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Strength Training for Kids: A Guide for Parents and Teachers

MANY PARENTS AND PHYSICAL EDUCATION TEACHERS HAVE TRADITIONALLY SHIED AWAY FROM STRENGTH TRAINING WITH THEIR CHILDREN OR STUDENTS. HOWEVER, THERE IS SUFFICIENT RESEARCH TO SUGGEST THAT STRENGTH TRAINING IS A SUITABLE—AND SAFE—OPTION FOR MOST YOUTH.



CORRECTING THE MISCONCEPTIONS

There are a number of common myths about [youth strength training](#) that continue to cause concern among parents and educators. Two of the most common misconceptions are that strength training may stunt the growth of children and that children should not lift weights until they are 12 years old. There is simply no evidence to support either of these statements. In fact, all of the major fitness and medical organizations in the U.S. recommend strength training for youth, assuming that basic guidelines are adhered to and that appropriate leadership is present. And about the question of age, children can begin to train with weights as soon as they are able to accept and follow directions—usually around the age of seven or eight.

THE BENEFITS

The benefits of youth strength training are similar to those for adults, though the importance of getting an early start cannot be overemphasized—the most important benefit of any youth fitness program is an improved attitude about lifelong activity. Improvements in muscular fitness, bone mineral density, body composition, motor fitness performance and injury resistance should be compelling evidence for all parents, though children will likely focus on things like enhanced sports performance and the social aspects of exercise. In fact, children don't usually have the ability to comprehend long-term concepts until the ages of 11 to 14, so abstract ideas like healthy bones and disease prevention will do little to motivate them, and may in fact de-motivate some children. Stick with ideas like self-improvement and individual success, and always make sure everyone is having fun. Fun is the number one motivator in almost every aspect of a child's life.

Another compelling argument for youth strength-training programs is that significant improvements have been seen in the self-esteem, mental discipline and socialization of children who participate. Think back to your days in P.E. What games did you play? What types of physical attributes and skills were most often rewarded with success? Most likely, you are thinking of team games that featured speed, agility, jumping ability and overall athleticism. And those things should be rewarded! But a glaring omission in that list is muscular strength, and it is often overweight and obese children who will excel in that area. Weight training provides an opportunity to let children who typically struggle with group activities stand out from their classmates and perform well on an individual basis. What a tremendous way to boost self-esteem in the children who need it most.

HOW TO GET YOUR KIDS STARTED

It is important that parents and teachers do not impose training techniques and philosophies on children just because they may have worked for their own routines. Listen very closely to kids' concerns and address them with care. Instructor attitude is of the utmost importance when working with kids. Start slowly and lean toward underestimating rather than overestimating the strength of young exercisers. Not only is it safer to do so, but it also leaves plenty of room for progress—and tangible progress is essential in the early stages of a youth strength-training program. The initial focus should be on developing good form and learning the basics of strength training.

Introduce children to a variety of exercises and types of resistance. Most kids love to learn new things, so working with [medicine balls and resistance tubing](#) in addition to the more traditional free weights and machines is a great idea—and a much more affordable one. Just be sure that all the major muscle groups are addressed in a balanced, full-body workout.

Finally, remember that your goals when exercising with children are simple: Be safe, have fun and help kids learn to love physical activity.

ADDITIONAL RESOURCES

American Council on Exercise—[Youth Strength Training](#) by Avery D. Faigenbaum & Wayne L. Westcott

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Exercise and Type 2 Diabetes

THE INCIDENCE OF TYPE 2 DIABETES IS ON THE RISE, WHICH EXPERTS LARGELY ATTRIBUTE TO THE RISE IN OBESITY. TYPE 2 DIABETES, WHICH IS RESPONSIBLE FOR 90 TO 95% OF ALL DIABETES CASES, IS MORE COMMON IN ADULTS, BUT AS RATES OF CHILDHOOD OBESITY INCREASE, MORE YOUNG CHILDREN ARE BEING DIAGNOSED WITH THE DISEASE. THE GOOD NEWS IS THAT SIMPLE LIFESTYLE CHANGES CAN PREVENT AND, IN SOME CASES, COUNTER THE COURSE OF THIS DISEASE.

TYPE 2 DIABETES EXPLAINED

Following digestion, a hormone called insulin is released into the blood from the pancreas. Among insulin's primary roles is its ability to allow carbohydrates (absorbed in the form of glucose) and proteins to enter muscle cells, where they are stored or used for energy. With type 2 diabetes, some insulin is produced, but the body does not effectively use it. This condition is known as “insulin resistance” and prohibits glucose from entering the cells. In turn, blood glucose rises to abnormal levels in the blood. If unchecked for extended periods, elevated glucose levels lead to heart disease, kidney failure, blindness and nerve dysfunction.

Type 2 diabetes is strongly linked to lifestyle factors, especially diet and exercise. People at highest risk of developing type 2 diabetes have a family history, as well as other cardiovascular risk factors, such as high blood pressure, high cholesterol, obesity and a sedentary lifestyle.

However, the same techniques that are used for prevention of this disease—a healthy diet and regular exercise—can be used to control and possibly reverse its progression.

EXERCISE CAN HELP

The latest research has put exercise at the forefront in the prevention, control and treatment of diabetes because it decreases insulin resistance. Following regular exercise training, cells can better respond to insulin and effectively take glucose out of the blood and into the cell. Exercise also helps to decrease the risk of cardiovascular disease by decreasing blood pressure, cholesterol levels and body fat.

EXERCISE RECOMMENDATIONS

If you have type 2 diabetes, you should adhere to the following exercise guidelines:

Always consult with your physician before starting any exercise program to determine the potential risks associated with exercise.

Cardiovascular exercise—Strive to accumulate a minimum of 1,000 kcal expended through physical activity each week. Pending current conditioning levels, this may require three to seven days per week of low-to-moderate intensity exercise for 20 to 60 minutes (walking and other non-weightbearing activities such as [water aerobics](#) and cycling are good choices). Daily exercise is highly recommended.

Resistance training—Perform [resistance-training](#) activities at least two days per week, targeting the major muscle groups. Complete a minimum of one set of 10 to 15 repetitions of each exercise at a low-to-moderate intensity.

Flexibility—Perform [stretching exercises](#) at least two to three days per week, stretching major muscle groups to the point of tension (not pain) for 15 to 30 seconds. Complete two to four repetitions of each stretch.

The ultimate goal is to expend a minimum of 1,000 calories per week via physical activity for health benefits, or 2,000 calories per week for weight loss. Keep in mind that these are goals that you should work up to gradually over time.

WHAT ARE THE PRECAUTIONS?

If you have type 2 diabetes, you must monitor your glucose before and after exercise to understand how you respond to certain types of activities. Also, exercising with a partner and wearing an ID bracelet indicating one's diabetic condition are very important.

Finally, don't forget to check with your physician prior to beginning a physical-activity program and return regularly to assess the diabetic complications. If complications of the eyes, kidney or heart are present, your physician should provide you with clear boundaries regarding the intensity of any physical activity.

ADDITIONAL RESOURCES

[American Diabetes Association](#)

[Centers for Disease Control and Prevention](#)

[Mayo Clinic](#)

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Physical Education = Strong Bodies, Strong Brains

ONCE UPON A TIME, EXERCISE WAS A NORMAL PART OF EVERY CHILD'S LIFE—LONG WALKS TO AND FROM SCHOOL, DAILY PHYSICAL EDUCATION CLASSES (OR RECESS), AND NEIGHBORHOOD GAMES OF TAG AND DODGEBALL KEPT YOUNG BODIES HEALTHY AND STRONG. THOSE DAYS CAN SEEM LIKE A DISTANT MEMORY AS COMPUTERS AND VIDEO GAMES HAVE REPLACED OUTDOOR ACTIVITIES, AND THERE ARE FEWER SAFE PLACES TO PLAY.

And unfortunately, physical education is now viewed as an expendable part of the educational curriculum. Yet there is no question that children need to be physically active to not only stay healthy and reduce their chances of becoming an overweight teen or adult, but to perform optimally in school as well.

WHERE HAVE ALL THE P.E. CLASSES GONE?

With increasing pressures to improve standardized test scores while also reducing budgets, schools across the country have virtually eliminated physical education programs. In fact, as of 2006, only 3.8 percent of elementary schools and 2.1 percent of high schools still offered daily physical education classes. This is particularly discouraging given the growing body of scientific evidence linking regular participation in physical activity with improved academic performance. Here are some recent findings:

- Nearly 250 elementary students given a daily 10-minute activity break increased on-task behavior by an average of 8 percent.
- A U.S. study of nearly 12,000 adolescents revealed that, when compared to their sedentary peers, students who participated in P.E., team sports or played sports with their parents were 20 percent more likely to earn "A's" in math or English.
- The fitness levels of more than 300 middle school students were evaluated and those who were the most fit performed better academically as well.
- An analysis of the standardized fitness and academic test results for nearly 900,000 5th, 7th, and 9th graders revealed a strong positive correlation between physical fitness and academic achievement.

Additional research suggests that, compared to control groups, students who spend more time in school-based physical activity or P.E. (and therefore less time in the classroom), actually maintain or improve their grades and standard achievement test scores.

LIKE "MIRACLE-GRO" FOR THE BRAIN

Dr. John Ratey, a Harvard clinical associate professor of psychiatry, argues that not only is more physical activity essential for reducing the [incidence of obesity](#), but it helps improve kids' academic performance as well.

"I cannot understate how important regular exercise is in improving the function and [performance of the brain](#) . . . [It] stimulates our gray matter to produce Miracle-Gro for the brain," Ratey writes in his book, *Spark: The Revolutionary New Science of Exercise and the Brain* (2008, Little, Brown). Exercise, Ratey explains, prompts the release of proteins into the bloodstream that increase the production of brain chemicals that improve the connections between existing neurons and helps trigger the formation of new ones. Levels of other neurotransmitters, including dopamine, serotonin and norepinephrine, also

are elevated after strenuous exercise, helping to increase focus and induce feelings of calmness. "It's like taking a little bit of Prozac and a little bit of Ritalin," says Ratey.

ENCOURAGING PHYSICAL ACTIVITY IS EVERYONE'S RESPONSIBILITY

There are some positive signs that support for school-based physical education programs is increasing. Newly introduced legislation seeks to increase the amount of required time allotted for physical activity and recess, and several on-school fitness centers are helping students improve both their grades and overall health. After all, the benefits of physical activity extend well beyond academic performance. In addition to being less likely to be overweight, physically active children also have fewer chronic health problems than kids who are sedentary. They also are better able to meet the demands of daily physical activity and have a stronger self-image and more self-confidence.

When you consider the facts, it makes good sense to encourage physical activity among kids—both in school and at home. Parents, teachers and coaches all have a role to play. Each of us can help kids think positively about exercise and motivate them to make regular physical activity a lifetime pursuit.

ADDITIONAL RESOURCES

ACE Fit Fact: [10 Fun Summer Fitness Activities for Kids](#)

ACE Fit Fact: [Teens, Fitness and You](#)

[Active Living Research](#)



American Council on Exercise® is a nonprofit organization dedicated to empowering people to live their most fit lives. In addition to offering quality certifications and education for fitness professionals, ACE also protects the public against ineffective products, programs and trends by arming them with unbiased, science-based health and fitness information. To learn more about ACE, or how you can use or purchase Fit Facts, visit ACEfitness.org/FitFacts.

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Reducing Workplace Stress

DO YOU HAVE A DEMANDING BOSS OR DIFFICULT CO-WORKERS? STACKS OF WORK TO GET DONE AND NOT ENOUGH TIME? EVERYONE ENCOUNTERS JOB STRESS SOONER OR LATER — BUT THAT DOESN'T MAKE IT EASIER. THERE ARE MANY ASPECTS OF YOUR WORK ENVIRONMENT THAT YOU HAVE NO CONTROL OVER — BUT YOU CAN TAKE ACTION TO MANAGE STRESS SO THAT WORK DOESN'T TAKE A TOLL ON YOUR WELL-BEING.

STRESS MATTERS

Workplace stress has been linked to serious health problems — including heart attack. Your body releases greater amounts of the hormone cortisol in response to stress — stimulating an increased appetite for high-fat, high-sugar foods, and increasing fat storage in the abdomen. A study of workers coping with corporate restructuring and layoffs revealed that chronic job stress led to weight gain. Not surprisingly, consumption of high-fat, high-calorie vending machine snacks went way up during the most stressful periods. Research also shows that intense job stress is an independent risk factor for high blood pressure at work, home, and even while sleeping.

WORK MINDFULLY

Mindfulness is a way of zeroing in on the here and now instead of ruminating over the past, mulling over the future, or doing several things at once. Give your full attention to the task at hand, whether it's a call, a meeting, or a project. Scrolling through your messages while on a phone conference may feel productive — but in the long run, multitasking will only add to your stress and drain your energy.

BE NICE

Get to know your co-workers by asking about their weekends, inviting their opinions, and eating lunch together. Collegial co-worker relationships make the workplace more pleasant for everyone —and studies even show that a positive outlook is contagious. Offer genuine compliments. Smile frequently — it'll boost your mood and encourage those around you to lighten up.

COMMUNICATE WELL

Miscommunication is the root of many workplace conflicts. Clarify details and expectations for every job task. Check for understanding if you're the one dishing out assignments.

Annoying co-workers are best dealt with immediately and directly — or the behavior may get worse. If your co-worker distracts you with loud, lengthy personal calls, talk with her privately instead of just getting frustrated. If it continues, speak with your manager.

SHAKE IT OFF

You can let yourself get wound up and upset about things that happen at work — or you can respond differently. Instead of stewing about a project that was dumped on you, could you view it as an opportunity to showcase your skills, talent, and

teamwork — or speak with your supervisor? Instead of letting one grumpy customer get you down, can you focus on the 50 grateful customers you helped today? Take a few full, deep breaths to clear your mind and proceed down a more positive path.

PRACTICE SMART SELF-CARE

Regular exercise and good nutrition — along with time for fun and relaxation — boosts your ability to cope with stress. And when you're well-rested, stressors are more manageable. Consider taking a walk at break time, or meeting a friend for lunch. Learn [relaxation breathing](#) and [stretching exercises](#) to do at your desk. Choose high-energy, nutritious foods for meals and snacks. Cultivate a healthy sense of humor; look for the laughable moments in everyday life at work.

GET HELP

If your best efforts don't reduce your stress and talking with your manager doesn't help, seek advice from your human resources department or employee relations representative. Some employers offer employee assistance programs (EAP) that provide confidential, 24/7 phone consultation with professional counselors for personal matters and workplace issues. If your employer offers this benefit, don't hesitate to use it.

MAKE A CHANGE

Life is too short to spend it in a toxic workplace — and living with chronic stress isn't a long-term solution. No job is stress-free, but if your current job isn't a good match for your interests, talents, and goals, create a plan to move on. Paint a realistic picture of your dream job by talking with others in your desired line of work before you make the leap.

ADDITIONAL RESOURCES

[The American Institute of Stress](#)

[UCLA Mindful Awareness Research Center](#)

[University of Pittsburgh Medical Center](#)

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Helping Your Family Become More Active

WHAT CAN YOU DO WHEN THE PEOPLE YOU LOVE THE MOST SEEM STUCK IN A PATTERN OF SEDENTARY LIVING? MAYBE YOU'D LIKE TO BE MORE ACTIVE, TOO? IT CAN BE TOUGH TO STICK WITH A FITNESS ROUTINE WHEN YOU'RE THE ONLY PHYSICALLY ACTIVE PERSON IN YOUR HOUSEHOLD. THERE ARE WAYS TO HELP YOUR FAMILY BUILD A HEALTHY, ACTIVE LIFESTYLE.



START WITH A HEART-TO-HEART

Helping kids become more active is much easier when both adults are on the same page. Sit down with your spouse or partner and share the reasons why you want your family to spend more time moving and less time sitting around, which may include:

- Reduced risk of type 2 diabetes, heart disease, overweight, obesity, and stroke for both kids and parents.
- More energy and endurance to do fun, active things together as a family, such as travelling, hiking, bicycling, or camping.
- Helping your children and teens develop a lifelong habit of physical activity for optimal well-being.
- Fostering good brain health. Studies show that regular exercise optimizes conditions within the brain for learning, concentration, and critical thinking. It's a natural mood elevator and has shown to prevent dementia and other age-related declines of brain function.
- Promoting a positive body image.
- Come up with a game plan and cultivate a new family culture of physical activity.

FOCUS ON FUN

When you love somebody, you want the best for him or her, including the best of health. Despite your good intentions, your kids and spouse may or may not be interested or ready to become more physically active. Nagging can push people in the opposite direction.

Why not appeal to their sense of adventure instead and look for fun ways to be active as a family? What about going to the playground, swimming, bowling, canoeing, hiking, or bird-watching? Through these types of experiences, families can learn that being active is much more fun and rewarding than sitting in front of a computer or TV screen.

ENCOURAGE ACTIVE PLAY

Adults and children alike benefit from active play and unstructured time for recreation, discovery, and enjoyment. Whether or not you have a yard, keep a simple supply of basic sports equipment on hand, such as balls, mitts, badminton racquets and birdies, hula hoops, and Frisbees®. If you don't have outdoor space to play at home, take your gear to a local park, school, or community center for some old-fashioned family fun.

If your family loves video games, opt for systems that involve physical activity. While this is no substitute for regular vigorous exercise, these

interactive games are more beneficial than traditional video games that involve only finger and wrist movements.

LIMIT SCREEN TIME

More than 2/3 of all American children have television sets in their bedrooms. Average daily screen time for kids ages 8-18 is over the top—with 4.5 hours of watching TV; 1.5 hours spent in front of the computer; and 1 hour spent playing video games. That comes to almost 7 hours a day spent in front of the screen.

Prolonged screen time has been linked to an increased risk of developing serious medical problems, such as type 2 diabetes, heart disease, and metabolic syndrome, even if exercise is involved. Experts recommend limiting screen time to 2 hours a day or less outside of work or homework; and that applies to grown-ups too.

A LASTING GIFT

Set a good example for your family by limiting your own screen time and becoming as active as possible. Parents are powerful role models. Chances are good when your kids see you having fun working out, they'll want to join you.

Helping your family move more and sit less is a powerful act of love. A lifelong habit of physical activity will create healthier and happier families, and may even expand your longevity. What better gift to share with the ones you love?

ADDITIONAL RESOURCES

[Centers for Disease Control and Prevention](http://www.cdc.gov)

[Let's Move](http://www.letsmove.gov)

[National Heart, Lung, and Blood Institute](http://www.nhlbi.nih.gov)

FitFacts®

Skip the Food Fights: 10 Ways to Get Kids to Eat Healthier

RESEARCH SUGGESTS THAT IF WE WANT OUR KIDS TO EAT HEALTHFULLY, WE HAVE TO RETHINK OUR STRATEGIES. HERE ARE 10 TIPS BASED ON THE LATEST RESEARCH AND EXPERT OPINION THAT WILL HELP EVEN THE PICKIEST OF EATERS TO EAT HEALTHIER.



- 1. Model healthy eating.** One of the most important actions you can take to help your children eat healthier is for you to eat healthier. In one study, parental modeling was associated with increased milk, fruit juice and vegetable intake.
- 2. Eat together.** Not only are [family meals](#) generally more nutritious for children, eating together also offers an opportunity to socialize about food and eating, and model healthy behaviors. Even if it is only twice per week, planning family meals into a weekly routine goes a long way toward helping children to develop healthier eating habits.
- 3. Increase exposure to healthy foods.** One of the best ways you can help your children develop healthy eating habits is to repeatedly expose them to a wide variety of foods. Just because a child shuns a food once, do not label it “rejected.” Instead, continue to reintroduce it and expect that it may take up to 15 times before the child will accept it.
- 4. Let them choose the portion size.** Several studies suggest that you can empower your kids to let their internal cues of hunger and fullness guide how much they eat by allowing them to choose their own [portion sizes](#).
- 5. Share the control.** Requiring your children to consume a particular food to receive a “reward” such as a dessert is more likely to increase their dislike of the food they are required to eat, while increasing their desire for the typically unhealthy “reward” food. Higher levels of parental control and pressure to eat also are associated with lower fruit and vegetable intake and higher intake of dietary fat.
- 6. Refuse to be a “short order” cook.** Picky eaters can wreak havoc on an enjoyable family meal, compelling some parents to make special accommodations for each child just so everyone will have something that they will eat. You can promote healthier eating by refusing to accommodate special requests, while at the same time making sure to serve at least one healthy food that the child likes at each mealtime.
- 7. Limit television time.** While television viewing has been associated with a variety of negative behaviors including poor school performance and childhood obesity, it is also linked to overall worse nutrition. This may largely be due to the enormous amount of advertising for unhealthy foods such as sugary breakfast cereals, soft drinks, candy, salty snack products, and highly processed and fast foods. Research has shown that exposure to advertisements for food products increases children’s choice of, and preference for, these advertised foods.
- 8. Exploit similarities.** Experts suggest that you should exploit similarities to develop a taste preference for new foods. Once a food is accepted, find similarly

colored or flavored “food bridges” to expand the variety of foods a child will eat. For example, if a child likes pumpkin pie, try mashed sweet potatoes, and then mashed carrots.

- 9. Make eating healthy fun.** You can make learning about healthy nutrition and physical activity fun and educational for your children. For example, grow healthy foods in the garden or take your kids to a farmer’s market and let them pick out a new vegetable or fruit to try at home. Try to take a break from the mealtime battles, and take advantage of your child’s wonderment of the world to teach a lesson about health and fitness.
- 10. Skip the food fights.** Research suggests that the more parents pressure their children to eat certain foods, the less likely they will be to develop a taste for them and continue to eat them often as an adult. If you want to get your kids to eat vegetables and other healthy foods because your kids like them, then you will have to employ different strategies — increasing accessibility and exposure, minimizing the competition, modeling, vowing to not say anything when a child refuses a food, and helping make food taste good, for starters. In short, the most successful parents of healthy eaters opt to skip the food fights.

ADDITIONAL RESOURCES

ACE Fit Fact: [Parents...Eat Your Words](#)

[American Dietetic Association](#)

[KidsHealth](#)

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Healthy Hydration

WATER IS ONE OF THE MOST ESSENTIAL COMPONENTS OF THE HUMAN BODY. WATER REGULATES THE BODY'S TEMPERATURE, CUSHIONS AND PROTECTS VITAL ORGANS AND AIDS THE DIGESTIVE SYSTEM. WATER NOT ONLY COMPOSES 75% OF ALL MUSCLE TISSUE AND ABOUT 10% OF FATTY TISSUE, BUT IT ALSO ACTS WITHIN EACH CELL TO TRANSPORT NUTRIENTS AND DISPEL WASTE. AND, BECAUSE WATER COMPOSES MORE THAN HALF OF THE HUMAN BODY, IT IS IMPOSSIBLE TO SUSTAIN LIFE FOR MORE THAN A WEEK WITHOUT IT.

WATER LOSS

Necessary to the healthy function of all internal organs, water must be consumed to replace the amount lost each day during basic activities. According to the Food and Nutrition Board, it is recommended that women consume 2.7 liters (91 oz) daily and men consume 3.7 liters (125 oz) through various beverages (80%) or in food (20%). Active individuals need even more, particularly if they're exercising in hot weather. This is especially important during the 24 hours prior to vigorous exercise. You can meet your body's water needs over the course of a day through a variety of fluids and foods, including juices, soda, smoothies, tea, lemonade, soups, fruits and vegetables.

In one hour of exercise the body can lose more than a quart of water, depending on exercise intensity and air temperature. If there is not enough water for the body to cool itself through perspiration, the body enters a state of dehydration.

DEHYDRATION

For regular exercisers, maintaining a constant supply of water in the body is essential to performance. [Dehydration](#) leads to muscle fatigue and loss of coordination. Even small amounts of water loss may hinder athletic performance.

In a dehydrated state the body is unable to cool itself efficiently, leading to heat exhaustion and possibly heat stroke. Without an adequate supply of water, the body will lack energy and muscles may develop cramps.

To prevent dehydration, exercisers must drink before, during and after each workout.

FLUID BALANCE AND REPLENISHMENT

It is important to drink even before signs of thirst appear. One way to check your hydration level is to monitor your urine. It should be plentiful and pale yellow unless you are taking supplements, which will darken the color for several hours after consumption.

During exercise, water is the best fluid replenisher for most individuals, although [sports drinks](#) help replace lost electrolytes during high-intensity exercise exceeding 45 to 60 minutes. Individuals who sweat profusely during exercise

and whose sweat contains a high amount of sodium (you may notice salt stains/rings on your athletic wear) should choose sports drinks and ensure that their diet contains adequate sodium to prevent hyponatremia (water intoxication). Contrary to popular belief, scientific evidence suggests that moderate caffeine intake does *not* compromise exercise performance or hydration status. However, alcohol consumption can interfere with muscle recovery from exercise and negatively affect a variety of performance variables.

It is easy to prevent dehydration with a variety of refreshing beverages, so drink up!

HYDRATION HINTS

- Drink 17 to 20 ounces of water two hours before the start of exercise.
- Drink 7 to 10 ounces of fluid every 10 to 20 minutes during exercise.
- Drink 16 to 24 ounces of fluid for every pound of body weight lost after exercise.
- *Hint:* Rehydration occurs faster in the presence of sodium, regardless of whether it is provided in a sports drink.

ADDITIONAL RESOURCES

[Institutes of Medicine](#)

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High-Intensity Interval Training

LOOKING FOR A WAY TO ADD VARIETY TO YOUR EXERCISE PLAN WHILE TAKING YOUR FITNESS TO THE NEXT LEVEL? HIGH-INTENSITY INTERVAL TRAINING (HIIT) IS A CARDIORESPIRATORY TRAINING TECHNIQUE THAT ALTERNATES BRIEF SPEED AND RECOVERY INTERVALS TO INCREASE THE OVERALL INTENSITY OF YOUR WORKOUT. HIIT IS USED BY ATHLETES AND EVERYDAY EXERCISE ENTHUSIASTS TO REACH PERFORMANCE GOALS AND ENHANCE FITNESS AND WELL-BEING.

HOW DOES IT WORK?

Most endurance workouts, such as walking, running, or stair-climbing—are performed at a moderate intensity, or an exertion level of 5-6 on a scale of 0-10. High-intensity intervals are done at an exertion level of 7 or higher, and are typically sustained for 30 seconds to 3 minutes, although they can be as short as 8-10 seconds or as long as 5 minutes; the higher the intensity, the shorter the speed interval. Recovery intervals are equal to or longer than the speed intervals.

High-intensity interval training is done at a submaximal level; around 80-95% of maximal aerobic capacity. Sprint interval training (SIT) is a type of high-intensity interval training that pushes beyond this level to 100% or more of maximal aerobic capacity, or an exertion level of 10.

WHAT ARE THE BENEFITS OF HIIT?

The payoffs of pushing yourself with [HIIT](#) are plentiful, and include:

- Significantly increased aerobic and anaerobic fitness
- Decreased fasting insulin and increased insulin sensitivity
- Reduced abdominal and subcutaneous (just under the skin) fat

The surprising thing about HIIT is that it involves such a small total amount of exercise. By including HIIT in your exercise plan, you can realize remarkable results in a short amount of time, which is good news for busy people.

IS HIIT SAFE?

High-intensity exercise of any type brings with it a higher risk of musculoskeletal injury and cardiac events. But along with healthy subjects, HIIT has been studied as a training method for people with heart disease and congestive heart failure. Under clinical supervision, subjects were able to tolerate high-intensity intervals without negative effects. Most importantly, they experienced bigger improvements in cardiovascular function compared to those undergoing continuous moderate-intensity training.

The bottom line? HIIT may or may not be safe for you. Check with your health care provider before adding it to your exercise plan.

HOW CAN I GET STARTED WITH HIIT?

Choose an aerobic exercise—like stationary bicycling. Warm up for 5 minutes, and perform just a few alternating speed and recovery intervals; 3-4 of each should be plenty and will give you a feel for it; finish with an easy cool down. See an example in the chart below left.

HIIT protocols vary widely. There's no one best single way to structure them.

Experiment with shorter and longer speed and recovery intervals to find what works best for you. Gradually work up to 8-10 or more speed intervals, depending on your fitness goals. Keep in mind that the most common mistake made with interval training is making the recovery intervals too short.

Perform HIIT workouts 1-2 times a week at most to reduce your risk of injury. This high-intensity training method is best used periodically for up to 6 weeks or so to enhance regular training rather than as a year-round fitness strategy.

For best results, work with a [certified fitness professional](#) to create a personalized HIIT training plan. HIIT requires a big, sweaty effort, but if you stick with it, chances are you'll be rewarded with impressive results.

ADDITIONAL RESOURCES

[American College of Sports Medicine](#)

[IDEA Health and Fitness Association](#)

[The New York Times](#)

Time	Interval	Exertion Level (0-10)
5 min.	Warm-up	3-4
1 min.	Speed	7-9
2 min.	Recovery	5-6
1 min.	Speed	7-9
2 min.	Recovery	5-6
1 min.	Speed	7-9
2 min.	Recovery	5-6
1 min.	Speed	7-9
2 min.	Recovery	5-6
5 min	Cool-down	3-4
22 min. Total Time		
(4 min. total speed)		

FitFacts®

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? Choosemyplate.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.

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



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](http://CentersforDiseaseControlandPrevention)

[2005 Dietary Guidelines for Americans](http://2005DietaryGuidelinesforAmericans)

[Healthy People 2010](http://HealthyPeople2010)

FitFacts®

Successful Weight Control

EATING LESS, OR CUTTING BACK ON FAT IN YOUR DIET, WON'T KEEP THE WEIGHT OFF. WHAT YOU REALLY NEED TO DO IS STRIKE A GOOD BALANCE BETWEEN THE NUMBER OF CALORIES YOU CONSUME AND THE NUMBER YOU BURN. AND THE ONLY WAY TO DO THAT IS TO EXERCISE.

Don't groan! By exercising, you can lose weight while you eat more calories than if you simply went on a diet. Regular physical activity is much more effective at keeping the weight off in the long run than any diet.

ONE CHOICE IS AEROBIC EXERCISE

With aerobic exercise, you can lose weight without drastically reducing the calories you consume or sacrificing important nutritional needs. One reason for this is that aerobic exercise not only elevates your metabolism while you're exercising, but it can also keep it elevated even after you're done, depending on how long and how strong you exercise.

You've probably heard about exercise programs that actually turn your body into a "fat-burning machine." Aerobics can do that. An aerobic program that you stick with can help you lose weight more easily because it can stimulate your body and make it burn calories.

If weight control is your goal, some types of aerobic activity will work better than others. Low-impact aerobic exercise, like walking, step aerobics and low-impact aerobic dance, is your best bet. Some good non-impact aerobic activities you can benefit from include swimming, bicycling and rowing.

If you're just getting started, begin with as little as 15 minutes of low-impact aerobics three times a week. Gradually increase to 30 minutes of moderate-intensity aerobic activity four times a week.

STRENGTH TRAINING = WEIGHT MANAGEMENT

Your muscles burn calories during physical activity. What you may not know is that your muscles also burn calories when your body is at rest. Increase your muscle mass, and you'll be increasing your body's capacity to burn calories both during activity and at rest.

Add to that the fact that diets which substantially restrict calories can cause the loss of lean muscle mass, along with the loss of fat. By incorporating strength training into your activity program while also following a moderate diet, you'll be able to maintain lean muscle mass while you lose fat.

[Start any strength-training program](#) with one set of exercises and a weight that allows you to complete eight to 12 repetitions. Your program should exercise your legs, trunk, shoulders, arms, chest and upper back. When strengthening your abdomen and lower back, increase the number of repetitions with weights that offer less resistance.



SUCCESS MEANS GOOD EATING AND GOOD EXERCISE

Follow a moderate low-fat diet and an exercise program that combines aerobic activity and strength training. That's the key to losing weight—and keeping it off.

Begin slowly with exercises you find comfortable and build as your body becomes accustomed to the activity level. Don't start out too hard or too fast, or you may injure yourself or quit before you've done yourself much good.

And remember, you can't lose weight overnight. Set a realistic weight-loss goal for yourself—like 1 to 2 pounds a week—eat healthy and get going on a program of regular physical activity, and you'll be delighted by what you accomplish.

Maintaining a lower, healthier body weight is something you can accomplish. So start now and keep on going!

ADDITIONAL RESOURCE

[The National Weight Control Registry](#)

FitFacts®

5 Common Fitness Saboteurs and How to Defeat Them

EVER HAVE THOSE DAYS WHEN YOU FEEL LIKE THE UNIVERSE IS CONSPIRING TO KEEP YOU FROM REACHING YOUR FITNESS GOALS? EVEN THE MOST COMMITTED FITNESS ENTHUSIASTS FACE CHALLENGES TO STAYING ACTIVE. SOMETIMES WE SABOTAGE OURSELVES. OTHER TIMES, LIFE INTERFERES WITH OUR EXERCISE PLANS.

Check out this list of common fitness saboteurs and learn how to combat them with practical strategies that really work:

1. **Stress**—When you're up against a work deadline or the kids are sick, you may feel you can't handle one more thing, including exercise. But taking time out to go for a brisk walk or workout is one of the best things you can do during times of intense stress. [Exercise helps](#) alleviate stress, anxiety, and depression and helps boost your mood, enabling you to cope with whatever you're facing. Even a short workout is better than nothing.
2. **Unrealistic Expectations**—Novice exercisers get frustrated when they expect big results too soon after starting a fitness program. Because they haven't lost a huge amount of weight or developed six-pack abs after only a week or two of exercise, they throw in the towel. To avoid this mistake, set realistic goals and practice extreme patience. You can't undo 10 years of a sedentary lifestyle in a week of walking. If you stick with a regimen, your body will respond to exercise. It takes at least six weeks of regular exercise and sometimes more for physiological changes to kick in. It's called the training effect. You'll know it's happening when your workouts start feeling easier; when you can tolerate longer, harder exercise sessions; and when you can do housework, yardwork, or climb stairs with less effort.
3. **Overtraining**—Demanding daily workouts without scheduled rest won't help you reach your goals faster. Instead, it'll undermine your progress. Overtraining occurs when the exercise load is excessive related to the amount of time allowed for recovery. Overtaxing the body's systems leads to decreased performance. A day or two off from vigorous exercise each week is recommended for rest and recovery. This can be done through a combination of scheduling rest days into your fitness plan and alternating hard and easy workouts. For example, cross-training, swapping out a few runs for swimming or bicycling, is another effective way to avoid overtraining, but scheduled recovery days are still recommended.
4. **The Unexpected**—You were going to walk after work, but now you've been asked to work late. Or perhaps you planned to swim, but then you find out that the pool is closed for maintenance. Life happens, and you can either throw up your hands and say, "forget it," or accept it and roll with it. Resilience is your ability to bounce back quickly from life's surprises and setbacks. This can be improved with practice. Strategies include practicing good self-care, such as



eating right, sleeping well, and exercising regularly, along with cultivating good relationships, practicing optimism, taking decisive action, etc. As you become more resilient, you're less likely to ditch your workout when something comes up. Instead, you'll be able to quickly modify your plans and move forward.

5. **Negative Self-Talk**—"I'm so lazy, I'll never be fit," "I didn't even exercise once this week," "I'm such a loser." Would you talk to a friend or loved one this way? Listening to negative self-talk isn't motivating, so what's the point? Negative self-talk only destroys your confidence and motivation to the point where you can't visualize success. But you don't have to put up with it. The next time you recognize a critical thought, stop it and replace it with a positive thought, like this: "I'm so proud of myself for walking at lunch time today. It took a lot of effort, but I did it." Behavior change is hard. Give yourself some credit for every step you take toward your fitness goals. Practice intentionally giving yourself positive feedback and watch your motivation soar.

ADDITIONAL RESOURCES

[American College of Sports Medicine](#)

[PBS](#)

[University of Michigan](#)

[HelpGuide.org](#)

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Exercise and Pregnancy

FOR MANY MOMS-TO-BE, THE NEWS OF A PREGNANCY IS FILLED WITH EXCITEMENT, ANTICIPATION, ANXIETY AND A NEWFOUND COMMITMENT TO DO EVERYTHING RIGHT FOR THE GROWTH AND DEVELOPMENT OF A HEALTHY BABY. THE QUESTION OF WHETHER TO CONTINUE OR BEGIN AN EXERCISE PROGRAM TO OPTIMIZE HEALTH FOR BOTH MOM AND BABY OFTEN ARISES.

The first step to help answer this question is a visit to your doctor. While exercise during pregnancy is usually encouraged, under some circumstances exercise can be detrimental to both the expecting mother and the growing fetus. Only after a thorough clinical evaluation can a physician determine your exercise risks, if any.

PLENTY OF BENEFITS

Exercise during pregnancy offers many physical and emotional benefits. For example, a good exercise program may help relieve common problems associated with pregnancy, such as excessive weight gain, swelling of your hands and feet, leg cramps, varicose veins, insomnia, fatigue and constipation. You also can look forward to improved posture and circulation, reduced backaches, and increased mood and energy. Plus, you'll feel better knowing you're doing something good for yourself and your baby.

LISTEN TO YOUR BODY

The American College of Obstetricians and Gynecologists (ACOG) recommends that pregnant women who have been cleared to exercise by their physicians engage in at least 30 minutes of moderate-intensity physical activity on most, if not all, days of the week. Walking, swimming, cycling and moderate-intensity aerobics are highly effective and generally safe during pregnancy, even for beginners. Running, racquet sports, and strength training when done in moderation are safe for pregnant women who had been participating in these activities prior to pregnancy. While strenuous activity may be associated with intrauterine growth restriction, under physician guidance it may be safe for athletes to continue a vigorous program.

When designing your exercise program, take into account the changes you're experiencing —new body alignment, different posture, reduced strength and endurance, and extra weight (up to 25 to 40 pounds), which places stress on your joints and muscles and makes your heart work harder. The key is to let your body be your guide. You know you're at a good intensity when you can talk normally and not become exhausted too quickly.

After the first trimester, all pregnant women should avoid exercises that require them to lie on their backs in a supine position. This can cause you to feel dizzy when you stand up and it also decreases blood flow to you and your baby. Also avoid sports and activities with increased risk of trauma or falling, such as ice hockey, soccer, basketball, gymnastics, horseback riding and downhill skiing. Scuba diving can be fatal for a developing fetus.

Since you're exercising for two, you should pay close attention to signs that something is not right for either you or your baby. If you experience any of the



following symptoms, stop exercising and call your physician:

- Vaginal bleeding
- Shortness of breath before exercising
- Dizziness
- Headache
- Chest pain
- Muscle weakness
- Calf pain or swelling
- Preterm labor
- Decreased fetal movement
- Amniotic fluid leakage

LET'S GET STARTED

If you're interested in beginning a prenatal exercise program but don't know how to start, check with the fitness centers in your area, the YMCA and community hospitals. For best results, make sure that your trainer or class instructor holds a certification from an accredited organization such as the [American Council on Exercise](#) and has specialized training in prenatal fitness.

ADDITIONAL RESOURCES

American Council on Exercise—[Pre- and Post-Natal Fitness](#) by Lenita Anthony

[KidsHealth](#)

[American College of Obstetricians and Gynecologists](#)

[Mayo Clinic](#)

FitFacts®

Eat Right at Work

THE WORKPLACE CAN BE A NUTRITIONAL BATTLEFIELD WITH DOUGHNUTS IN THE BREAK ROOM, CO-WORKERS' CANDY BOWLS, AND AFTERNOON BIRTHDAY CAKE. MORE ORGANIZATIONS ARE COMING UP WITH STRATEGIES — LIKE HEALTHY MEETING GUIDELINES — TO HELP EMPLOYEES MAKE BETTER FOOD CHOICES.

But when it comes to wellness, workplace culture change can happen at a glacial pace — so don't rely on corporate policies to protect you from nutrition pitfalls. Take charge of your choices to nourish your mind and body — so you can move through your day feeling fantastic and doing your best work.

CREATE A PLAN

Make a habit of meal-planning once a week — simply map out your breakfast, lunch, dinner, and snack ideas for each day. Then, make a shopping list and stock your fridge and cupboards. Download your worksite's cafeteria menu and decide when to buy lunch and when to brown-bag it. Freeze dinner leftovers for grab-and-go meals — and prepare snacks and lunches the night before. Planning ahead gives you more choices — and saves money.

RISE AND DINE

It's no secret that starting your day with a power breakfast is vital when it comes to all-day energy — and weight management. Skipping breakfast might seem to cut calories, but studies show it actually promotes weight gain and stifles brain function. Not hungry in the morning? Eat dinner earlier and cut back on bedtime snacking.

Choosing a variety of fruits, vegetables, lean proteins, low-fat or skim dairy products, and whole grains with your morning meal is your best bet for a high-energy day and reduced risk of cardiovascular disease. Including protein-rich foods like eggs, nuts, seeds, and dairy products staves off hunger more effectively than a mostly carbohydrate meal. Try these delicious, easy-to-fix ideas:

- Blueberry smoothie with low-fat yogurt
- Nut butter or sunflower seed butter on whole-grain toast with fruit
- Scrambled eggs with basil, oregano, tomatoes, bell peppers, whole-grain toast and orange juice
- Whole-grain hot cereal topped with a sliced banana, 2 tablespoons chopped walnuts or almonds, and skim milk
- Roll up a whole-wheat tortilla with Neufchatel cheese and strawberries

SENSIBLE SNACKS

Skip the vending machines and stock your own scrumptious snacks for long-lasting vim and vigor. Pair complex carbohydrates with protein and a small amount of fat for sustainable energy — and control portions to avoid calorie overload:

- Whole wheat crackers and low-fat cheese
- Sliced bell peppers, baby carrots, whole-grain pita slices, and hummus
- Apple slices with 1 tablespoon peanut or sunflower seed butter
- ½ turkey sandwich on whole grain bread with low-fat cheese and mustard
- 1 ounce of almonds with a cup of mixed fruit

LUNCHTIME CUISINE

Avoid fatty foods and highly processed fare, which can leave you feeling sluggish and wanting more after a meal. Instead, choose foods close to their natural state whenever possible — they're more satisfying, more nutritious, and more likely to sustain you through the afternoon. Check out these examples:

- Whole-grain pita stuffed with 1/3 cup homemade egg salad (made with reduced-fat mayo) and vegetables
- Vegetable soups: mushroom-barley, chicken-vegetable, or potato- broccoli, for example. Pair a bowl of soup with a ½ sandwich and a cup of grapes or strawberries.
- Whole-wheat burrito with low-fat refried beans and/or lean ground beef and vegetables plus pair of mandarin oranges.
- Spinach, arugula, and romaine salad tossed with cherry tomatoes, onion, peppers, carrots, and 1 ounce of cubed low-fat mozzarella. Top with 2 tablespoons of light vinaigrette. Add a whole-grain dinner roll with deli turkey on the side.

Find healthier restaurant choices with the [Healthy Dining Finder](#).

SWEETS FOR THE SWEET

It's OK to treat yourself to a little something sweet as long as you keep the portions — and calories — under control. In fact, a small periodic indulgence may help prevent binge-eating that often results from restrictive eating habits. Tricks and tips:

- Fill up on fiber while curbing your cravings with fruit and berries.
- Keep only single-serving portions of chocolate and other high-calorie treats at your work station.
- Steer clear of the vending machine, with its super-size candy bars and multiple-serving bags of candy.
- Make some homemade trail mix with dried cranberries or bananas, nuts or seeds, and pretzels.
- Savor it. Satisfy your taste buds with smaller amounts by eating slowly, fully experiencing the treat's appearance, scent, taste, and texture.

ADDITIONAL RESOURCES

[New Jersey Cooperative Extension](#)

[WebMD](#)

[HelpGuide.org](#)

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FitFacts®

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 mitochondria, 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.

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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 proteins 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

[Consumer Lab](#)

[World Anti-Doping Agency](#)

FitFacts®

Energize Your Life with Strength Training

ARE YOU LIVING THE LIFE YOU WANT TO LIVE? IS A DECREASE IN YOUR PHYSICAL STRENGTH AND ENERGY GETTING IN THE WAY OF ENJOYING YOUR FAVORITE ACTIVITIES? REGULAR CARDIOVASCULAR EXERCISE IS A WELL-KNOWN WAY TO PRESERVE STAMINA AND TO PREVENT CHRONIC DISEASE THAT CAN SLOW YOU DOWN. BUT AN INCREASING NUMBER OF OLDER ADULTS PRACTICE STRENGTH TRAINING (USING RESISTANCE BANDS, WEIGHT MACHINES, BODY WEIGHT, OR LIFTING WEIGHTS) AS AN EFFECTIVE HEALTH-BOOSTING STRATEGY.

Men and women of any age can benefit from strength training. Having a chronic medical condition doesn't mean you can't do strength exercises. If you're living with heart disease, arthritis or diabetes, strength training may even help improve your condition.

ARE YOU LOSING MUSCLE TISSUE?

Experts point out that many of the changes associated with getting older are actually due to becoming less active with age. Unless you regularly engage in activities to strengthen your muscles, you'll lose about a half a pound of muscle a year in your 30s and 40s, and that rate can double once you turn 50. As you lose muscle, you lose strength, and that compromises your ability to do even simple things, such as carrying your groceries, getting up from a seated position or gardening. Your metabolism also slows down as you lose muscle, so your body will need fewer calories to maintain itself, and you're likely to gain excess body fat, unless you eat less. And excess fat contributes to a multitude of health problems: heart disease, type 2 diabetes, high blood pressure, and high cholesterol.

14 GOOD REASONS TO PUMP IRON

It doesn't matter, if you're 50 years old or 80, studies show that strength training can help:

1. Maintain your independence as you get older
2. Improve your quality of life, allowing you to do the things you enjoy with less effort
3. Strengthen and preserve your muscle tissue
4. Strengthen your bones
5. Reduce your risk of falling
6. Improve control of blood sugar
7. Increase your metabolism
8. Improve your body composition to less fat and more muscle
9. Reduce your resting blood pressure
10. Speed up the rate at which food moves through your digestive system, reducing risk of colon cancer
11. Reduce your risk of low back injury

12. Elevate your mood and your self-confidence
13. Relieve pain from osteoarthritis and rheumatoid arthritis
14. Enhance recovery from stroke or heart attack

HOW TO GET STARTED

The Centers for Disease Control and Prevention recommend strength training on two or more days a week with [exercises](#) that work all major muscle groups (legs, hips, back, abdomen, chest, shoulders and arms).

Because everyone's needs and limitations are different, talk to your health care provider before you begin strength training. Find out, if there are specific activities you should avoid, or any special precautions to follow. Next, decide if you'd like to do strength exercises at home, at a community center, or at a gym. For some beginners, the supervision and camaraderie found in a group fitness class is an ideal combination.

If you'd rather work out on your own, consider scheduling a few sessions with a [certified personal trainer](#), ideally, someone specializing in older adult fitness. You'll receive a program tailored to your needs and interests and supervision to make sure you're performing the exercises correctly. While strength training offers serious health benefits, improper form or technique can lead to injuries.

BUDDY UP

For best results, invite a friend or family member to do strength exercises with you. Besides being more fun, it'll help keep you accountable for sticking with it. You'll inspire one another as you get stronger, and push one another to reach goals. The importance of social support can't be overemphasized when it comes to adopting new health behaviors.

ADDITIONAL RESOURCES

[Centers for Disease Control and Prevention](#)

[National Institute on Aging](#)

[American College of Sports Medicine](#)

FitFacts®

Plyometrics: Controlled Impact/Maximum Power

IT MAY SOUND LIKE THE LATEST ACTION FILM, BUT CONTROLLED IMPACT AND MAXIMUM POWER ARE THE AIMS OF A TRAINING TECHNIQUE CALLED PLYOMETRICS.

Also known as jump training, plyometrics involves stretching the muscles prior to contracting them. This type of training, when used safely and effectively, strengthens muscles, increases vertical jump and decreases impact forces on the joints.

Plyometrics mimics the motions we use in sports such as skiing, tennis and basketball. If you enjoy dodging moguls, chasing down ground strokes or charging the net, plyometrics might be an appropriate training option, as these exercises are designed to increase muscular power and explosiveness. Plyometrics is not, however, for those who are in poor condition or have orthopedic limitations.

OLYMPIC SECRETS

The Eastern Europeans first used plyometrics in the 1970s to develop greater strength and power in their Olympic athletes. They based their programs on scientific evidence that stretching muscles prior to contracting them elicits the “myotactic” reflex, or stretch reflex, of muscle to enhance the power of contraction.

This pre-stretching of muscles occurs when you perform jumps one after the other. For example, when you land from a jump, the quadriceps muscles at the front of your thighs stretch as your knees bend, and then quickly contract with the next leap. This pre-stretch enhances the power of the second jump.

PROCEED WITH CAUTION

Plyometric training has received its share of criticism due to reported cases of injury following “plyometric” programs of depth jumping and drop jumping, which involve jumping up to, and down from, boxes or benches that are as high as 42 inches.

The forces sustained from these types of jumps onto hard surfaces can be as much as seven times one’s own body weight. However, carefully considering the type of jumps selected for the program, enlisting a coach or trainer for supervision and gradually progressing to more difficult exercises can make a plyometric program both safe and effective.

Jumps should always begin from ground level, off of and onto padded surfaces such as grass or a gym mat over a wood gym floor. These types of jumps are both safe and easy to perform. Other training techniques include jumping over cones or foam barriers, and traveling bounding.

Research has consistently shown that plyometric training can help lead to improvements in vertical jump performance, leg strength, muscle power, acceleration, balance and overall agility.

These factors contribute to reducing an individual’s potential risk of injury. In addition, some studies have shown plyometrics to have a positive effect on bone density, especially in younger participants.



USE THIS TOOL WISELY

If you are considering plyometrics, proceed with caution. A sports medicine physician or therapist can advise you on whether this training technique is suitable for you, and may even help you get started or recommend someone who can.

But, if improving athletic performance is not a high priority, the additional risk associated with this activity may not be worth the potential benefits.

You will have a more rewarding training experience if you follow the recommendations outlined above. Use only simple ground-level jumps from soft surfaces, and train under proper supervision. Plyometric training can be a smart addition to a healthy individual’s training program, as long as it is used wisely.

QUALITY, NOT QUANTITY

A safe and effective plyometric program stresses the quality, not quantity, of jumps. Safe landing techniques, such as landing from toe to heel from a vertical jump, and using the entire foot as a rocker to dissipate landing forces over a greater surface area, also are important to reduce impact forces.

In addition, visualization cues, such as picturing yourself landing “light as a feather” and “recoiling like a spring” after impact, promote low-impact landings.

When landing, avoid excessive side-to-side motion at the knee. Landing forces can be absorbed through the muscles that help support and protect the knee joint (quadriceps, hamstrings and gastrocnemius) more effectively when the knee is bending primarily in only one plane of motion.

ADDITIONAL RESOURCES

[American College of Sports Medicine](http://AmericanCollegeofSportsMedicine)

FitFacts®

8 Ways to Get Fit and Be Social

AS YOU GET OLDER, IT'S VITALLY IMPORTANT TO MAINTAIN A STRONG SOCIAL NETWORK AND A PHYSICALLY ACTIVE LIFESTYLE. BY MERGING YOUR SOCIAL LIFE WITH YOUR FITNESS PROGRAM, YOU'LL GET SOME EXERCISE WHILE HANGING OUT WITH YOUR FAVORITE PEOPLE. THE BONUS? YOU'LL HAVE A GREAT TIME, STRENGTHEN YOUR FRIENDSHIPS, MEET NEW PEOPLE, AND STAY ON TRACK WITH YOUR FITNESS GOALS. HERE'S HOW:

1. **Go for a hike.** Gather your friends and plan a day of fun and fitness at a local, state, or national park. Pack a lunch, plenty of water, and your camera.
2. **Team sports.** Recreational leagues are available for men and women of all ages and abilities. You'll get together for practices and games and may even travel to tournaments. Check with your local parks and recreation department or search for softball, baseball, soccer, volleyball, or tennis leagues online.
3. **Join or start a walking group.** Whether it's ladies-only, gents-only, or a mixed group, let the conversation flow as you rack up the steps and move toward better health. Walk around the neighborhood, at the mall, or at a park. Take turns leading the walk, and encourage each member to map out a different course for variety. If time allows, enjoy a hot or cool beverage together after your walk.
4. **Put on your dancing shoes.** Even if you've never danced a step in your life, it's never too late to learn how. Learning how to swing, tango, rumba, or do the Hustle is fun, energizing, and a great way to sneak in some exercise. Some communities offer dance clubs where members meet regularly to learn new steps and practice together.
5. **Join a group fitness class.** Invite your friends to sign up for an exercise class together. There's an endless variety of formats to choose from: water aerobics, yoga, Pilates, martial arts, [Zumba®](#), step, cardio kickboxing, cycling, boot camp, and more. You're sure to find something that makes you sweat and laugh.
6. **Consider small-group personal training.** Working with a certified personal trainer can help you break through fitness plateaus and reach new levels of health and fitness. Small-group training sessions are more fun and often less costly than one-on-one sessions. Look for a [certified personal trainer](#) who offers group sessions, and invite a friend or two to join you.
7. **Enjoy seasonal activities.** Make fitness a year-round habit by sharing fall, winter, spring, and summer activities. Resolve to try new sports together and find some new favorites. From fishing and camping



to snowshoeing and sailing, if you maintain an open mind and an adventurous spirit, you'll never run out of ideas for fun and fitness.

8. **Get out of town.** Take an active vacation together and enjoy walking tours, bike tours, kayaking, or golf. Go on a picture safari, explore the bell towers of medieval cathedrals, tour museums and historical sites, and have a ball.

There's nothing like a shared experience to bring friends closer together. And there's nothing like a workout partner to keep you on track. Joining your active lifestyle with your social life creates a synergy that makes both even better.

ADDITIONAL RESOURCES

American Council on Exercise: [AARP Fitness and Wellness Program](#)

[American Volkssport Association](#)

[Mayo Clinic](#)

[USA Dance](#)

FitFacts®

Circuit Training Basics

LOOKING FOR A WAY TO INFUSE YOUR FITNESS ROUTINE WITH SOME NEW ENERGY AND EXCITEMENT? WHETHER YOU'RE A SEASONED ATHLETE OR JUST GETTING STARTED WITH PHYSICAL ACTIVITY, CIRCUIT TRAINING IS A GREAT WAY TO CHALLENGE YOUR BODY IN A VARIETY OF WAYS WHILE BOOSTING THE FUN FACTOR.

WHAT IS CIRCUIT TRAINING?

A typical [circuit training](#) workout includes about 8–10 exercise stations. After completing a station, instead of resting, you move quickly to the next station. A muscular strength and endurance circuit alternates muscle groups, such as upper body, lower body and core, so little or no rest is needed in between stations.

This article focuses on another form of circuit training: aerobic + strength. This type of circuit alternates 2 sets of resistance exercise (body weight, free weights, dumbbells, kettle bells, bands, etc.), with brief bouts of cardiovascular exercise (jogging in place, stationary cycling, rowing, etc.) lasting anywhere from 30 seconds to 3 minutes. Depending on your goals and the number of circuit stations, you can complete 1 or more circuits in a 30–60 minute session.

ADVANTAGES OF CIRCUIT TRAINING

Boredom and time constraints are frequently cited reasons for giving up on a fitness routine. Sound familiar? Circuit training offers a practical solution for both. It's a creative and flexible way to keep exercise interesting and saves time while boosting cardiovascular and muscular fitness. You'll burn a decent amount of calories too—in a 1-hour circuit training session, a 150-pound person burns about 308 calories at a moderate intensity; and 573 calories at a vigorous intensity.

Because the exercises can be performed in any sequence, you can create an endless number of combinations and design every workout to match your mood or specific training goal. Participating in a group circuit-training class is a great way to discover new exercises you might not have tried on your own.

AT HOME

Set up strength and cardio stations indoors or outdoors. Cardio could include going up and down stairs, marching or jogging in place, running up and down the driveway, using home exercise equipment and jumping rope. For strength stations, do push-ups, planks and lunges, using your own body weight. You can also use dumbbells, bands and Kettlebells. For more ideas, look for a fitness DVD featuring circuit-training workouts.

AT THE GYM

Check to see, if your gym offers circuit training classes. You'll need to move quickly from station to station, so it's tough to do on your own during regular gym hours when others are using equipment. If you're working with a [certified personal trainer](#), ask for help in building a custom circuit training workout using a variety of equipment.



AT THE PARK

The fitness trail, or [parcourse](#) are popular features at many parks across the United States and around the world. This can be considered a form of aerobic + strength circuit training. The parcourse consists of walking trails with exercise stations located along the way. But even if your local park doesn't have a circuit set-up, you can create your own aerobic + strength circuit by alternating brisk walking, bicycling or running on a trail with push-ups, dips, and squats, incorporating things found in nature, such as a tree, a boulder, or even a park bench.

TURN UP THE HEAT

If you've been doing circuit training for a while and are ready to push harder, try these ideas:

- **Shorten your time intervals.** If you're currently doing 2-minute cardio intervals, shorten them by 30 seconds. This will keep you moving faster through the circuit, allowing you to complete more stations in the same amount of time.
- **Boost your intensity.** If your strength sets are feeling too easy, increase the resistance or choose a different exercise that works the same muscle group. Take your cardio intervals up a notch by accelerating or adding another cardio exercise.
- **Do a backward circuit.** If you always complete your circuit in the same direction, start at the opposite end to challenge your body and your brain in a new way.

ADDITIONAL RESOURCES

[WebMD](#)

[USC Norris Cancer Hospital](#)

FitFacts®

Postpartum Health

AFTER NINE MONTHS OF CARRYING EXTRA WEIGHT AROUND, YOU'RE PROBABLY READY TO SHED THE LAST FEW POUNDS. WOMEN GAIN ABOUT 30 POUNDS DURING PREGNANCY AND LOSE ABOUT 18 TO 20 POUNDS IN THE FIRST MONTH AFTER GIVING BIRTH. DROPPING THE LAST FIVE TO 10 POUNDS CAN BE CHALLENGING. THE TRICK IS ADDING A CONSISTENT EXERCISE PROGRAM TO AN OVERALL HEALTHY LIFESTYLE.

BACK IN THE SWING

Before jumping back into your pre-pregnancy exercise routine, keep in mind that your body is still trying to normalize from the stresses of a pregnancy. The American College of Obstetricians and Gynecologists (ACOG) advocates resuming pre-pregnancy exercise regimens as soon as it is medically and physically safe. The amount of time until it is considered "safe" varies, with some women able to resume exercise within days of delivery. Talk with your doctor about when is a good time for you to restart an exercise program.

Many of the physiological changes of pregnancy persist until about four to six weeks postpartum. Of course, that doesn't mean you can't exercise in the first month and a half after delivering your baby; it just means you should gradually ease into an exercise routine. In the first six weeks following your baby's birth, use your exercise program to help you obtain personal time and a sense of control. Slowly increase exercise frequency, duration and/or intensity. Avoid excessive fatigue and dehydration; support and compress your abdomen and breasts; and regularly assess if it hurts or if you are progressing too quickly. If you notice bright red vaginal bleeding that is heavier than a menstrual period, seek medical attention.

Aim to build up to 30 minutes to one hour of moderate-intensity aerobic exercise three to six days per week supplemented with two or three days of muscle toning. (You may be wondering when you can start doing "abs"—[pelvic tilts](#) and abdominal compression exercises are a good place to start. Remember to tighten the pelvic floor when performing these exercises to avoid too much pressure and further stretching. As your pelvic floor gradually strengthens, add other curl-up exercises. Don't forget to also exercise your lower back.) It's okay to be creative if it is occasionally necessary to exercise with your new baby or other children.

If you're breastfeeding, exercise at a low- to moderate-intensity (<12 on a 6 to 20 ratings of perceived exertion scale) to prevent lactic acid accumulation in breast milk. (If you end up exercising at a higher intensity, pump and discard milk produced during the first 30 minutes postexercise.)

CAESAREAN CARE

If you had a Caesarean section, your body will need more time to heal and regain its strength. Consult with your physician to develop a safe exercise program. Remember to start slowly and use caution, especially when working your abdominal muscles.



EATING RIGHT

Pregnancy and the postpartum period provide an excellent opportunity to permanently adopt healthful nutritional changes, including increased fruit, vegetable and whole grain intake. Aim to follow a healthy, nutrient-dense diet similar to that recommended by [Choosemyplate.gov](#). For at least the first month or two postpartum, also be sure to continue prenatal vitamins to help replenish your nutrient stores. Consider an omega-3 fatty acid (DHA, EPA or ALA) supplement for your heart health, and, if you're breastfeeding, to help your baby's cognitive, visual and cardiovascular development.

Keep in mind that breastfeeding moms expend an additional 500 calories per day. Not only does this help to kickstart your postpartum weight loss, but breastfeeding also provides innumerable benefits to you and your baby.

THE BOTTOM LINE

Talk with your doctor before and after delivery to determine the best plan for you. Go slowly with exercise to build a safe foundation for taking care of you and your newborn and you'll both be on a path to good health and well-being. If you find yourself in a rut, don't hesitate to contract your nearest ACE-certified Fitness Professional with expertise in postnatal exercise.

ADDITIONAL RESOURCES

American Council on Exercise—[Pre- and Post-Natal Fitness](#) by Lenita Anthony
[Babycenter](#)

[U.S. Department of Health and Human Services](#)



Understanding Sciatica

LOW-BACK PAIN CAN HAVE A MAJOR IMPACT ON YOUR FITNESS PROGRAM AND ABILITY TO PERFORM SIMPLE DAILY TASKS. WHILE MOST BACK PAIN IS SHORT-LIVED AND RESOLVED WITH MINIMAL INTERVENTION, MOST PEOPLE WOULD LIKE TO AVOID EXPERIENCING THE PAIN AGAIN. THE FIRST STEP IN PREVENTION IS KNOWING WHAT CAUSED YOUR BACK PAIN IN THE FIRST PLACE. IF YOUR PAIN WAS ASSOCIATED WITH A TINGLING DOWN ONE OF YOUR LEGS, YOU CAN BE FAIRLY CONFIDENT THAT YOU SUFFERED FROM SCIATICA.

SCIATICA BASICS

Sciatica results from irritation of the sciatic nerve. The sciatic nerve is the longest nerve in your body, running from your pelvis area to the back of your thighs, where it divides into two branches that course down to your feet. When the sciatic nerve gets compressed, you may feel back pain as well as pain or tingling in your legs or all the way down to your toes.

Sciatica most often results from a herniated disc (also known as slipped, ruptured, bulging or protruding disc). Discs are cushions between bony vertebrae. As people age, the discs lose strength, making a sudden twisting motion or back injury more likely to cause herniation. Poor biomechanics, curvature of the back, weak abdominal muscles or pregnancy also increase the risk for herniation. Spinal stenosis, or narrowing of the spinal canal, and spondyloisthesis, or slippage of a vertebral body in front of another vertebral body, can also cause sciatica.

While sciatica can be very painful, permanent nerve damage is rare. And fortunately, because the spinal cord does not extend through the lumbar (lower) spine, there is no danger of paralysis from a herniated disc in this area.

Note: If your symptoms include progressive weakness in the legs or bladder/bowel incontinence, this may indicate a serious condition called cauda equina syndrome that requires immediate medical attention.

SCIATICA

The best treatment for sciatica depends on the severity of the problem. If the pain is interfering with your ability to perform everyday tasks or if it lasts more than a week, you should see your doctor for a complete evaluation. Your doctor might order some tests to evaluate the source of your pain, prescribe you some prescription-strength pain medicine and/or give you a steroid injection at the site of inflammation. If your pain is particularly severe and prolonged, your doctor also may refer you to a surgeon to evaluate if surgery will provide you additional pain relief.

Most likely, your doctor might just recommend that you do the following:

- Apply heat (research suggests ice isn't as helpful) for 20 minutes every two hours, as needed.
- Relieve pain and inflammation with non-steroidal anti-inflammatory drugs (NSAIDs) like ibuprofen or aspirin as directed on the bottle.

- Maintain your regular levels of physical activity (but avoid what may have caused the back pain in the first place). Bed rest will not help relieve the pain.
- Begin a physical therapy program once your pain is adequately controlled so that you can learn how to prevent future injury.
- Do some passive lower-back stretches. This might help you feel better and relieve some of the nerve compression.
- If your pain is chronic (more than six weeks), a regular physical-activity program will help decrease the pain. It also improves your posture, strengthens your back, increases flexibility and helps with weight loss and fall prevention.

Sciatica is a painful annoyance that lasts for days for most people and months for others. Either way, it's a pain you surely don't want to experience again. Your local [ACE-certified Fitness Professional](#) can help you develop an exercise program to help manage current discomfort, and perhaps more importantly, prevent future pain.

ADDITIONAL RESOURCES

[Medline Plus](#)

[Mayo Clinic](#)

FitFacts®

10 Fun Summer Fitness Activities for Kids

SUMMER IS HERE AND CHILDREN NEED TO STAY ACTIVE, HEALTHY AND BUSY DURING THEIR BREAK FROM SCHOOL. PARENTS NEED TO ENCOURAGE THEIR CHILDREN TO WARM UP PROPERLY AND USE DYNAMIC STRETCHES THAT MIMIC THEIR SPORT ACTIVITY. PARENTS SHOULD TELL CHILDREN NEVER TO PLAY THROUGH ANY TYPE OF PAIN OR MAKE WINNING THE REASON FOR PLAYING ANY SPORT. LET THEM CHOOSE THE ACTIVITY AND KEEP THE FOCUS ON HAVING FUN.

To keep kids moving, the American Council on Exercise suggests 10 fun fitness summer activities.

1. **Soccer**—This highly active game involving both agility and teamwork has grown increasingly popular in the U.S. in recent years. To keep kids injury free, be sure they are geared up in appropriate protective equipment, such as shin guards. Soccer players should also wear shoes with cleats or ribbed soles to prevent slipping.
2. **Martial arts**—With a variety of forms to choose from, martial arts are a great way to get kids involved in a sport that incorporates strength, coordination and mental discipline. Proper training and equipment to prevent injury are a must.
3. **Bike riding**—Bicycle riding is a fun activity for the whole family. Experts suggest that children ride on sidewalks and paths until they are at least 10 years old, show good riding skills and are able to follow the rules of the road. Helmets, of course, are a necessity for both children and adults.
4. **Swimming**—Nothing beats splashing around a pool with friends, and swimming offers the benefits of a full-body workout for both young and old. The American Academy of Pediatrics recommends swimming lessons for children ages four and up, although classes are available for babies and toddlers as well.
5. **Basketball**—Whether it's a round of HORSE, a game of one-on-one or a full-court competition, basketball is ideal for developing hand-eye coordination and teamwork. Encourage children under the age of seven to use a smaller foam or rubber ball, and lower the height of the basket if possible.
8. **Board sports**—Whether snowboarding in the winter, surfing in the



summer or skateboarding year-round, kids love to be on the board. Injury risk, however, is higher for these sports. For both snowboarding and skateboarding, kids should wear helmets to prevent head injuries, and surfers or boogie-boarders should always be accompanied by an adult.

9. **Jumping rope**—Jumping rope is still a favorite on most playgrounds. Whether alone or in a group, jumping rope challenges both coordination and stamina.
10. **Ice skating/inline skating**—Ice skating, inline skating and hockey can be both fun and safe, as long as appropriate protective gear such as a helmet, wrist guards and knee pads are worn. Hockey players should wear a helmet with foam lining and a full facemask; a mouth guard; pads for shoulders, knees, elbows and shins; and gloves.

ADDITIONAL RESOURCE

American Council on Exercise—[*Youth Strength Training*](#) by Avery D. Faigenbaum & Wayne L. Westcott

FitFacts®

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

[Mayo Clinic](#)

[American Academy of Orthopedic Surgery](#)

FitFacts®

Beat the Heat Before It Beats You

IT'S SUMMERTIME AND YOU HEAD OUT FOR A RUN. BEFORE YOU EVEN FINISH THE FIRST MILE, YOUR BODY FEELS AS THOUGH IT MIGHT IGNITE FROM THE HEAT. IT'S NOT YOUR IMAGINATION. FIFTEEN MINUTES INTO YOUR RUN AND YOUR BODY TEMPERATURE COULD BE AS HIGH AS 5° F ABOVE NORMAL. IF YOU WERE TO CONTINUE AT THIS PACE, FATIGUE AND HEAT ILLNESS WOULD NO DOUBT TAKE OVER.

STRATEGIES TO PROTECT YOURSELF FROM HEAT ILLNESS

The above scenario doesn't have to happen. Drinking enough fluid, whether water or a sports drink, is imperative for exercising in hot or humid weather.

Maintenance of body fluids is essential to maintaining proper body temperature. Sweat cools your body by evaporating off your skin. Visible beads of sweat that don't evaporate only dehydrate you without the beneficial cooling effect. If you let your body become dehydrated, you'll find it much more difficult to perform even the lightest of workouts.

But don't wait until you're thirsty to start replenishing those fluids. Chances are, by the time you actually feel thirsty, your body is well on its way to becoming severely dehydrated.

The following strategies will help you protect yourself from the onset of heat illness:

1. HYDRATION

Fluid replenishment before, during and after exercise is essential to avoid progressive dehydration. Always strive to drink 7 to 10 ounces of fluid every 15 to 20 minutes during exercise. Water isn't the only thing your body loses in sweat. Electrolytes such as sodium, potassium and chloride are also lost in sweat. It is equally important to replace these with a sports drink during continuous exercise lasting longer than one or two hours.

2. EXERCISE INTENSITY

You should probably reduce the intensity of your workout, particularly the first few times you are exposed to higher temperatures.

3. TEMPERATURE

High humidity prevents sweat from evaporating, and remember that sweat that does not evaporate does not cool the body. Use the heat stress index to determine the risk of exercising at various combinations of temperature and humidity. While a 90° F outdoor temperature is relatively safe at 10% humidity, the heat stress of 90° F at 50% humidity is the equivalent of 96° F. When the heat stress index rises above 90° F, you may want to consider postponing your exercise session until later in the day. Or, plan ahead and beat the day's heat by working out early in the morning.

4. HEAT STRESS INDEX

When you go outside to exercise, refer to the heat stress index and consider the associated risks:

- Below 80° F (27° C): Little or no danger under normal circumstances
- 80–90° F (27–32° C): Fatigue possible with prolonged exposure
- 90–105° F (32–41° C): Heat cramps and heat exhaustion are possible
- 105–130° F (41–54° C): Heat cramps and heat exhaustion likely, heatstroke is possible
- Over 130° F (54° C): Heatstroke is imminent

		HEAT STRESS INDEX					
		Air Temperature °F					
Relative Humidity		70°	80°	90°	100°	110°	120°
	0%	64°	73°	83°	91°	99°	107°
	10%	65°	75°	85°	95°	105°	116°
	20%	66°	77°	87°	99°	112°	130°
	30%	67°	78°	90°	104°	123°	148°
	40%	68°	79°	93°	110°	137°	
	50%	69°	81°	96°	120°	150°	
	60%	70°	82°	100°	132°		
	70%	70°	85°	106°	144°		
	80%	71°	86°	113°			
	90%	71°	88°	122°			
	100%	72°	91°				

Heat Sensation	Risk of Heat Injury
90° - 105°	Possibility of heat cramps
105° - 130°	Heat cramps or heat exhaustion likely; Heat stroke possible
130°+	Heat stroke a definite risk

5. FITNESS

Physical training and heat acclimation can increase your blood volume, helping to regulate body temperature more effectively. Interestingly, the acclimatization process can be completed in seven to 14 days of repeated heat exposure. However, you must always continue to drink fluids before, during and after exercise.

6. CLOTHING

Wear minimal clothing to provide a greater skin surface area for heat dissipation. Your clothing should be lightweight, loose-fitting, light-colored to reflect the sun's rays and of a fabric that absorbs water, such as cotton or other moisture wicking material.

7. REST

Know when to say "no" to exercise. Using common sense is your best bet for preventing heat stress when Mother Nature turns up the heat.

ADDITIONAL RESOURCES

[National Institutes of Health](http://NationalInstitutesofHealth)

WebMD

FitFacts®

Pilates Primer

ARE YOU WONDERING WHAT ALL THE FUSS OVER PILATES IS ABOUT? USED TRADITIONALLY BY DANCERS FOR DEEP-BODY CONDITIONING AND INJURY REHABILITATION, PILATES (PRONOUNCED PI-LAH-TEEZ) IS AN 80-YEAR-OLD EXERCISE TECHNIQUE FIRST DEVELOPED BY GERMAN IMMIGRANT JOSEPH PILATES. ONLY IN THE PAST DECADE HAS IT MIGRATED FROM ITS LONG-HELD POSITION AT THE FRINGES OF TRADITIONAL FITNESS METHODS SUCH AS AEROBICS AND WEIGHT TRAINING. HOLLYWOOD HAS BEEN A KEY FACTOR IN TURNING THE SPOTLIGHT ON PILATES, AS NUMEROUS MODELS AND ACTRESSES PAY HOMAGE TO PILATES FOR THEIR BEAUTIFULLY TONED, FIT BODIES.



FOCUSING ON THE CORE

The abdominal, hip and back muscles are often collectively referred to as the body's core. Pilates exercises are designed to strengthen this core by developing pelvic stability and abdominal control. In addition, the exercises improve flexibility and joint mobility and build strength.

How can one exercise technique claim to do so much? The Reformer, a wooden contraption with various cables, pulleys, springs and sliding boards attached, lies at the foundation of Pilates. Primarily using one's own body weight as resistance, participants are put through a series of progressive, range-of-motion exercises. Despite the appearance of this and several other equally unusual-looking devices, Pilates exercises are very low impact. Instructors, who typically work one-on-one or with small groups of two or three participants, offer reminders to engage the abdominals, the back, the upper legs and buttocks to stabilize the body's core. Exercise sessions are designed according to individual flexibility and strength limitations.

Pilates exercises are not limited to specialized machines, however. In fact, many gyms across the country now offer [Pilates mat-based](#) classes that feature exercises that also stress the stabilization and strengthening of the back and abdominal muscles.

SELECTING A PILATES INSTRUCTOR

Finding a fitness instructor who is a good match for your goals and personality can be challenging. The Pilates Method Alliance suggests asking the following questions of any instructor with whom you are considering working.

- Was the instructor trained through a comprehensive training program?
- Did that training program require a written and practical test, lecture, observation, practice and apprentice hours?
- How many total hours were spent in the training program? (The Pilates Method is a knowledge-based method of exercise and training. Time spent in certification training produces qualified teachers.)
- Does the instructor have any other movement-related teaching experience?
- How long has the instructor been teaching Pilates?
- What is the instructor or studio's philosophy and specialty? Are they able to handle special needs, injuries and rehabilitation?
- Does the instructor or studio teach the full repertoire of Pilates on all types of apparatus?

factors, such as a well-balanced diet and regular aerobic exercise. (Though some may claim that Pilates is all you need to develop stamina and endurance as well, an additional cardiovascular component is advisable.)

An initial Pilates session typically includes a body assessment, which allows the instructor to pinpoint strength and flexibility weak spots. This is also the time to become familiar with Pilates' unique breathing patterns, which don't always follow the exhale-on-exertion pattern of traditional exercise. Sessions typically run 60 minutes, at a cost of \$50 or more for private sessions, and \$10 to \$30 for group sessions. If you're more comfortable exercising at home, there are numerous [Pilates and Pilates-type videos](#) currently available.

Several home versions of the Reformer also are currently available on the market. Whether you work out at a studio or on your living room floor, Pilates is an excellent way to challenge your muscles, improve flexibility and incorporate the mind/body element into one effective exercise session.

ADDITIONAL RESOURCES

American Council on Exercise—[Pilates Mat Training](#) by Shirley Archer.

[WebMD Video](#)

[Pilates Method Alliance](#)

CONNECTING WITH PILATES

The mind/body connection associated with yoga and meditation also plays an integral part in Pilates. Unlike exercise techniques that emphasize numerous repetitions in a single direction, Pilates exercises are performed with very few, but extremely precise, repetitions in several planes of motion.

What will all this focus and stabilization get you? Well, according to its adherents, Pilates can help you develop long, strong muscles, a flat stomach and a strong back, and improve posture. Of course, these changes are dependent upon other lifestyle

American Council on Exercise® is a nonprofit organization dedicated to empowering people to live their most fit lives. In addition to offering quality certifications and education for fitness professionals, ACE also protects the public against ineffective products, programs and trends by arming them with unbiased, science-based health and fitness information. To learn more about ACE, or how you can use or purchase Fit Facts, visit ACEfitness.org/FitFacts.



FitFacts®

Steering Clear of Strength Plateaus

CONSIDER THIS: IT'S BEEN A FEW MONTHS SINCE YOU FIRST STARTED WEIGHT TRAINING AND YOU'RE NOT SEEING THE SAME KIND OF RESULTS AS YOU DID AT THE BEGINNING. SOUND FAMILIAR? YOU MAY HAVE HIT A PLATEAU IN YOUR STRENGTH-TRAINING PROGRAM. IN FACT, UNLESS YOU CONTINUALLY UPDATE YOUR PROGRAM TO REFLECT THE CHANGES YOUR BODY HAS ALREADY EXPERIENCED, YOU ARE ALMOST GUARANTEED TO PLATEAU AT SOME POINT ALONG YOUR JOURNEY TOWARD REACHING YOUR STRENGTH-TRAINING GOALS.



STRUGGLING TO GAIN STRENGTH

Strength-training plateaus usually occur after about six months of training. They are especially noticeable at this time since the dramatic gains in strength that many people experience during the first few months of their programs begin to level off. These changes are often the result of continuously using one training approach.

The solution to the plateau is generally an easy one that involves varying your routine. The following approaches can help you steer clear of a strength plateau.

TURN UP THE INTENSITY

If you have been training two to three times per week for more than six months, performing 10 to 20 exercises per session, and are looking for additional size and/or strength gains, you should look closely at one factor: intensity. It seems that the best stimulus for increasing strength gains is to make the muscles work harder, as opposed to longer. High-intensity training may be the edge you need to get yourself off of a strength plateau.

If you're considering using lighter weights and more repetitions to get stronger or improve the appearance of your muscles, think again. High-repetition, low-resistance training is usually not sufficient to stimulate significant strength gains.

ADD VARIETY BY USING CROSS-TRAINING

If the reason you've hit a plateau is because you're bored, disinterested or lack motivation, add cross-training to your muscle strength and endurance workouts. Cross-training keeps your program interesting by utilizing a variety of different exercises and equipment.

Initially, try cross-training without changing intensity, then progress to changing the movement pattern of an exercise to stimulate a different pattern of motor unit recruitment.

Another alternative is to change the sequence of exercises you are already doing to create variety and a new overload. Because the muscles are being fatigued in a different order or pattern, they must adapt to this change in stimulus. The next step might be to replace some or all of the exercises in your routine.

For each exercise, look at the joint action(s) and muscle group(s) being utilized and then replace the exercise with one that targets the same group(s). For example, the bench press can be replaced by push-ups, dumbbell presses or incline and decline presses. You might consider scheduling a session or two with a personal trainer who can provide you with alternatives to the exercises you are currently using in your program.

Cross-training can help keep you motivated and interested in continuing your program, as well as stimulate greater strength gains. For optimal muscular development, variety is the name of the game.

DON'T LET A PLATEAU BECOME A PITFALL

If you've stopped gaining strength, 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

[Active](#)

FitFacts®

Flexible Benefits

MOST PEOPLE TAKE PART IN AEROBIC ACTIVITY TO IMPROVE THEIR CARDIOVASCULAR ENDURANCE AND BURN FAT. PEOPLE WEIGHT-TRAIN TO MAINTAIN LEAN MUSCLE TISSUE AND BUILD STRENGTH. THOSE ARE THE TWO MOST IMPORTANT ELEMENTS OF A FITNESS PROGRAM, RIGHT?

Actually, there are three important elements. Regrettably, flexibility training is often neglected. Flexibility training:

- Allows greater freedom of movement and improved posture
- Increases physical and mental relaxation
- Releases muscle tension and soreness
- Reduces the risk of injury
- Some people are naturally more flexible. Flexibility is primarily due to one's genetics, gender, age, body shape and level of physical activity. As people grow older, they tend to lose flexibility, usually as a result of inactivity, but partially because of the aging process itself. The less active you are, the less flexible you are likely to be. As with cardiovascular endurance and muscle strength, flexibility will improve with regular training.

STRETCH FOR SUCCESS

Before stretching, take a few minutes to warm up, as stretching cold muscles may increase your chances for injury. Begin with a simple, low-intensity warm-up, such as easy walking while swinging the arms in a wide circle. Spend at least five to 10 minutes warming up prior to stretching. The general recommendation for people starting an exercise program is to perform gentle dynamic-type stretches before a workout and static stretches after exercise.

When performing a static stretch:

- Take a deep breath and slowly exhale as you gently stretch the muscle to a point of tension
- Hold the stretch for 15 to 30 seconds, relax and then repeat the stretch two to four more times
- Dynamic stretches are more advanced and should be instructed by a qualified professional

Avoid these stretching mistakes:

- Don't bounce a stretch. Holding a stretch is more effective and there is less risk of injury.
- Don't stretch a muscle that is not warmed up.
- Don't strain or push a muscle too far. If a stretch hurts, ease up.
- Don't hold your breath during the stretch. Continue to breathe normally.

FITTING STRETCHING INTO A COMPRESSED SCHEDULE

Time constraints keep many people from stretching. Some complain they just don't have time to stretch; others hurry out of their fitness classes before the cool-down exercises are completed.



Ideally, at least 30 minutes, three times per week, should be spent on flexibility training. But even a mere five minutes of stretching at the end of an exercise session is better than nothing to reduce potential muscle soreness. And all aerobic activity should be followed by at least a few minutes of stretching.

Here are some tips for fitting stretching into an overbooked schedule:

- If you don't have time to sufficiently warm up before stretching, try doing a few stretches immediately after a shower or while soaking in a hot tub. The hot water elevates body and muscle temperature enough to make them more receptive to stretching.
- Try a few simple stretches before getting out of bed in the morning. Wake yourself up with a few full-body stretches by gently pointing the toes and reaching your arms above your head. This can clear your mind and help jump-start your morning.
- Take a stretching class such as yoga or tai chi. Scheduling a class will help you to stick with a regular stretching program.

ADDITIONAL RESOURCE

Thacker, S.B. et al. (2004). The impact of stretching on sports injury risk: A systematic review of the literature. *Medicine & Science in Sports & Exercise*, 36, 3, 371–378.