weigh the expense with what you can afford and what you want to accomplish.

One More Option: A Workday Routine

There is still another direction you can go, and that's to get together with coworkers during lunch to walk or jog. Many people have a good chance of sticking with a regularly scheduled lunchtime exercise program. You just might be one of them.

Deciding where to exercise comes down to picking the place that offers you the greatest comfort, and the one that works best with your lifestyle.

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EXERCISE AND CELLULITE

Cellulite. We all know what it looks like, but misconceptions prevail. The first thing you should know is that, in the true medical sense, cellulite is simply plain old fat. Yet it does have one defining characteristic—a dimpled, cottage-cheese, orange-peel look. Here's why: Everybody has connective tissue that separates fat cells into compartments. While men tend to have horizontal or criss-cross patterns to those compartments, women's compartments have a honeycomb appearance, giving fat a greater chance to protrude or bulge, hence the cottage-cheese effect.

As a result, women are more likely to develop cellulite than men, mainly around the hips and thighs. However, men can develop the condition, too. Although cellulite becomes more noticeable with age, largely because the skin gets thinner over time, it generally strikes individuals in their 30s.

Of course, not everybody will develop cellulite in their lifetime. That's because genetics determines where your fat cells are and how many fat cells you have. Activity level is another crucial factor associated with cellulite. If you exercise regularly, you'll decrease your odds of developing cellulite, or if you do, the dimpled look won't be quite as pronounced.

Beware of the Quick Fix

Unfortunately, too many people still hang on to the idea of quick and easy fixes. Beware of cellulite creams, medical procedures like liposuction and cosmetic treatments like body wraps. They don't work. No cream applied to the skin can penetrate the skin and rearrange the fat cells beneath the surface. Liposuction is designed to remove excess deposits of fat, but it won't change the appearance of fat. As for body wraps, the effect is only temporary. Fat is compressible, so when you do the wrap, it will smooth your skin, but your skin will be back to normal by the next day.

Another misconception is that dieting alone can zap fat. Although there are diets that make you lose weight, at least one-quarter of the weight lost is muscle, which lowers your metabolism. If you return to your usual eating habits, you'll likely regain more weight than you lost because your metabolism is slower.

The Cellulite Solution

So what can you do to diminish the appearance of cellulite? Experts recommend daily cardio exercise combined with two to three strength-training sessions a week and a healthy diet.

The good news is that there's actual proof that this approach works. Wayne Westcott, Ph.D., fitness research director at the South

Shore YMCA in Quincy, Mass., and co-author of *No More Cellulite*, designed a cellulite-reduction program that includes 20 minutes of strength training, with five exercises for the upper body and five for the lower body, and 20 minutes of treadmill walking or jogging, staying at about 70 to 80% of maximal heart rate. This program is followed three days per week, although participants can always do more cardio.

Participants in an eight-week study of Westcott's program lost about 1 pound per week, or about 10 pounds after two months. When participants combined the exercise program with good eating habits (a Food Pyramid-based diet consisting of 1600, 2220 or 2800 calories), they doubled the fat loss, losing 9.1 pounds of fat (compared to 4.5 pounds without the nutritional component alone).

In another study led by Westcott, 72 men and women did three 30-minute workouts for eight weeks. The group that did only aerobic exercise, cycling for 30 minutes at a time, lost 4 pounds of fat but gained no muscle, which only slightly improved body composition. Yet when subjects did aerobic exercise (15 minutes of cycling) and strength training, they dropped 10 pounds of fat and added 2 pounds of muscle, which resulted in a greater improvement in body composition.

How to Get Started

An exercise program doesn't have to be complicated to be effective. For strength-training exercises, any tool is fine, including dumbbells, elastic bands, body weight and machines. If you prefer machines, leg presses, seated leg curls, hip adduction and abduction, and overhead presses are recommended. And effective free-weight exercises include the dumbbell squat, band hip adduction and abduction, body-weight trunk extension and trunk curl.

Still not sure where to start? A session or two with a certified personal trainer can help get you started on the right track. And while results won't happen overnight, a consistent program of regular exercise combined with a



sensible diet can go a long way toward not only improving your appearance, but your overall health as well.

Additional Resources

Westcott, W. & La Rosa, L. (2003). *No More Cellulite*. New York: Perigee.

American Council on Exercise: Asp, K. (Feb/Mar 2006) The cellulite solution. *ACE Certified News*, 12, 2.

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OFF-SEASON SUCCESS

Has the long, hard-fought season come to an end? Are you left telling yourself that there is always next season? If so, start preparing for next season today and allow yourself the peace of mind that comes with knowing that you did everything in your power to be all you could be.

Creating an off-season training program is not a one-size-fits-all proposition. Each individual has different needs that must be considered when putting together a successful plan. Different factors will be taken into account, such as how many weeks are left until next season starts, what you need to improve physically, your history of injury and any other physical requirements that are involved.

Rest

First and foremost, your body has earned several weeks of rest after a full season of hard work. If you are injury free, take two to four weeks off to give your muscles a chance to recover. If you have an injury, visit your doctor for a recommendation prior to starting a training regimen.

Test

Now it is time to evaluate your strengths and weaknesses. Several weaknesses may be evident from observing how you performed during the previous season, but it's a good idea to get some baseline and max test measurements to determine what needs improvement and how much progress is being made.

Endurance

If you were unable to keep up your work rate in the second half of games or matches, chances are that your endurance needs some work. To determine if endurance truly was the reason behind this second-half collapse, complete several endurance tests such as the 1.5 mile run and the beep test (i.e., running continuously between two points that are 20 meters apart synchronized with a pre-recorded audio tape or CD, which plays beeps at set intervals). Record your results, compare them to norms, and retest to track for progress.

To improve your endurance, you should start by establishing your aerobic base. During the first four weeks of training, run intervals at a low level of intensity (50–70% maximum heart rate, or MHR) for 20 to 30 minutes with intervals of five minutes of work and five minutes of active recovery. After the aerobic base is established, it's time for performance training. During weeks 5 through 10, run intervals at a medium to high level of intensity (60–100% of MHR) for

25 to 35 minutes with intervals progressing from five minutes of work and five minutes of active recovery to 20 seconds of hard work and one minute of active recovery.

Speed

Speed is a crucial element in almost every sport. One step can be the difference between becoming a star and not making the team. Two universal measures of speed are the 40-yard dash and 100-meter sprint. With proper training, you can improve your times and become an elite athlete. There are a number of trainable factors that affect speed, including flexibility, fatigue, technique, and stride length and frequency. Flexibility allows an athlete to sprint through a full range of motion. Static stretching is one way to improve flexibility; however, dynamic flexibility exercises are more effective.

Speed training should never be performed while fatigued. Fatigue can affect technique, stride length and frequency, all of which will cause you to train at a slower speed. This may result in teaching you to run slower. Technique, including stride length and frequency, is vital in reaching your sprinting potential. This can be improved by breaking down the form and then training each specific mechanic. Some specific types of exercise that can help improve these factors are sprints covering varying distances and intensities, sprints with changes in speed, sprints with resistance and sprints with assistance.

Strength and Power

Being the strongest and most powerful person on the field is probably one of your goals if you're dedicated to transforming yourself into an exceptional athlete this off-season. To achieve this goal, it is important to be able to differentiate between exercises that develop strength and those that

develop power. Strength exercises entail heavy resistances, but under controlled speeds and with deceleration. Power exercises entail acceleration for the full range of movement and high lifting velocities.

Sport-specific Goals

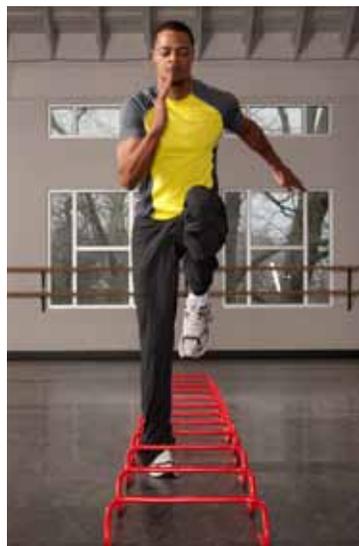
Much of the off-season training takes place in the weight room or on a track, which is likely not sport-specific. So now it's time to get back on the field or court and start training your body with the movements that your sport requires. Give yourself at least a month before the pre-season starts to alter your focus to the skills your sport requires. Maintaining all the results you achieved in the off-season won't require nearly as much time as it did getting there, so spend that extra time practicing with your teammates.

Additional Resources

American College of Sports Medicine—The Team Physician and Conditioning of Athletes for Sports: A Consensus Statement: www.acsm.org/AM/Template.cfm?Section=Search§ion=TeamPhysician_Consensus_Statements&template=/CM/ContentDisplay.cfm&ContentFileID=353

About.com: www.sportsmedicine.about.com/od/sampleworkouts/ss/OlympicTraining_9.htm

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GET READY TO HIT THE SLOPES

You don't have to wait for the snow to start falling to get ready for ski season. Start your training now and you'll be sailing past those other ski bums on your way down the mountain.

Dusting the competition or showing off to friends are not the only reasons to get in shape before ski season. Skiing is an activity that involves a variety of elements: strength, endurance, balance and coordination. Hit the slopes without developing these components and you may be in for more than a little embarrassment—you might even hurt yourself.

Sport-specific Training

This is where sport-specific training comes in. Generally speaking, sport-specific training programs involve focusing on the various skills associated with a particular activity.

Depending on the sport, this may include health-related fitness components such as cardiorespiratory endurance, muscular strength and endurance, and flexibility.

A sport-specific program may also take into account skill-related measures of fitness such as agility, balance, coordination, power, speed and reaction time. Most sports require a mixture of these components.

Skiing is a sport that relies heavily on skill-related fitness. A traditional fitness program, which includes a combination of weight training and cardiovascular exercise, will only take you so far.

A training program to develop specific skills for skiing will take you from the peaks to the valleys in record time.

Get Ready to Ski

There are several ways to begin a sport-specific training program. The simplest way is to add several new exercises to your regular workout schedule.

For example, performing wall sits that require you to "sit" against a wall will help build up the isometric strength needed for the tuck position in skiing. Squats and lunges will build lower-body strength for skiing tough terrain like moguls.

Exercises such as crunches to work your abdominals are essential in creating a solid "core" for balance and agility.

It is important to train your body to withstand and absorb the impact associated with



skiing. Plyometric movements, such as hopping from side to side, develop muscle power and strength as well as improve agility.

Set Up Your Own Ski Circuit

A great way to integrate these elements into your existing routine is to create a circuit-training program, which involves rapidly moving from one exercise to the next. You can set up a circuit in any large room, or as part of a group at your club's aerobic studio.

Be sure and place all of your stations before beginning your workout so you don't have to stop in the middle. Set a specific time limit for each exercise, as well as a set break period between each station. Thirty seconds of work followed by 30 seconds of rest is a common interval period.

Then, simply turn up the music and make

your way around the circuit. You might even want to create your own music tape with timed intervals of music for exercise and silence for rest periods.

Try these stations to help you gear up for the slopes. Use the slide for lateral training, perform one-legged squats to develop balance and strength and use a step-bench platform to improve power. Try catching a bean bag as it drops off your forearm to improve reaction times or bounce two balls to improve coordination.

To improve agility, create your own slalom by running between cones. In sport-specific training, you are limited only by your imagination.

Additional Resources

American Council on Exercise: ACE (Sep/Oct 2006). 3 moves to get you ready for ski and snowboard season. *ACE FitnessMatters*, 12, 5, 6.

American Council on Exercise: Nottingham, S. (Oct/Nov 2004). Conditioning and injury prevention for snowboarding. *ACE Certified News*, 10, 6, 8–11.

About.com: www.skiing.about.com/od/skifitness/Ski_Fitness.htm

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HOW TO CHOOSE THE RIGHT PERSONAL TRAINER

A personal trainer should hold a current certification accredited by the National Commission for Certifying Agencies (NCCA) to give you the assurance that you are working with a professional who has the knowledge and skills to provide you with a safe and effective workout. An initiative launched in 2003 called for all fitness organizations offering personal trainer certifications to seek accreditation of their certification exams to raise the standard of personal training to better serve and protect consumers.

The NCCA was selected, given their 26 years of experience in accrediting many allied health professions (e.g., dietitians, nurses and occupational therapists). Currently, only 10 of the more than 90 fitness certification agencies have achieved this recognition. All four certifications offered by the American Council on Exercise have earned NCCA-accreditation standards. For a complete list of the NCCA-accredited certification agencies, please visit www.noca.org and click the NCCA link.



Never be afraid to ask to see a copy of the certification to ensure that it is still current. Most certification renewal periods run between two and four years. You can always contact the certification agency to verify a trainer's status. After checking the certification, there are a few other criteria you should consider when selecting a personal trainer.

Ask for References

Ask the trainer for names, phone numbers and even testimonials of other clients he or she has worked with that share traits and goals that are similar to yours. It makes sense to select a trainer who has worked with clients similar to you or perhaps matches your physical traits (e.g., age and body type). This allows the trainer to empathize and understand your unique challenges and needs.

Call previous clients to see if they were satisfied with the workouts, results and experiences they had with the trainer. Inquire whether the trainer was professional, punctual and prepared, and whether each of them felt his or her individual needs were addressed. Ask fellow members of your health club or friends who are currently working with trainers for their recommendations.

Talk to the Trainer

Developing a personal, yet professional, relationship with your trainer is very important.

Trust your instincts about the impressions the trainer makes upon you. The personal trainer you select should motivate you by positive, not negative, reinforcement. Even more important, that trainer should be someone you like. Ask yourself if you think you could get along well with the trainer and whether you think the trainer is genuinely interested in helping you. The personal trainer who best measures up is the one to hire, because that is the professional who will help you achieve the best results.

Working Experience and Area of Specialization

Inquire about the years of experience a trainer has working with clients. More importantly, ask about the trainer's expertise working with individuals with your needs or limitations.

If you have a medical condition or a past injury, a personal trainer should design a session that accounts for this. If you are under a doctor's care, a personal trainer should gain your consent to discuss exercise concerns with your doctor, and should ask the doctor for a medical clearance.

Find Out What the Trainer Charges

Rates vary depending on the session length, the trainer's credentials, experience and expertise, and the geographic location of where he or she works and you live. For example, a personal trainer who works in a fitness club will probably charge less per hour than one who works independently and needs to come to your home or office.

Education

A college degree in the fields of exercise science or nutrition improves the knowledge and credibility that a trainer has in developing your program, though not having a degree certainly does not preclude a fitness professional from being effective.

Liability Insurance and Business Policies

Many personal trainers operate as independent contractors and are not employees of a fitness facility. You should find out if the trainer you want to hire carries professional liability insurance.

A reputable personal trainer should also make sure that you understand the cancellation policy and billing procedure. The best way to avoid confusion and protect your rights is to have those policies in writing.

Compatibility

Some people like to exercise in the morning, some in the evening. Will the personal trainer you're talking to accommodate your schedule? What about the trainer's gender? Some people do better working with a trainer of the same sex; others prefer the opposite sex. You should consider these and any other personal compatibility concerns you may have before beginning a working relationship with a trainer.

Additional Resources

ACE Find a Trainer:

www.acefitness.org/findanacepro

About.com: www.exercise.about.com/cs/forprofessionals/a/choosetrainer.htm

NCCA-accredited Programs:

<http://www.credentialingexcellence.org>

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SUPPLEMENT SPECIFICS

Performance-enhancing substances, also called ergogenic aids, are surrounded by controversy. However, not all of them are banned. There are a few that are legal in athletic competition. But just because they're legal, doesn't mean they work or are necessarily safe. Remember, supplements are not regulated by the U.S. Food and Drug Administration (FDA) and you should consult with your physician or a registered dietitian if you are considering taking a supplement.

The following is a review of the most common legal ergogenic aids.

Caffeine

The popularity of caffeine is widespread. Caffeine is found naturally in foods like coffee, tea and chocolate. Energy drinks containing high doses of caffeine have grown in popularity over recent years. Up until 2007, caffeine was banned by the World Anti-Doping Agency, but now is allowed in almost any amount.

Research has consistently shown that caffeine improves performance in endurance-type activities like running or cycling by reducing the mental feeling of fatigue and prolonging time to exhaustion. Think about it: How many people wake themselves up in the morning with a cup of hot java? The same concept can be applied to exercise. A dose of 400 to 600 mg is usually enough to produce benefits, but the amount needed varies according to your habitual use. People who use caffeine regularly may find that the effect wears off as they develop a tolerance. For most people, caffeine does not have many serious side effects. But don't take it for granted; caffeine is still a form of a drug, and toxicity can occur (typically in response to an overdose of caffeine pills) and has serious and potentially fatal health consequences.

Creatine

Creatine is one of the most popular supplements. It is used by athletes who perform short bursts of activity in sports like jumping, sprinting and weightlifting. Creatine is naturally manufactured by the body. It works to replenish an important energy pathway that typically lasts up to 15 to 30 seconds after beginning activity. A good body of research proves that creatine is useful for increasing strength, power output, muscle mass and high-intensity exercise performance.

The short-term side effects of creatine are mild and no significant long-term side effects are currently known.

Carnitine

Carnitine is a substance found naturally in the body that helps move fat into the mito-



chondria, the fat-burning department of the cell, where it is broken down to produce energy. Since carnitine plays such a central role in burning fat, supplement manufacturers claim that taking more carnitine will help you burn more fat. Others claim that it is important for muscular function and athletic performance. The good news is that at the recommended doses, carnitine does not appear to have any serious side effects. The bad news is that despite years of research, there is no reliable evidence that carnitine supplementation contributes to weight loss or improved athletic performance.

Amino Acids and Whey Peptide Proteins

Protein supplementation is a popular practice by athletes. Athletes have greater protein needs than the average individual due to increased levels of muscle growth and higher energy needs. However, this amount is generally met through the normal diet. There is also evidence that a combination of protein and carbohydrates consumed following a workout may help build muscle and aid recovery. There are other supplementation practices that involve specific amino acids, the units that make up protein.

Whey Peptide Proteins—Whey peptide pro-

teins are a collection of proteins derived from the manufacture of cheese from cow's milk and are a concentrated source of quality protein. They are often used to accelerate muscle development, aid in recovery and potentially manage degenerative, immune and metabolic diseases.

Branched Chain Amino Acids (BCAAs)—BCAAs may improve endurance activities by reducing fatigue, but so far, research in this area demonstrates mixed results.

Glutamine—Glutamine is used to combat muscle breakdown and improve recovery from exercise. Athletes suffering from overtraining syndrome may show lower levels of circulating glutamine, hence the argument for supplementation. However, the results of research on this amino acid are mixed.

Arginine—Arginine is useful for individuals who have growth hormone deficiencies and urea synthesis problems, but research does not support any additional benefits from supplementation.

Additional Resources

About.com: www.sportsmedicine.about.com/od/performanceenhancingdrugs/a/Evaluate_Claims.htm

About.com: www.sportsmedicine.about.com/od/performanceenhancingdrugs/a/ErgogenicAids.htm

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THE VALUE OF FRUITS AND VEGETABLES

We all have childhood memories of our parents telling us to eat our vegetables before we could be excused from the table—and then trying to hide our Brussels sprouts under the napkin or feed them to the dog. This is sometimes a constant battle with children and even adults. The number of Americans meeting adequate fruit consumption guidelines is just under one-third, and this number is even lower when it comes to vegetables. That's a far cry from the Healthy People 2010 goals, which include 75% of Americans eating two servings of fruit and 50% of Americans eating three servings of vegetables daily.

The Benefits

Fruits and vegetables are beneficial for almost anyone. They are low in calories, but dense in nutrients and fiber. This makes them ideal for a filling snack or meal. In addition to vitamins and minerals, plant foods are abundant in phytochemicals, which are special nutrients that may have cancer-fighting properties. Research has shown that people who eat more fruits and vegetables have a lower risk of diseases like stroke, cardiovascular disease, type 2 diabetes, certain cancers and coronary heart disease. Fruits and vegetables should be an integral part of a weight-control diet, a training diet and an everyday diet.

How much is enough?

The 2005 Dietary Guidelines for Americans recommend 2 cups of fruit and 2½ cups of vegetables for a 2000-calorie diet. But how many people know that they actually eat a 2000-calorie diet? MyPyramid.gov is a great resource to monitor your food intake and see how many fruits and vegetables you need based on your age, gender, height, weight and physical-activity level. Whole fruits are recommended above fruit juice, which lacks fiber and is much less filling. Vegetables are categorized into five subgroups, and you should try to eat the recommended amount of each group throughout the week.



Whether you're eating fresh, canned, frozen or dried fruits and vegetables, try to get a variety into your diet. You'll get a wider variety of nutrients and avoid the potential monotony associated with eating the same foods—which is one major reason people tend to stray from their eating plans.

Getting Started

Besides health benefits, fruits and vegetables are easy to prepare—all you have to do is wash them! Many fruits and vegetables can be taken to eat on the go and are great for quick, tasty snacks.

When fruits and vegetables are in season, consuming them fresh and raw is optimal for getting the maximum amount of nutrition. For fruits and vegetables that are out of season,

frozen or canned may be more nutritious. The fruits and vegetables that go into these products are picked at the height of their nutritional value and the process of freezing and canning them preserves most of the nutrients. Try to avoid canned fruits packed in syrup, as the sugar content is very high.

Fruits and vegetables can easily be served as a side dish or dessert, or incorporated into the main entrée. Try adding dried or fresh berries to your salads or cereal. Grilling fruits is a great way to enhance their sweetness without adding sugar. Vegetable medleys can be cooked into casseroles or stir fried with noodles or rice. Substitute your favorite meat pizza toppings with some veggies. There are a plethora of recipes available online and in cookbooks where you can get more great ideas.

Additional Resources

Centers for Disease Control and Prevention (2007). Fruit and vegetable consumption among adults: United States, 2005. *Mortality and Morbidity Report*, 56, 10, 213–217: www.cdc.gov/mmwr/preview/mmwrhtml/mm5610a2.htm?s_cid=mm5610a2_e

2005 Dietary Guidelines for Americans: www.health.gov/dietaryguidelines

MyPyramid.gov: www.MyPyramid.gov

Healthy People 2010: www.healthypeople.gov

If you are interested in information on other health and fitness topics, contact: American Council on Exercise, 4851 Paramount Drive, San Diego, CA 92123, 800-825-3636; or, go online at www.acefitness.org/GetFit and access the complete list of ACE Fit Facts!™

Vegetable Group	Recommended Weekly Amount*	Examples
Dark green	3 cups	Broccoli, romaine lettuce, spinach
Orange	2 cups	Carrots, sweet potatoes, acorn squash
Legumes (dry beans)	3 cups	Black beans, tofu, garbanzo beans
Starchy	3 cups	Corn, green peas, potatoes
Other	6½ cups	Artichoke, asparagus, eggplant, mushrooms

*Based on a 2000-calorie diet



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THREE THINGS EVERY EXERCISE PROGRAM SHOULD HAVE

A complete, safe and effective fitness program must include aerobic exercise, muscular strength and endurance conditioning, and flexibility exercise.

Aerobic exercise does good things for your cardiovascular system and is an important part of weight management. Muscular conditioning can improve strength and posture, reduce the risk of low-back injury and is an important component of a weight-management program. Flexibility exercise is needed to maintain joint range of motion and reduce the risk of injury and muscle soreness.

1. Aerobic Exercise

Aerobic exercise can be as simple as walking. Walking, jogging, jumping rope and dance-exercise are good forms of weightbearing aerobic exercise, which is any activity that uses large muscle groups in a continuous, rhythmic fashion for sustained periods of time and during which the individual's body is not supported in some fashion.

There are also non-weightbearing aerobic exercises, such as bicycling, stationary cycling, swimming and rowing.

Keep the pace comfortable. A very important aspect of your exercise program is the intensity. You should exercise at a comfortable pace. You can measure your exercise heart rate to check the intensity of your exercising, or you can take the "talk test."

To measure your heart rate, take your pulse as soon as you stop exercising. Count your heartbeat for 10 seconds, then multiply by six to convert it to a one-minute heart rate. If you keep your exercise heart rate within a range of 55 to 90% of an estimated maximum heart rate (220 minus your age), you're doing well.

The talk test is even easier to use. Just exercise at a pace that allows you to carry on a conversation while you're exercising.

How often should you exercise? Three to five days of aerobic activity is fine for general health maintenance. If you're trying to lose weight, aim for five to six days a week, being sure you take off at least one day a week.

How long should you exercise? Work up to 30 or more minutes per session (or three 10-minute sessions per day) for general health maintenance. For weight loss, gradually work up to 45 minutes or longer at low to moderate intensities in a low- or non-impact activity.

2. Strength Conditioning

Pick calisthenics, free weights or machines. Just be sure that your strength training includes exercises for every major muscle group, including the muscles of the arms, chest, back, stomach, hips and legs.

Start with a weight that's comfortable to handle and perform eight repetitions. Gradually add more repetitions until you can complete 12 repetitions. For greater strength conditioning, add more weight and/or more repetitions, in sets of eight to 12, when the exercise becomes easy.

3. Stretching for Flexibility

Proper stretching involves holding a mild stretch for 15 to 30 seconds while you breathe normally. Always warm up before you stretch. Like strength conditioning, flexibility exercises should include stretching for all of the major muscle groups.

One Last Thing to Remember . . .

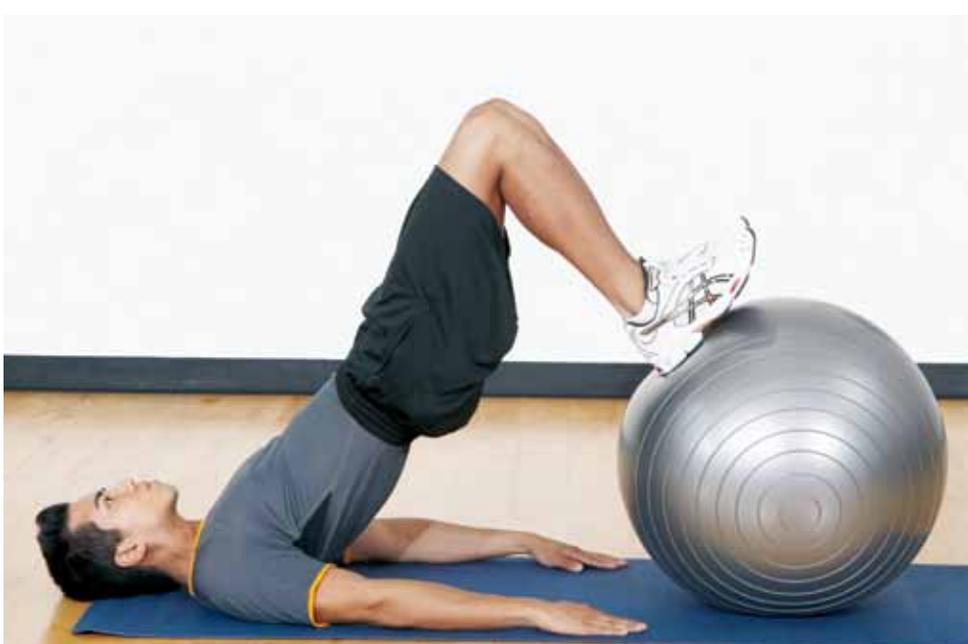
Always check with your doctor before beginning any exercise program, especially if you're a man over 45, a woman over 55, or have cardiovascular risk factors, such as smoking, high blood pressure, high cholesterol, diabetes or a family history of heart disease.

Additional Resources

About.com: www.exercise.about.com/cs/exbeginners/l/blimplement.htm

About.com: www.exercise.about.com/cs/exbeginners/a/exbasics_2.htm

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TOO MUCH OF A GOOD THING

A little exercise is good for you, so more must be better, right? Well, sometimes. And sometimes more is just that—more. There comes a point of diminishing returns or, worse, a point where your body says “Enough!”

Everyone reaches this point at different times. Triathletes, for example, are able to withstand the rigors of three-sport training—running, cycling and swimming—at levels unthinkable to most. For others, an extra step class or hitting the weights too hard can put them over the top. In the quest for better health and fitness, it is sometimes difficult to quell one’s enthusiasm and take a break from exercise. But if exercise is leaving you more exhausted than energized, you could be suffering from an acute case of overtraining.

Know the Signs

It’s important to be able to recognize the signs of overtraining before they become chronic. Physical signs of overtraining include:

- Decreased performance
- Loss of coordination
- Prolonged recovery
- Elevated morning heart rate
- Elevated resting blood pressure
- Headaches
- Loss of appetite
- Muscle soreness/tenderness
- Gastrointestinal disturbances
- Decreased ability to ward off infection
- Increased incidence of musculoskeletal injuries
- Disturbed sleep patterns

Keep in mind that not all of the signs of overtraining are physical. Much like regular exercise has a positive effect on mood and stress levels, too much exercise can do just the opposite, leaving the exerciser irritable and depressed, particularly as the quality of the workouts declines. Psychological and emotional signs of overtraining include depression, apathy, difficulty concentrating, emotional sensitivity and reduced self-esteem.

Understand the Cause

Once you recognize the symptoms of overtraining, it’s important to understand and honestly confront the cause. For some, overtraining occurs as a result of an upcoming competition. Increased training prior to an event is understandable, but if it’s interfering with your health and well-being, you have to question its worth. The solution may be as easy as reducing the rate at which you increase your training intensity. The body needs sufficient time to adjust to your increased demands. Triathletes don’t start out running 10 miles, cycling 100 miles and swimming 1000 meters all at once. They gradually increase their training to allow their bodies to adapt.

For others, the basis for overtraining may have more to do with emotional or psychological reasons than physical ones. Much like eating

disorders, exercise addiction is now recognized as a legitimate problem. Exercising beyond the point of exhaustion, while injured, or to the exclusion of other aspects of one’s life are some of the signs of exercise addiction. It’s a difficult problem to recognize, particularly in a culture where discipline and control are lauded.

Individuals who exercise excessively are risking more than poor performance: They’re risking their health. Overuse syndrome, which may lead to more serious injuries, is common. And the emotional cost of isolating oneself to exercise can be devastating. If you recognize these symptoms in yourself or in a friend, it is essential that you seek professional help.

The “M” Word

The key, it seems, to staying healthy is to do everything in moderation, which is best viewed as something relative to one’s own fitness level and goals. Don’t expect to exercise an hour every day simply because your very fit friend does. The body needs time to adjust, adapt and, yes, even recuperate. Exercising to the point of overtraining is simply taking one step forward, two steps back—not exactly good training tactics.

Additional Resources

About.com: www.exercise.about.com/cs/exercisehealth/a/toomuchexercise.htm

WebMD: www.webmd.com/hw-popup/overtraining

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TRAIL RUNNING ADVENTURE

It's time to take that same old routine run around the neighborhood and turn it into a wildlife adventure. Wherever you live, there is a good likelihood that accessible trails are nearby. Trail running allows you to enjoy the beautiful scenery nature has to offer while simultaneously getting an excellent workout. The following information will help you transition your roadside or treadmill run to the great outdoors.

Types of Trails

- **Rails to trails**—All over the United States, unused railway lines have been converted into multiuse trails. These trails are flat and well-marked, which is perfect for somebody making the transition from road running. Surfaces are typically dirt, gravel or paved. Find a rail trail near you at www.railtrail.org.
- **Groomed trails**—Many local outdoor sites such as rivers, creeks and parks have packed-dirt paths. These smooth, soft surfaces are a great way to reduce impact without the added hazards of rocks and roots.
- **Hiking trails**—The most difficult of the three, hiking trails typically have obstacles such as rocks, roots and uneven surfaces that challenge your balance and running mechanics. These trails make for a great workout, but be cautious and start with a hike run. Run the flat sections; walk the hills and tricky terrain.

Finding Trails

One of the biggest reasons why people aren't utilizing these breathtaking trails is that they don't know where to find them. Don't let this simple problem interfere with your adventurous side. If you have Internet access, just search for trails in your area and you will be amazed by how many have been hiding from you. Always select trails that have been tested and recommended by others.

Health Advantages

Not only is running on a trail more entertaining than the road, it can also deliver a more intense workout. It typically provides a greater challenge to your balance centers and stabilization muscles as you work to climb the trails and control your descents. Furthermore, running on a straight road does little for your senses, while trail running tends to keep you focused on the obstacles, keeping your body and mind guessing.



Equipment Needs

The correct equipment will be the difference between a good experience and a potentially unsafe experience. Given the type of terrain you are running on, a good pair of trail running shoes is paramount. They offer better lateral and heel support than standard running shoes and usually have a heavier tread pattern for traction on the trails.

Trail running may involve water, possibly soaking your socks and shoes. Traditional cotton socks increase the likelihood for blistering. Select socks made from synthetic fibers or the newer breathable socks that help keep your feet cool and help prevent blisters.

When running trails at altitude, sudden temperature changes are possible, so layer your clothing. Wear clothing that allows your body to cool, yet wicks away moisture from sweat. Wet clothing against your skin may shuttle necessary heat out of your body, especially at higher, cooler altitudes.

Taking a pole or stick with you is always a good idea. Not only can it help stabilize your body over tricky terrain, but it can also come in handy when fending off any unexpected wildlife.

Safety and Running Tips

- Hike a trail for the first time to become familiar with it, then progress to a run. Never run alone, especially when running on trails far off the beaten path
- Carry various forms of communication devices with you. Examples include a whistle, satellite-GPS device or cell phone in case reception is available.
- Carry some basic first-aid supplies. Examples include bandages, some athletic tape, a knife and anti-bacterial ointment.
- Distribute the weight of items evenly around your body. Try to carry most of the weight at the hips.
- Bend your knees during descents to prevent possible knee injuries from hyperextension. Also avoid leaning back excessively on descents to prevent your feet from slipping out from under you on loose surfaces.
- Keep your head up to enhance forward momentum and drive with your arms from the shoulders, not the elbows.
- Use shorter strides on steeper terrain for energy efficiency and increased power.

Additional Resources

American Trail Running Association:
www.trailrunner.com

Active.com: www.active.com/story.cfm?STORY_ID=12362&CHECKSSO=0&CATEGORY=active_women

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TRAINING TO RUN YOUR FIRST 5K

So you've started a walking program and, after a few weeks of consistent improvement, you feel you're ready to pick up the pace and run your first 5K race.

A 5K—a 3.1-mile race—is the perfect length to aim for as a beginner. Begin by setting a realistic training schedule to keep you motivated and give yourself ample time to move to the next level. Beginning a running program may improve many facets of your life, as it builds your cardiovascular system, may boost your self-esteem and may strengthen ties within your community while also allowing you to appreciate the outdoors.

From the novice to the expert runner, a local 5K race is a great way to get in shape and improve your sense of health and well-being.



mately 10 to 15% each week. For example, increase the duration of your walk/run from 25 minutes to 28 minutes in week 2.

Vary your runs during the week to break the monotony. Choose one or two days a week to run your distance, and use the remaining days to focus on shorter, harder runs or interval-type sessions. Make sure to take one to two days off per week to let your body recover. Gradual training is the key to long-term success and rest time is just as

important as the time you spend training.

Set Attainable Goals

While the length of a 5K may be a relatively easy goal to achieve as a novice runner, designing the training program can present quite a challenge. Start out with a simple program that allows you to succeed and move forward only when you feel comfortable with your current stage. To avoid burnout or injury, do not push your limits.

Remember that your main goal is to reach the finish line. For your first race, you should enjoy the run and feel good for having reached your goal, rather than going for a certain time.

Take Your Time

Depending on your training base, a five-week program should be just enough time to have you running for the full 3.1 miles. Your first step should be a complete medical exam to make sure it is safe for you to begin a running program.

Begin with a walk/run program four times per week for 20 to 25 minutes. Plan to add a little variety to your training by alternating every other day with 20 to 30 minutes of an aerobic cross-training activity to build your cardiovascular fitness.

Select a starting distance that you are comfortable with. Perhaps it is 1.0 to 1.5 miles. Increase the distance (and duration) by approxi-

Be Smart and Safe

Be sure to have proper running shoes that suit your individual needs, and be aware of the surface on which you are running. The best running surface is a rubber track. If you do not have access to a track, asphalt is better than concrete, and dirt or silt alongside the road is even better.

Nutrition and Hydration

Never run on an empty tank. Consume a light carbohydrate snack one to one-and-a-half hours before your runs and be sure to adequately hydrate. Drink plenty of fluids, but make sure you drink at least 16 ounces two to three hours before your run. Plan to drink 7 to 10 ounces of fluids every 15 minutes during your run and eat a light carbohydrate and protein snack soon after the run if possible. Monitor your hydration by weighing yourself before and after the run, making sure you drink enough fluids after your run to replace the weight lost.

Race Day

If you aren't familiar with the race course, check it out on one of your training runs or do a drive-by. It's easy to get mentally and physically fatigued when you don't know where your run ends and how much farther you have to go.

Also, be sure to avoid running at a pace that is faster than your training pace.

For your first race, there is some running etiquette that you should be aware of:

- Don't cut someone off unless you're at least two paces in front of them.
- Make sure there is no one behind you if you're going to spit or throw away a cup from the water stations.
- When you cross the finish line, don't stop moving. Keep walking down the chute to prevent a traffic jam.
- If you're on a team, cheer on teammates that finish behind you. That extra encouragement may be the boost they need to finish hard.

Support Your Community

Since running is relatively inexpensive and a great way to stay in shape, the popularity of 5K races has dramatically increased over the past few years. By running a 5K and donating money through your entry fee or raising money through donations, you are supporting a larger cause and meeting new people who share similar interests and goals.

Additional Resources

American Running Association:

www.americanrunning.org

About.com: www.running.about.com/od/racetraining/a/first5K.htm

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TRAVEL FITNESS: A PLAN OF ACTION TO KEEP YOU ACTIVE

It is easy to let a vacation or business trip destroy your fitness schedule and eating habits, but why let something as rewarding as a vacation or as exciting as a business trip leave you feeling unhealthy upon return?

With a little research and proper planning, you can create an easy-to-follow plan to keep you fit and healthy no matter where you travel, and you can come home feeling more healthy and energized than when you left.

Nature's Playground and Man's Monuments

There is no excuse for not finding places to exercise when every city has a great staircase, stadium or tall buildings where you can master the stairs without a machine. If stairs aren't your thing, cities have lots of places good for walking, running or even hiking. Ask the hotel concierge if there are parks or trails nearby; or if you have ventured to the mountains, ask for

a map of local hiking trails.

It is also a good idea to ask the concierge for a map of the city to find out how many of your destinations are reachable by foot. (Walking will increase your fitness and decrease your taxi fares.)

Prior to departure on your trip, find out if your hotel has a workout facility and a pool, and remember to pack your bathing suit and workout clothes. If they don't have a facility, they may be affiliated with a local gym where you can get a one-day pass for a small fee.

There are no limits to the exercise you can do while exploring new territory. Make the most of your trip, and get to know the city by foot.

Prepare for Power, No Excuses

If your hotel doesn't offer fitness accommodations, bring along a jump rope and an exercise tube. They are both lightweight and easy to transport. Jumping rope is one of the best forms of cardiovascular exercise, and you can do it anywhere.

With the exercise tube and a prearranged plan to keep you motivated, you can keep your entire body toned and energized without entering a gym or stepping on a piece of exercise equipment. Numerous magazines and websites offer workout instructions for each body part.

And, of course, body-weight exercises such as push-ups and crunches require no equipment at all. The point is to find a workout routine that suits your needs and follow it. Plan a specific time each day or every other day to do your strengthening and cardiovascular routines (a good plan is to alternate days between the two).

Remember that the 20 to 60 minutes you spend working out each day is for you, and try to stay on schedule.

Have Fun

Be sure to enjoy yourself and make the most of the area to which you have traveled. Remember to bring comfortable shoes so that you can easily get a workout while using your feet as your main mode of transportation.

Whether your trip is for business or vacation, remember that you should have some time for

yourself every day. Why not dedicate that time to improving your health and making yourself feel better?

Nutrition Road Tips

- Always drink plenty of water, particularly if you're flying.
- Conjure up a healthy meal in your mind prior to entering a restaurant, and stick to your plan as closely as possible.
- Try to eat at least three times per day to keep you from feeling famished and over-indulging at any one time.
- Pick up portable, healthy snacks at a local market so you won't be caught hungry in front of the mini-bar.
- Go ahead and splurge on regional dishes or local cuisine, but balance your diet by choosing lower-calorie foods at other meals.

Additional Resources

Schlosberg, S. (2002). *Fitness for Travelers: The Ultimate Workout Guide for the Road*. Boston: Houghton Mifflin Books. Available at www.acefitness.org.

About.com: www.exercise.about.com/cs/fittingitin/a/ontheroadex.htm

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TRIMMING OFF THE FAT

Are you satisfied with your general physique, or would you like to get rid of a few extra pounds? If your answer is the latter, quit looking for that magic pill and just follow several general guidelines that will help you work toward a healthier body.

Calorie Deficit

Atkins™, South Beach™, The Zone Diet™ and countless other types of diets have each been hyped as the perfect diet strategy to shed those unwanted pounds. While they may have shown initial results, most have failed to demonstrate long-term success in keeping the weight off.

Here's an important tip to remember: Your body must burn more calories than it is taking in to lose weight. One pound of fat equals 3,500 calories, so if you want to lose 1 pound per week you need to average a caloric deficit of 500 calories per day.

Don't worry—that doesn't mean you have to get on the treadmill and run until you have burned 3,500 calories to lose a pound. Your goal is to combine increased activity with some cutbacks in your diet.

Basal Metabolic Rate and Calories Burned in a Day

To manage weight, you need to determine the number of calories you eat and the number of calories you burn. Your body has something called the basal metabolic rate (BMR), which is the amount of calories you burn at rest in order to survive. It accounts for roughly 60 to 75% of all the calories you burn in a given day. That's right—you are actually burning a small amount of calories while you are sleeping.

Use the following website to determine your

BMR and daily calorie needs: www.bmi-calculator.net/bmr-calculator/.

Now that you've determined your daily caloric needs, you need to set a realistic goal of 1 to 2 pounds per week and determine how many calories you'll need to forgo to lose those pesky pounds.

What to Eat

As surprising as it might sound, managing your weight is easier than you might imagine. There is no need to spend hours planning your diet. Just follow several simple guidelines and keep the calorie deficit in mind.

- Reduce your portion sizes by 10 to 15% each time you prepare or order a meal.
- Eat smaller meals more frequently throughout the day and avoid skipping breakfast.
- Consume a variety of fruits and vegetables, whole grains, and non-fat or low-fat dairy products to get the nutrients your body needs.
- Aim for two or three servings of dairy products daily (e.g., milk, cheeses, yogurt).
- Select low-fat foods and avoid trans fats. Limit your total fat intake to 20 to 35% of daily calories, with no more than 7% of your total calories coming from saturated fats.
- Avoid eating too many salty foods.
- Limit alcohol beverage intake.

Cardio: Burn the Right Fuel

Research shows that lower-intensity exercise uses a larger percentage of fat as fuel compared to higher-intensity exercise. However, it does not burn as many calories as higher-intensity exercise and, consequently will not result in as much body weight or fat loss. Gradually increase the intensity to increase your caloric deficit while continuing to burn fats. Higher-intensity exercise also has a greater impact on keeping your metabolism elevated after your workout, which adds a few more calories to your deficit. Remember, always check with your doctor before starting an exercise program and choose the intensity that is appropriate for you.

Burn Fat With Muscle

Strength training offers many health benefits, including an increase in the number of calories burned. Muscle tissue burns more calories than fat tissue, and building muscles costs a lot of energy. As you increase the amount of muscle you have, you will also increase your resting metabolic rate. To prevent injury and develop consistency, start off with one to two sets of 12 to 15 repetitions for all major muscle groups.

Additional Resources

MyPyramid: www.MyPyramid.gov

About.com: www.exercise.about.com/cs/weightloss/a/howtoloseweight.htm

About.com: www.weightloss.about.com/od/eatsmart/a/blcalintake.htm

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Harris Benedict Formula

To determine your total daily calorie needs, multiply your BMR by the appropriate activity factor, as follows:

- If you are sedentary (little or no exercise): Calorie Calculation = BMR x 1.2
- If you are lightly active (light exercise/sports 1–3 days/week): Calorie Calculation = BMR x 1.375
- If you are moderately active (moderate exercise/sports 3–5 days/week): Calorie Calculation = BMR x 1.55
- If you are very active (hard exercise/sports 6–7 days a week): Calorie Calculation = BMR x 1.725
- If you are extra active (very hard exercise/sports & physical job or 2x training): Calorie Calculation = BMR x 1.9

Note: 2x = Two training sessions per day (e.g., cardio in the morning and resistance training in the evening)



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VEGETARIANISM AND ATHLETES

In response to increased levels of cholesterol and a greater risk of heart disease—or for countless other reasons—many Americans are making the switch from a diet dominated by hamburgers and hot dogs to one of veggie burgers and tofu.

But is this type of diet a wise choice for athletes who need to maintain their strength and stamina?

The answer to that question is a qualified “yes.”

Whether you are an athlete or moderately active, you must be aware of the nutritional implications of vegetarianism and choose foods that will provide you with enough calories and nutrients to keep you healthy and strong.

There are four basic types of vegetarians. The first, lacto-ovo-vegetarians, omit meat, fish and poultry from their diets, but include animal products such as eggs, milk, yogurt and cheese.

The second and third types of vegetarians are lacto-vegetarians and ovo-vegetarians. Lacto-vegetarians, while excluding eggs, do include dairy products. Conversely, ovo-vegetarians do include eggs, but exclude dairy products from their diets. Both types exclude all forms of meat. Finally, the restrictive vegan diet excludes all foods derived from animals in any form.

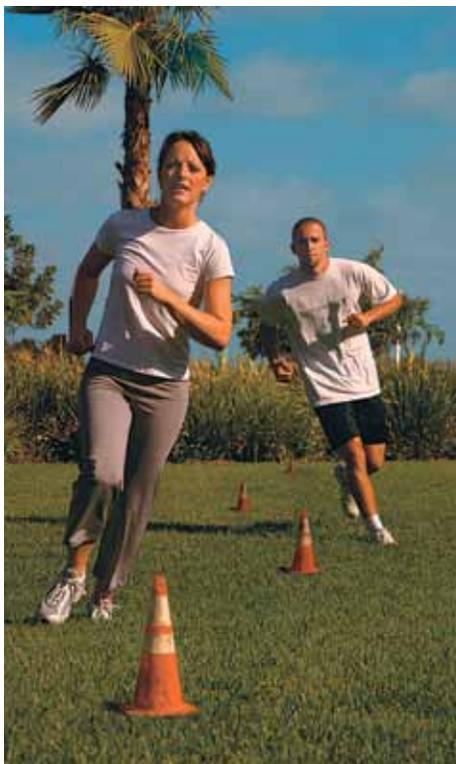
Regardless of what type of vegetarianism may be your preference, it is essential to have a good understanding of basic nutritional principles to choose a balanced diet.

Without this knowledge, vegetarians may find themselves deficient in nutrients generally derived from meat, eggs and/or dairy products, such as protein, iron, calcium and vitamins B12 and D.

Nutrient Know-how

Protein deficiency, though generally a rare occurrence in the Western world, is of concern, especially for vegans. Individuals who consume eggs or dairy products need not be worried about a protein deficiency.

Vegans, however, should include high-quality proteins such as legumes, nuts and seeds in combination with whole-grain breads and cereals. Soy products and other meat substitutes also are good sources of protein. This is particularly important for endurance and strength athletes, who have slightly higher protein requirements than the average adult.



For vegetarians who drink milk or eat dairy products, getting enough calcium and vitamin D should not be a problem. For others, calcium may be found in vitamin D–fortified soy products, tortillas, some nuts, sesame seeds and self-rising flour.

Iron, a nutrient abundant in meat, can be found in eggs, legumes, nuts, seeds and spinach. Two or more servings of these each day is recommended for the average vegetarian adult.

Getting enough vitamin B12, which is often found only in animal foods and nutritional supplements, can pose a serious problem for vegans, especially those who are pregnant. Because this vitamin can be stored in our bodies for up to four years, a deficiency takes quite some time to develop. Women who are vegetarians and are of childbearing age should discuss this important nutrient with a physician or registered dietician.

Getting What You Need

The high-fiber, low-calorie nature of most vegetarian foods may pose a problem for athletes. Very often the volume of vegetarian foods required to meet their energy needs is greater than their stomach’s capacity for food.

When energy reserves drop too low, the body will convert its own muscle or protein to compensate for the deficiency, leaving little left over for growth. Eating several smaller meals throughout the day or snacking on foods that contain both carbohydrates and some protein may be helpful.

Despite the previously mentioned concerns, studies have shown that individuals on vegetarian diets have lower blood cholesterol levels, better digestive function and lower occurrence of certain types of cancer. Before making the switch to vegetarianism, however, remember that it takes careful planning and nutritional knowledge to achieve a healthy, well-balanced diet.

Additional Resources

Applegate, L. (2002). *Encyclopedia of Sports & Fitness Nutrition*. Roseville: Prima Publishing.

Food and Nutrition Information Center, USDA—Vegetarian Nutrition: www.nal.usda.gov/fnic/etext/000058.html

Vegetarian Resource Group: www.vrg.org

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WARM UP TO WORK OUT

Suppose you were told that you only had to add an extra five to 10 minutes to each of your workouts to prevent injury and lessen fatigue. Would you do it?

Most people would say yes. Then they might be surprised to learn that they already know about those few minutes, which are called a warm-up. If done correctly, a pre-exercise warm-up can have a multitude of beneficial effects on a person's workout and, consequently, his or her overall health.

What happens in your body?

When you begin to exercise, your cardio-respiratory and neuromuscular systems and metabolic energy pathways are stimulated. Muscles contract and, to meet their increasing demands for oxygen, your heart rate, blood flow, cardiac output and breathing rate increase. Blood moves faster through your arteries and veins and is gradually routed to working muscles.

Your blood temperature rises and oxygen is released more quickly, raising the temperature of the muscles. This allows the muscles to use glucose and fatty acids to burn calories and create energy for the exercise. All of these processes prepare the body for higher-intensity action.

Specifically, a gradual warm-up:

- Leads to efficient calorie burning by increasing your core body temperature
- Produces faster, more forceful muscle contractions
- Increases your metabolic rate so oxygen

is delivered to the working muscles more quickly

- Prevents injuries by improving the elasticity of your muscles
- Gives you better muscle control by speeding up your neural message pathways to the muscles
- Allows you to comfortably perform longer workouts because all of your energy systems are able to adjust to exercise, preventing the buildup of lactic acid in the blood
- Improves joint range of motion
- Psychologically prepares you for higher intensities by increasing your ability to focus on exercise

Where to Begin

Your warm-up should consist of two phases:

- Progressive aerobic activity that utilizes the muscles that you will be using during your workout
- Flexibility exercises

Choosing which warm-up activity to use is as easy as slowing down what you will be doing during your workout.

For example, if you will be running, warm up with a slow jog, or if you will be cycling outdoors, begin in lower gears.

An ideal intensity for an aerobic warm-up has yet to be established, but a basic guide-

line is to work at a level that produces a small amount of perspiration but doesn't leave you feeling fatigued. The duration of the warm-up activity will depend on the intensity of your workout as well as your own fitness level.

After the aerobic warm-up activity, you should incorporate flexibility/stretching exercises. Stretching muscles after warming them up with low-intensity aerobic activity will produce a better stretch, since the rise in muscle temperature and circulation increases muscle elasticity, making muscles more pliable. Be sure to choose flexibility exercises that stretch the primary muscles you will be using during your workout.

Make the Time

To fully reap the benefits of the time you are spending exercising, you must warm up. Taking those extra few minutes to adjust to increased activity will ensure a better performance from your body and, in turn, will make your workout more efficient, productive and, best of all, enjoyable.

Additional Resources

About.com: www.exercise.about.com/od/exerciseforbeginners/a/anatomyworkout_3.htm

About.com: www.sportsmedicine.about.com/cs/injuryprevention/a/aa071001a.htm

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WEIGHT LOSS: DIET VS. EXERCISE

The two major players in the weight-loss battle are diet and exercise. But can the battle be won using only one of these tools? Many people opt for the easier route, which they believe is dieting. But when you consider how poor the statistics are for long-term weight loss through diets, you need to consider a combination of both. Normally, only about 5% of dieters are successful in keeping weight off, and weight cycling is very common. Usually one-third of weight lost is regained within one year and almost all is regained within three to five years.

How Weight Loss Works

The mechanism of weight loss is simple. It is encompassed in a concept called energy balance. When you burn more calories than you consume, you lose weight. Therefore, to lose weight you need to burn more calories and/or consume fewer calories. The combination of both of these methods is the best way to lose weight and improve your health.

How the Pros Do It

Members of the National Weight Control Registry are people who have lost weight and kept it off successfully for a minimum of one year. Of these people, 89% use a combination of diet and exercise, although 10% have had success using diet alone and 1% used exercise alone. However, research shows that the combination of exercise and diet is more effective than diet alone. Furthermore, while diet alone helps you lose weight, it is exercise that improves your physical fitness.

Getting Started

Combining diet and exercise can be tricky when you're trying to cut calories. It is impor-

tant to make sure that you eat enough so that you have energy to get through your workout, but not so much that you tilt your energy balance back to the weight-gain side.

While guidelines suggest 1 to 2 pounds of weight loss a week, you should set a goal that is both realistic and manageable for your lifestyle and fitness level. Overly aggressive goals often lead to attrition and failure.

Your diet should consist of low-fat food choices and a modest reduction in the total number of calories. Without overwhelming yourself with odd foods and food labels, try simply reduce your food portions by about 10 to 15%. Try to be consistent across the week, instead of dieting more strictly on certain days of the week.

With exercise and activity, people who successfully maintained weight loss exercised an average of an hour or more per day. Longer-duration exercise is usually needed to lose weight and prevent weight re-gain. However, this may be too much for you to begin with, so start small and gradually progress the duration of your activity by 10% each week. For example, increase the duration of your walks from

20 minutes during week one to 22 minutes the following week.

Staying Motivated

Changing your diet and exercise habits involves lifestyle modifications, but maintaining these lifestyle changes can be the real challenge. Many people can lose weight, but only a few can maintain that weight loss. Much of this is due to the fact that the lifestyle modifications made to lose weight need to be permanent. It is normal to regain a few pounds after your initial weight loss. The key is to not get discouraged and stay motivated. The smaller the amount of weight that you regain, the easier it is to lose again, permanently. So frequent monitoring of your weight is necessary to catch yourself when you start to regain weight. Keep in mind that the longer you keep weight off, the easier it becomes. For weight loss to be sustainable, it must be a slow process of 1 to 2 pounds of weight loss per week. Stay focused and goal-oriented and know that successful weight loss is possible!

Additional Resources

The National Weight Control Registry:
www.nwcr.ws

About.com: www.exercise.about.com/od/weightloss/a/shortcuts.htm

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WEIGHT LOSS PLATEAUS AND PITFALLS

It's kind of like running into a wall—that feeling you get when, after a few months on a weight-loss program, you suddenly stop seeing results.

This is called hitting a plateau and it is not uncommon. In fact, unless you continually update your program to reflect the changes your body has already experienced, you can almost be guaranteed to plateau at some point along your journey toward reaching your goal weight.

Weight-loss Woes

The first thing you should do upon hitting a plateau is try to determine the cause. Could you be eating more calories than you think? Research shows that most people under-report the number of calories they eat—it's not that they're lying; they just don't know how to make an accurate assessment of how much they're eating. And even if you're eating fewer calories than before you lost the weight, you could be eating just enough to maintain your current weight at your current activity level.

Unfortunately, people's bodies adjust their metabolism to resist weight change. This means that you burn fewer calories when you start consuming fewer calories. So, while a diet of 1,800 calories per day helped you lose a certain amount of weight, if you've hit a plateau, it could be that 1,800 calories is the exact amount you need to stay at your current weight.

Exercise Your Options

This leaves you with two options: Lower your caloric intake further or increase the amount of time you spend being physically active.

The first option is less desirable because you may not be able to get sufficient nutrients from a diet that is very low in calories (e.g., below 1,200 kcal in women and 1,500 kcal in men) and it is difficult to stick with it for very long. It is much better to moderately reduce calories to a level that you can sustain when you reach your goal weight.

The same is true for exercise. Trying to exercise for several hours per day to burn more calories is a good way to set yourself up for fail-



ure. Not only does this type of regimen require an enormous time commitment, it is hard on the body, making you more susceptible to injury and overuse syndromes.

Instead, aim for 30 minutes of moderate activity most of the days of the week and, as you become more fit, gradually increase the intensity and duration of your exercise sessions. Choose activities that you find enjoyable, whether that be in-line skating, step classes or even mall walking. The most effective exercise is the one you will do consistently.

Another means for getting you off the plateau is strength training, which has been shown to be very effective in helping people manage their weight because the added muscle helps to offset the metabolism-lowering effect of dieting and losing weight. Muscle is much more metabolically active than fat; therefore, the more muscle you can add, the higher your metabolism will be.

To help balance the intake with the expenditure, a good rule of thumb is to multiply your

goal weight by 10 calories per pound, and add more calories according to how active you are.

For example, if your goal weight is 145 pounds, then multiple it by 10 to reach 1,450 kcal as a baseline, adding calories as needed to account for increased activity. Check out the ACE Fit Fact titled "Calories Burners: Activities That Turn Up the Heat" to estimate the caloric demand of your workout. Again, be realistic. Don't attempt too much in an effort to burn more calories.

Get Off the Plateau

If you've stopped losing weight, the key to getting off the plateau is to vary your program. The human body is an amazing piece of machinery, capable of adapting to just about any circumstance or stimulus. By shaking things up a bit and varying your program by introducing some new elements, you'll likely find yourself off the plateau and back on the road to progress in no time.

Additional Resources

ACE Fit Fact: "Calorie Burners: Activities That Turn Up the Heat" www.acefitness.org/fitfacts

About.com: www.weightloss.about.com/cs/moretips/a/aa031501a.htm

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WHAT YOU NEED TO KNOW TO PURCHASE A TREADMILL

According to industry data, treadmills consistently rank as the most popular choice for home aerobic exercise equipment.

If you've decided to join the ranks of treadmill owners, there are a number of factors to consider to ensure that you purchase a machine that meets your needs.

There are a multitude of treadmills on the market, with prices ranging from \$499 to \$4,000+. You are likely to find that a treadmill's cost directly reflects its quality.

Before you leave your home, measure the space in which you'd like to keep the treadmill. While the average treadmill measures 64 inches long and 28 inches wide, there are machines that fold up to be stored under a bed or in a closet.

Drive to the nearest fitness-equipment specialty store, where the staff will be knowledgeable and you can choose from a wide variety of machines. Wear a comfortable pair of athletic shoes—the same pair you'll wear as you exercise on the machine at home.

Consider three key elements as you shop: construction, programming features and the warranty.

Construction

First, look at the treadmill's motor size (measured in horsepower) to determine the machine's longevity. Some manufacturers measure horsepower at continuous duty (the motor's ability to function under a load for an extended period of time), others at peak duty. Look for a motor with a minimum 2.0 continuous-duty horsepower motor, which will accommodate users who weigh more than 180 pounds.

Next, examine the treadmill's belt and deck. The belt should be at least two-ply, 17 inches wide and 49 inches long. The board thickness should measure at least an inch.

The deck acts as a cushion for the joints, legs, back and feet. The most sought-after treadmills feature low-impact decks that flex under the user's foot plant to absorb the shock without rebounding to cause additional jarring. This feature is essential for individuals with shin splints and foot and back problems.

A sturdy frame supports the belt and deck system. Treadmills that cost between \$499 and \$1999 usually have a steel frame; treadmills with a price of \$1999 or higher often are constructed with aircraft aluminum frames that offer additional flexibility for impact absorp-

tion. Aluminum frames don't rust or corrode and are lighter and easier to move.

Programming Features

Lower-priced treadmills offer basic programming for variable speed, time, distance and calories. However, they seldom utilize user information, and the calorie counters aren't very accurate.

The quality of the programming features, such as preset programs that automatically vary the workout intensity by raising or lowering elevation and increasing or decreasing speed, rises with price. Heart-rate control programs are convenient features that consider the user's age and weight and keep the exerciser at an intensity sufficient to achieve maximum fat-burning or cardiovascular benefits.

Other programming options include incline/grade settings. A maximum grade of 10% may challenge beginning exercisers, while experienced exercisers may need a treadmill that reaches a 15% grade.

Warranty

Most manufacturers warranty against manufacturing defects only, not normal wear and tear, and if a user weighs more than the machine's specifications, a warranty may be voided. Many machines come with a lifetime warranty on the frame, while warranties on features and components usually range from 90 days to three years, depending on the machine's quality.

Higher-end machines often come with a one-year in-home labor contract. You can purchase renewable extended warranties that cover everything from parts to labor.

Don't Give the Man Your Money Yet

Is the machine loud? Do you like how it looks? Does it offer a smooth ride? Is it easy to operate? Remember, this product will be around for a long, healthy time, so determine what you want and need from it before you even begin shopping to prevent a regretful purchase.

Why Treadmills Are Ranked #1

In 1996, the *Journal of the American Medical Association* reported that, based on a study from the Medical College of Wisconsin and Veterans Affairs Medical Center in Milwaukee, treadmills provided the most efficient way to burn calories when compared to other popular exercise machines.

Researchers asked eight male and five female young adults to exercise on six different types of indoor exercise machines, including a cross-country skiing simulator, cycle ergometer, rowing ergometer and stair stepper. They compared energy expenditure at ratings of perceived exertion (RPE) levels of 11 (fairly light), 13 (somewhat hard) and 15 (hard), and found that subjects who exercised at an RPE of 13 burned approximately 40% more calories per hour on the treadmill as compared to the cycle ergometer, which produced the lowest energy expenditure.

Additional Resources

About.com: www.walking.about.com/cs/treadmilling/bb/bybtreadmill.htm

Consumer Reports: www.consumerreports.org/health/health-fitness/exercise-wellness/treadmills/reports/how-to-choose.htm

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CHILDREN AND RUNNING

You know it's important to help your kids develop the exercise habit so they can grow to be healthy, active adults.

So, if your children have expressed an interest in running or a desire to participate in a race or two, don't discourage them! Running is a great natural sport that requires very little equipment.

The important thing is to let them determine their own pace and to run only if it's fun and enjoyable.

A Few Precautions Before Getting Started

Check with a physician to rule out any physical limitations that may prevent your child from participating in a running program. Keep in mind that children's bodies, although young and energetic, are not capable of performing at the same level as an adult's.

For example, kids are more sensitive to heat, so it is essential that they drink plenty of water and avoid running in the heat of the day. "Children have a higher body mass to skin surface ratio and may not be able to dissipate heat as well as adults," says Dr. Gabe Mirkin, a board-certified specialist in sports medicine and pediatrics.

As muscles begin to heat up, it is okay to begin running. Also, show them how to stretch their calves, hip flexors and hamstrings after cooling down at the end of each run.

Finding Their Form

Since running is a natural action, most children will develop their own form. Encourage your child to relax his or her hands and face while running. A scrunched face and clenched fists indicate tension, which usually means the intensity is too high and the child is straining rather than having fun.

Like adults, kids should be able to carry on a conversation while running and should be able to smile. Urge them to slow down if necessary and keep their shoulders relaxed while steadily and smoothly swinging their arms.

To help them avoid slapping their feet on the ground, have children imagine running on light feet. For example, rather than pounding like a herd of elephants, tell them to run as if they are angels running on clouds or tigers running very lightly so they don't scare their prey.

How far should they go?

Children will gauge their own limitations, so always listen when they say it's time to stop. Children should run only as far as they are comfortable.

Lyle Mitcheli, M.D., director of the Division of Sports Medicine at Children's Hospital in Boston, recommends that children under the age of 14 run no farther than three miles at a time. The reason, he says, is that bones are still growing and the growth cartilage at the ends of the bones is softer than adult cartilage and more vulnerable to injury.

Don't put pressure on your child to run. Encourage kids to come with you on short runs, but keep the pace slow enough that they can talk to you, and stop when they are tired. Kids should not begin running races above 5 kilometers (3.1 miles) until they are at least of high school age.

Most marathons will not allow athletes under the age of 18 to enter due to possible skeletal injuries.

Although running requires minimal equipment, it is important to invest in some supportive running shoes for your children. Look for a high-quality shoe that is made for running, with proper cushioning in the forefoot and heel, as well as arch support. Depending on how often your child runs, replace running shoes as soon as they show signs of breakdown, which usually occurs after about three months.

Set Attainable Goals

For children, the goal of running is to stay in shape and have fun, with a greater emphasis on the fun. Running fast or winning races is less important and may cause children to dislike exercise or abandon it altogether.

Focus instead on improving your children's self-esteem by praising their efforts and helping them reach their goals. Chances are that if they enjoy running and feel a sense of pride when they are finished, they will remain active for life.



Additional Resources

Pediatrics—Overuse Injuries, Overtraining, and Burnout in Child and Adolescent Athletes: www.pediatrics.aappublications.org/cgi/content/full/119/6/1242

Runner's World—Kids' Running Guide: www.runnersworld.com/article/0,7120,s6-238-267-11828-0,00.html

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CROSS-TRAINING FOR FUN AND FITNESS

Tired of the same old workout? Looking for a level of fitness that your current exercise routine can't offer? Are you experiencing nagging injuries that just don't seem to heal? If you answered yes to any of these questions, you are a likely candidate for cross-training.

Cross-training is simply a way of adding variety to your exercise program. You can vary your aerobic routine and incorporate some muscular strength and flexibility training as well.

And if you think cross-training is new, think again. Athletes have been cross-training since the days of the Olympic decathlons and pentathlons of ancient Greece. The past decade has seen the popularity of the triathlon reach international proportions, introducing the concept of cross-training to even the most recreational athletes.

What's the point?

The benefits of cross-training are numerous. It reduces the risk of injury because the same muscles, bones and joints are not continuously subjected to the stresses of the same activity.

Cross-training also adds variety to your workouts, making your routine more interesting and easier to stick with. For the athlete, it provides a break from the rigors and stresses of single-sport training. Cross-training will improve your overall fitness and, over an extended period of time, may ultimately lead to improved performance.

The Nuts and Bolts of Cross-training

Whether you are new to exercise or a competitive athlete, the essentials of cross-training are the same. You can choose to vary your routine from workout to workout, or simply add a new component to your existing exercise program.

One of the easiest ways to start cross-training is to alternate between activities—walking one day and swimming or bicycling the next. Or, you can alternate these activities within a single workout, spending five minutes on a treadmill, five minutes on a stationary cycle, and so on for a total of 30 minutes.



More experienced exercisers might begin an hour-long workout with a 15-minute jog to a nearby pool. After a 20-minute swim and perhaps a few minutes of calisthenics, they can finish off their workout with a 15-minute jog back home and several minutes of flexibility exercises.

Get Creative With Cross-training

If you're looking to increase your endurance level, try alternating low-level aerobic activities, such as 20 minutes of stationary cycling, with 10 minutes of higher-intensity exercise, such as stair-stepping or jumping rope. Gradually increase the amount of time you spend on the more intense activity.

These formulas can be used with just about any type of activity—as long as you enjoy it.

Combining a group of aerobic activities into one workout at steady or varying intensities is an excellent way to fight the boredom that comes from performing the same daily workout routine.

All exercise sessions, whether they involve cross-training or not, should begin and end with low-level aerobic exercise and stretching to effectively warm up and cool down. And remember, it's always a good idea to check with your doctor before beginning a new exercise program.

Additional Resources

Cross Training Improves Fitness and Reduces Injury: www.sportsmedicine.about.com/od/tipsandtricks/a/Cross-Training.htm

Mayo Clinic—Cross-training: Rev up Your Exercise Program With Variety: www.mayoclinic.com/health/cross-training/SM00112

American Academy of Orthopedic Surgery—Cross Training: www.orthoinfo.aaos.org/topic.cfm?topic=A00339

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