Winter 2005

AMERICAN COLLEGE OF SPORTS MEDICINE

ACSM FIT SOCIETY® PAGE

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ACSM FIT SOCIETY®

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Letter from the Editor

by Jeffrey A. Potteiger, Ph.D., FACSM

Welcome to the Winter issue of the *ACSM Fit Society® Page* newsletter. In order to get active and stay active, ensuring the safety and comfort of exercise is an essential factor. The more you know about how to exercise safely and avoid injury, the more apt you are to stay active and healthy for a lifetime. In this issue, sports medicine and exercise science experts profile important topics in safety, with recommendations for getting a good workout while avoiding pain and injury.

Enjoy this issue, and pass along the information you learn here to others you encounter. The tips and tools in the *ACSM Fit Society® Page* can enhance the health and wellness of our families and friends. If you have any questions or comments, please be sure to contact us.

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FEATURE

Safe Exercise for Women

by Sheila Dugan, M.D.

Exercise and physical activity, like walking and riding your bike, bring many health benefits when done on a regular basis. Accumulating 30 minutes of moderate intensity activity for five days of the week can lower your blood pressure and reduce your heart attack risk. Obviously, the American College of Sports Medicine (ACSM) believes in educating the public on these benefits and encouraging all of us to choose to move. One of the many barriers to getting started and sticking with an exercise routine is safety concerns, especially for women. Safety in exercise includes protecting yourself from personal harm or exercise-related injury. Attention to correct equipment, apparel, and lighting conditions is key, as these are some of the common reasons for personal harm. This article will address injury prevention, such as proper calorie intake and listening to our bodies, as a means of exercising safely.

There are times in a woman's life where particular safety concerns take center stage. Here are some examples of exercise-related injury in a woman across her lifespan.

Teen Years

In the teenage years, we are on the lookout for signs and symptoms of the Female Athlete Triad. The Female Athlete Triad is the combination of disordered eating, loss of normal menstrual periods and premature osteoporosis (thinning of the bone). The overlying issue is an energy debt – the energy expended is greater than energy (calories) consumed. The body's reproductive hormones can become abnormal. Girls and young women with the Triad often don't know their condition until they suffer a stress fracture(s). Parents, coaches and trainers can help with prevention. Sadly, some studies show that once the bone thins, it is impossible to build it back to its normal young adult density. Girls and women should be reminded to replenish calories and fluid at least equal to what they expend.

Childbearing Years

Pregnancy poses some particular safety concerns for exercising women. Overall, women are encouraged to exercise while pregnant. The 2003 American College of Obstetrics and Gynecology (ACOG) exercise guidelines during pregnancy suggest that inactive women or those with pregnancy complicated by active medical problems or obstetrical issues (for example, history of premature labor) seek medical advise for specific individualized exercise recommendations. For pregnant women previously active in recreational sports and exercise, the 2003 ACOG guidelines recommend women should continue to be active during pregnancy. Use of the talk test can help pregnant women from overdoing it. If the exercising mother is not able to maintain a conversation, she may be over exercising. Pregnant women may be at higher risk of joint sprains and muscle strains. There are hormones produced by the

Safe Exercise (continued from page 1)

mother to prepare the joints of the pelvis for labor and delivery that can make other joints more mobile as well. Shoes with a good rubber sole and avoidance of slippery surfaces are of greater importance in pregnant women. Many cities and birthing centers have exercise programs geared toward pregnant women that are fun and educational.

Post-Menopausal Years

Regular exercise can limit age-related functional decline and help women recover from illness or surgery. Weight-bearing activities have a bone stimulating effect that can combat the loss of bone density that comes with menopause. However, physical activity can be the cause of musculoskeletal problems like osteoarthritis, especially in obese women. But remember, regular exercise can prevent obesity, thereby reducing one's risk of osteoarthritis. For obese women starting exercise, we typically recommend low impact exercise such as walking, swimming or bicycling. Women known to have low bone density (osteoporosis) must be particularly careful to avoid falls, as they can result in fractures.

Women involved in a particular sport have specific potential exercise-related injuries. Using running as an example, safe participation includes a slow progression of running mileage, correct shoe wear, and close attention to pain to avoid serious injuries. The most common running injury is patellofemoral pain (knee cap pain). Women are built differently than men, especially regarding the shape of our pelvis, which is related to childbearing. Since we have wider pelvis bones and are more likely to have flatter feet, we have a sharper angle at our knee that can add pressure to the knee cap. It is important to choose shoes with good support and a shape that fits the shape of one's feet. Keeping our quadriceps muscles (on the front of our thighs) stretched out can reduce the knee cap pressure. Slow progression of running mileage on a weekly basis is important especially if you are training for a race or marathon. Listen closely to your body for any signs of overdoing it (pain or stiffness) and slow your progress to avoid injury.

Remember, women benefit from being active as long as they exercise safely!

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For more information on subjects discussed in this issue and/or for a catalog of all ACSM publications, please send a self-addressed, stamped envelope to: American College of Sports Medicine, P.O. Box 1440, Indianapolis, IN 46206-1440.

Q&A

by Amy Lauer, MS, MPAS, PA-C

Q: Is it safe to exercise during menstruation?

A: Not only is it safe to exercise during menstruation, but exercise may alleviate symptoms of premenstrual syndrome (PMS) and painful menstrual cramps (dysmenorrhea). Exercise exerts an effect on several hormones which decreases the congestion in the pelvic region and thereby decreases pain. Light, regular exercise can increase endorphin release, reduce stress, and help a person relax. Regular relaxation can help decrease symptoms of PMS. A diet which limits salty foods and caffeine, increases fresh fruits and vegetables (good sources of fiber), and increases water intake will help decrease bloating and fluid retention. It is also important to remain well hydrated to account for loss of blood.

Q: Can I work out after I receive an immunization?

A: For most vaccinations, it is completely safe to exercise after you receive the vaccination. Exercising the injection site after receiving many intramuscular vaccines may actually decrease the amount of pain that a person feels. However, if you are a competitive or elite athlete, you may not want to get the immunization just prior to high levels of training or competition due to possibility of sore muscles at the injection site or other adverse reactions. It is always best to consult your physician who administers the vaccine.

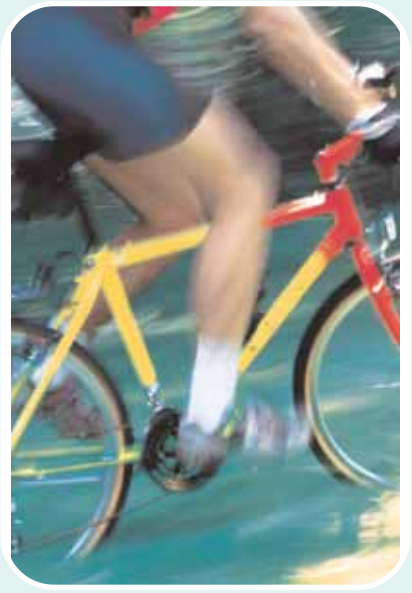
Q: My doctor just told me that I have mononucleosis (aka "mono"). Can I still exercise?

A: Mononucleosis is a viral illness caused by the Epstein-Barr virus (EBV). It has an incubation period of 30 to 90 days. Once a person exhibits symptoms of mono, it may take four to six weeks to feel better. In the acute phase of the illness, it is best to not exercise, get an increased amount of rest, and generally "take it easy." With mono, a person's spleen is likely to become enlarged and soft. This makes the spleen easier to rupture, so it is best to avoid contact sports (kickboxing, football, and wrestling) or activities that may increase the intra-abdominal cavity pressure (crunches). With mono, a person may feel extremely fatigued, so it may take your body longer to recover after physical activity than if you weren't sick. You may also experience a decrease in appetite with mono. It is very important to increase your intake of liquids to reduce your risk of dehydration. I tell my patients to listen to their bodies; it will tell you when you are ready and if you are overdoing it.

FEATURE

Safe Cycling

by Jerry J. Mayo, Ph.D.



Bicycling is one of the most popular recreational activities worldwide. Whether you are riding on a smoothly paved road or zipping down a single-track trail, safety remains the chief concern for all cyclists. Just a few safety tips will make your ride more enjoyable and reduce your risk of injury.

The practice of safe cycling begins before ever mounting your bike. First, wear clothing that will increase your visibility while riding. All local bike shops sell this type of cycling gear. Jerseys and shorts that incorporate bright colors allow you to be seen from a distance. Next, you must wear a helmet anytime you ride your bike, period. Regardless of the distance you plan to cycle, there simply is no excuse for leaving your helmet at home. Don't be reluctant to wear a helmet because you feel it "makes you look goofy." The bottom line is that it's not worth the risk, as many serious cycling injuries occur due to head trauma. A helmet should be comfortable, yet fit snugly so that if you lose control of your bicycle or have an unexpected accident, it stays secure on your head.

Once on the road, a number of safety hazards exist for those who share the road with vehicles. As mentioned previously, it is important to wear a helmet; unfortunately this does not prevent you from getting hit by a moving vehicle! Yes, a helmet helps if you are hit, but the main goal of those riding on the road is to avoid being hit in the first place. This means cyclists need to be "defensive," and do more than just obey traffic laws to prevent collisions with vehicles. Cyclists should be proactive by maintaining their focus while riding, always being alert to what's going on around them. A loss of concentration for even a split second can lead to an accident.

Bicycle enthusiasts often get angry with motorists who do not "share" the road. However, many of these same cyclists disregard traffic laws, not only putting themselves at risk but also fostering a negative attitude towards bike riders in many communities. If cyclists are going to be accepted by motorists, we must first follow the rules of the road. Bikers, like motorists, should make a complete stop at all stop signs and traffic lights. Cyclists need to always ride with traffic near the right edge of the road unless planning to pass another biker, avoid an object, or a parked vehicle. Also, always use a bike lane when one is present. The only time you should move towards the middle of the road is when you are turning left. Appropriate hand signals should always be used to alert motorists of your intentions.

To avoid an accident with a vehicle you should follow these key safety tips. First, never pass cars on the right, particularly near intersections. At red lights, you should stop behind vehicles not beside them. Stopping beside a vehicle at a light is dangerous because you are now in the motorist's blind spot. If you move forward as the light turns green and the vehicle turns right you could get hit. Also, don't ride on the sidewalk. As you dart off the sidewalk into the street (even at crosswalks) you're invisible to motorists, increasing the likelihood of being hit.

Another general safety tip for road cyclists is to avoid busy streets. Plan the safest route possible for your ride. The safest routes are usually longer, but recognize this as a chance to log a few extra miles. Remember that riding in a large group requires an extra amount of care. There should be ample distance between your front wheel and the rear wheel of other riders. Also, aerobars, which are used for triathlons, should not be employed during group rides. Finally, if you plan to ride on the streets at night, be sure to use a headlight and blinking taillight to improve your visibility.

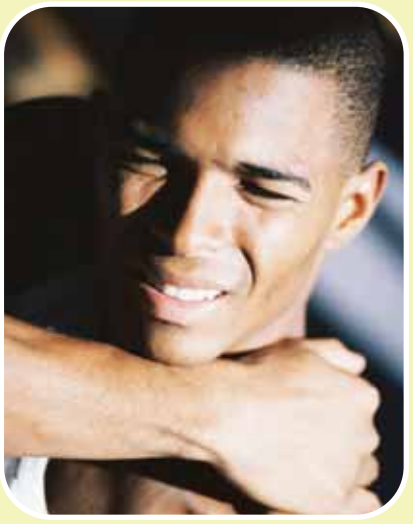
For those who prefer mountain biking, a few simple tips can help keep you safe on the trails. First, be realistic regarding your experience level. Mountain bike trails are usually marked based on difficulty. If you know you're a beginner, do not attempt an advanced trial. It takes time to learn the bike-handling skills needed to progress to more advanced trials. Be patient. If you plan to tackle a trail in an isolated area, make sure to tell someone where you are going and never ride alone. Also, if you plan to be on the trail for an extended period of time, use a drinking system (*e.g.*, CamelBak) to maintain hydration.

Other general tips to promote safe cycling include regular maintenance of your bike and proper tire inflation prior to beginning your ride. Also, make sure you have a tool kit with spare tube, tire levers, CO_2 cartridges, identification and a few extra dollars. Finally, carrying a cell phone allows you to call for assistance (if there is service) in case you become stranded or have an accident on the road.

FEATURE

Common Injuries: How to Work Around Them

by Martha Pyron, M.D.



What are some common injuries you may encounter when exercising? Sprains and strains.

Sprains are injuries to the ligaments around a joint. For example, if you turn your ankle while playing basketball, you may have stretched or torn the ligaments around your ankle. These injuries can be mild or severe. Mild injuries involve some pain and swelling, but the integrity of the ligaments is

Common Injuries (continued from page 3)

not hampered, and there is mild limitation of activity. You may be able to walk with little discomfort, but will have pain if trying to run. More severe sprains cause laxity or looseness around the joint and are associated with more severe pain with standing or walking. Moderate injuries are somewhere in between. Because moderate to severe sprains may be associated with more long-term consequences, it is recommended that these be evaluated by a medical professional. For mild sprains, some common sense treatments will guide you back to health. The RICE method: Rest, Ice, Compression, Elevation, and a slow and gentle return to activity are things to keep in mind. Mild injuries may take a few days to a few weeks to resolve, but moderate to severe sprains usually require several weeks or months to resolve.

Strains are injuries to the muscles in the body. For example, if you pull your hamstring running the bases during a softball game, you may have a muscle strain. These injuries are also graded from mild to severe. Mild injuries involve some pain and tightness, but the muscle structure is intact. Severe injuries include tearing of the muscle fibers, may have bruising and swelling in the area, and can lead to serious debilitation. Moderate injuries lie somewhere in between. Mild strains may take several days or a couple of weeks to resolve. Moderate to severe muscle strains may take a few weeks or months to resolve. Moderate to severe strains should be evaluated by a medical professional. Similar principles hold for the treatment of strains and sprains. Rest, Ice, Compression, and Elevation are good techniques to utilize early in an injury. After some time, these injuries may benefit from heat and stretching. It is important after a muscle injury to regain the flexibility of the muscle to help prevent future injuries.

If you have worked hard to develop an exercise routine, and have dedicated yourself to a healthy lifestyle, you may not want to stop exercising just because you are injured. Developing an exercise routine that works for you and sticking with it is difficult, and injuries may disrupt your plans and lead to a period of inactivity. Restarting an exercise program can be even more difficult for some. It is possible to continue exercising despite an injury, but you have to be careful. You do not want to do anything that causes pain. This could be a sign that you are causing further injury to the already injured area. But, activity that doesn't cause pain is generally okay. For example, if you have injured your ankle, you may still be able to lift weights in your upper body, abdominals, and trunk. And, instead of running, you may be able to continue your aerobic work out with the arm cycle at the gym, by swimming with a leg float, or by walking. If you have a shoulder strain, instead of playing basketball, try jogging, riding a bike, or lifting weights with your legs. The general rule is to avoid activities which cause pain during or after the exercise, and to stop activities which cause pain altogether.

How do you prevent these injuries? The best way to prevent common injuries is to stay fit by maintaining muscle strength, flexibility, and aerobic capacity. This way, when you exercise, your muscles will not tire as easily and you will have the strength to exercise without undo strain on the muscles or ligaments. When starting an exercise program, gradually increase the time and intensity of the program so your muscles and aerobic capacity will adapt and improve, thereby helping protect you from injury. Weekend warriors generally do not follow these principles and therefore have a higher likelihood of sustaining an injury.

FEATURE

Exercise Right: Proper Warm-up and Cool Down

by Melissa Burgemeister, ATC

Keywords: Warm-up, cool down, stretch

Adequate warm-up prior to physical activity is important to ensure a safe and effective exercise session. A simple warm-up will increase blood flow throughout the body, especially to muscles, and will begin to raise the internal body temperature. Warm muscles and tendons are less prone to injury and may improve physical performance. A proper warm-up also helps to mentally prepare for exercise. The warm-up can be divided into a simple three step process: 1) general warm-up, 2) stretching, and 3) specific warm-up.

General Warm-Up

The warm-up routine should begin with a low intensity exercise which slightly increases your heart rate. The general warm-up can be personalized to include equipment you may access. If your exercise is jogging, begin your warm-up with a steady walk. If you are in for a game of basketball, begin with some free throws and relaxed shooting. Remember, start slow and don't wear yourself out during the warm-up.

Stretching

Once your muscles are warm, take time to stretch. Muscles are much more flexible when they have been warmed compared to when they are cold. Focus on stretching large muscle groups such as the hamstrings and quadriceps. Specifically, stretch the muscles that you will be using to perform your activity. To maximize the benefit received from the stretch and to help improve flexibility, hold each stretch for 20 to 60 seconds. Be sure not to stretch so far that you induce pain, and maintain proper breathing during each stretch. Hamstring, calf, and quadriceps stretching is essentially for lower body activities. Pectoralis major, deltoid, and neck stretches should be included for upper body activities.

Specific Warm-Up

The final stage of the warm-up is to do exercises specific to the activity you will be completing. If you plan to lift weights, begin with a light weight and perform a few reps before increasing the weight and repetitions. Run up and down the sidelines prior to a basketball or soccer game. The warm-up should last at least five to 10 minutes, although more time may be necessary if preparing for more intense exercise. If you are exercising in cold weather, take additional time to ensure that your body is adequately warmed-up. Once you are sufficiently warm and flexible, your body is ready for exercise.

Cool Down

The cool-down period following a workout is just as important as the warm-up. This time is used to reduce your heart rate and breathing rate, and to help with recovery following exercise. Performing a cool-down

has been shown to decrease light-headedness and prevent pooling of the blood within the muscles, which can lead to fainting and soreness. A cool-down also allows waste products to be removed from your muscles, possibly minimizing soreness after activity.

Begin the cool down by decreasing the intensity of the activity you were performing or by walking or jogging at a lower intensity than the exercise. Remaining active is an important component of the cool-down. The cool down should last five to 10 minutes and be followed by light stretching to help relax the muscles. The stretching should focus on the muscles used during the activity. Upon completion of your exercise routine, be sure to drink plenty of water and replenish lost nutrients.

THE ATHLETE'S KITCHEN

Winter and Nutrition: Fueling for Cold Weather Exercise

by Nancy Clark, MS, RD

Some athletes embrace winter's chill as a welcome change from exercising in summer's heat. But others complain about hating cold weather. If that's your stance, remember that exercising with proper nutrition (and layers of dry clothing) offers the opportunity to chase away the chills. After all, an aerobic workout can increase your metabolism by seven to 10 times above the resting level.

This means if you were to exercise hard for an hour and dissipate no heat, you could raise your body temperature from 98.6° to 140° F. (You'd cook yourself in the process!) In the summer, your body sweats heavily to dissipate this heat. But in the winter, the warmth helps you survive in a cold environment. Runners can enjoy a tropical environment in their running suit within minutes of starting exercise.

Because food provides the fuel needed to generate this heat, the right sports diet is particularly important for skiers, skaters, runners and other athletes who are exposed to extreme cold. The following article addresses some common questions and concerns about winter and nutrition and offers tips to help you enjoy the season.

For safety sake, winter athletes should always carry with them some source of fuel in case of an unexpected slip on the ice or other incident that leaves them static in a frigid environment. Winter campers, for example, commonly keep a supply of dried fruit, chocolate or cookies nearby for fuel if they wake up cold in the middle of the night. You want to have an emergency energy bar tucked in your pocket, just in case.

Why do I feel hungrier in the winter than in the summer?

A drop in body temperature stimulates the appetite and you experience hunger. Hence, if you become chilled during winter exercise (or when swimming, for that matter), you'll likely find yourself searching for food. Eating "stokes the furnace," generates heat, and helps warm your body.

Food's overall warming effect is known as thermogenesis (that is, "heat making"). Thirty to 60 minutes after you eat, your body generates about 10 percent more heat than when you have an empty stomach. This increased metabolism stems primarily from energy released during digestion. Hence, eating not only provides fuel but also increases heat production, warmth.

Do I burn more calories when I exercise in the cold?

Cold weather itself does not increase calorie needs. You don't burn extra calories unless your body temperature drops and you start to shiver (remember that the weather can actually be tropical inside your exercise outfit). Your body does use a considerable amount of energy to warm and humidify the air you breathe when you exercise in the cold. For example, if you were to burn 600 calories while cross-country skiing for an hour in 0° F weather, you may use about 23 percent of those calories to warm the inspired air. In summer, you would have dissipated this heat via sweat. In winter, you sweat less.

If you are wearing heavy clothes, you will burn a few more calories to carry the extra weight of skis, boots, heavy parka, snow shoes. The Army allows 10 percent more calories for the heavily-clad troops who exercise in the cold. But the weight of extra clothing on, let's say, winter runners is generally minimal.

Why do I find myself shivering when I get cold?

Shivering is involuntary muscle tensing that generates heat and offers a warming effect. When you first become slightly chilled (such as when watching a football game), you'll find yourself doing an isometric type of muscle tensing that can increase your metabolic rate two to four times. As you get further chilled, you'll find yourself hopping from foot to foot and jumping around. This is Nature's way to get you to generate heat and warm your body. If you become so cold that you start to shiver, these vigorous muscular contractions generate lots of heat — perhaps 400 calories per hour. Such intense shivering quickly depletes your muscle glycogen stores and drains your energy. This is when you'll be glad you have some emergency food in your pocket!

What's a big nutritional mistake made by winter athletes?

Failing to drink enough fluids is a major problem among winter athletes — hockey players, skiers, runners and winter hikers alike. Cold blunts the thirst mechanism; you'll feel less thirsty despite significant sweat loss (if you overdress), to say nothing of respiratory fluid loss. That is, winter athletes need to consciously consume fluids to replace the water that gets lost via breathing. When you breathe in cold dry air, your body warms and humidifies that air. As you exhale, you lose significant amounts of water.

Some winter athletes purposefully skimp on fluids because urinating can be problematic — too much hassle to shed layers of clothing (ski suit, hockey gear, snow pants, *etc.*) Yet, dehydration hurts performance and is one cause of failed mountaineering adventures.

Winter (continued from page 5)

What's best to eat to warm myself up?

If you become chilled by the winter weather, as can easily happen if you—

- wear sweaty, wet clothing that drains body heat,
- fail to wear a hat (30 to 40 percent of body heat can get lost through the head), or
- drink icy water (from a water bottle kept on your bike or outside pocket of your back pack when winter hiking).

The best way to warm yourself up is to consume warm carbohydrates — hot cocoa, mulled cider, and steaming soup, as well as oatmeal, chili, and pasta. The warm food, added to the thermogenic effect of eating, contributes to rapid recovery.

In comparison, cold foods and fluids chill your body. Research subjects who ate a big bowl of ice cream in five minutes experienced a drop in fingertip temperature of 2° F in the first five minutes, 5° in 15 minutes. In summer, this cooling effect is desirable, but in winter, hot foods are the better way to warm yourself. Bring out the thermos of soup!

Why do I gain weight in the winter?

Some people eat more because they are bored and less active. Instead of playing tennis, they are eating mindlessly in front of the TV. For others, the change of seasons has a marked affect upon their mood (known as seasonal affective disorder, or SAD). Changes in brain chemicals increase carbohydrate cravings and the desire to eat more. Holiday temptations also contribute to weight gain. A study of 195 people indicates they gained on average 0.8 pounds in the six weeks between Thanksgiving and New Years. Overweight and obese people gained even more, with about 14 percent of the group gaining more than five pounds. The problem is, very few of the subjects lost those holiday pounds. Hence, yearly holiday weight gain becomes a major contributor to America's obesity problem — that's eight pounds in 10 years.

One weight management solution is to stay active in the winter. By investing in proper clothing, you'll be able to stay warm from head to toe. You'll benefit from not only being able to enjoy exercise but also from sunlight — a good way to battle winter depression (and attempts to cheer yourself up with food). Winter exercise is an asset for managing heath, weight and the winter blues. The tricks are to dress right, fuel well, prevent dehydration — and you'll stay warm!

Educators: Recruit Students with ACSM

The American College of Sports Medicine (ACSM) is seeking additional sports medicine and exercise science academic programs for ACSM's Graduate and Undergraduate Programs Link.

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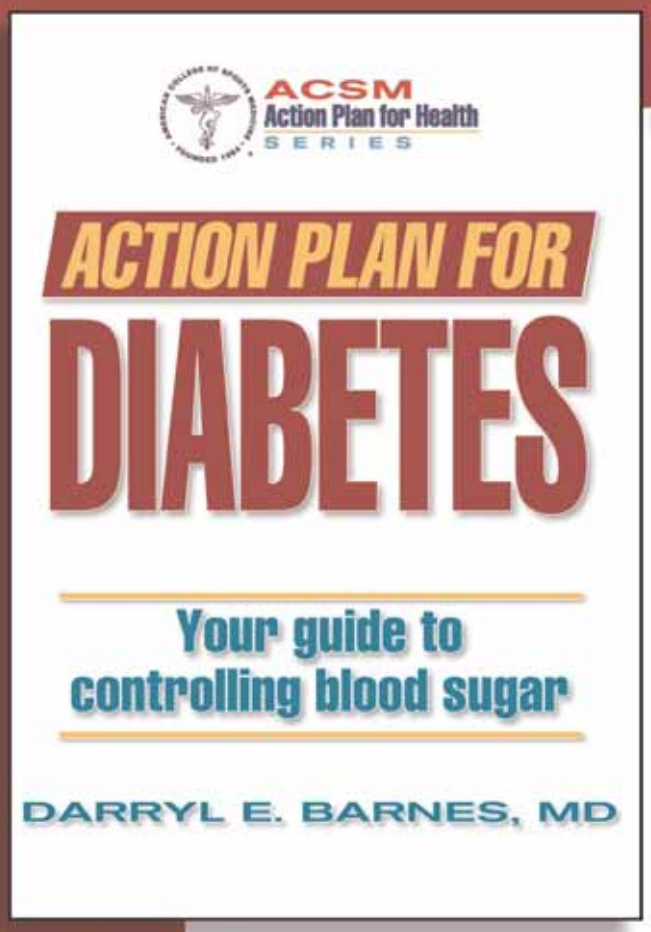

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Developed by the American College of Sports Medicine, *Action Plan For Diabetes* is a comprehensive guide to managing and preventing complications associated with types 1 and 2 diabetes and pre-diabetes, potentially decreasing the need for insulin injections. This exercise-based plan can be tailored to an individual's goals, whether they involve boosting energy, losing weight, gaining strength, or all three!

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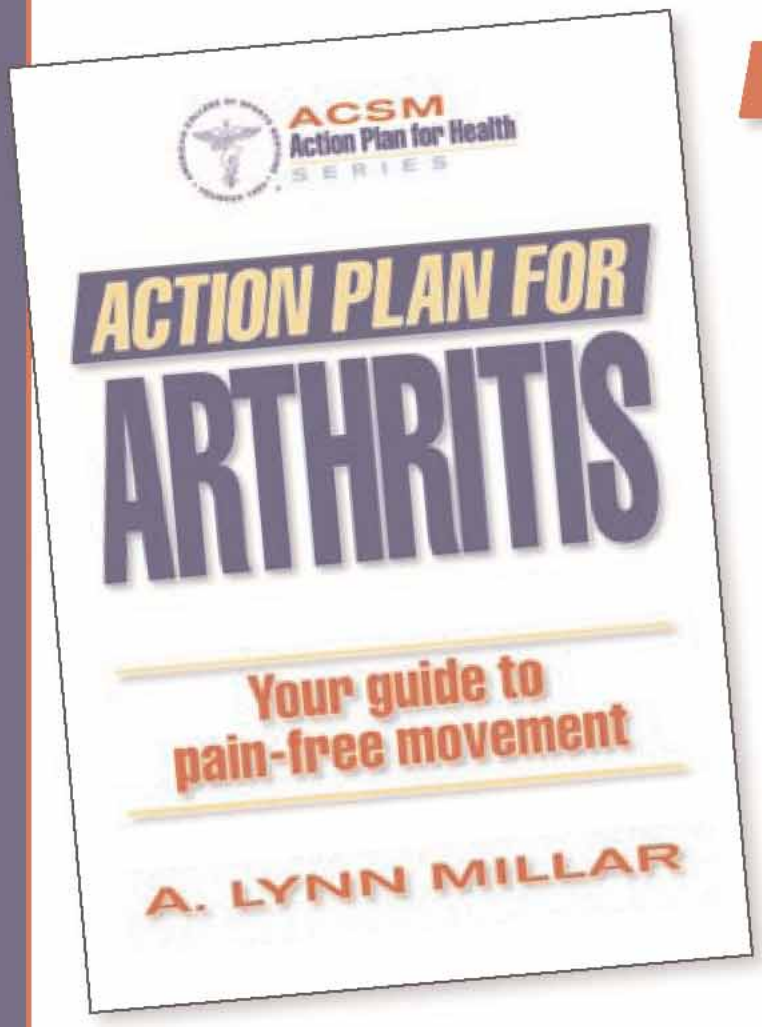

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