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Breaks, Tears and Strains Preventing Sports Injuries

You've heard about the many health benefits of physical activity. On top of improving your fitness, exercising and playing sports can also help boost self-esteem, coordination and self-discipline—particularly for children. But these benefits can come at a price: sports injuries. Fortunately, you can prevent many sports injuries by taking some simple precautions.

Contact sports like football put athletes at obvious risk. Of special concern are severe injuries to the neck, spinal cord and, for young athletes, growth plates—the areas of developing cartilage where bone growth occurs.

"The highest rates of injuries occur in sports that involve contacts and collisions," says Dr. Lynne Haverkos, a pediatrician at NIH. "Head injuries are the most serious of the sports-related injuries, and although fatal head injuries are rare, they are the leading cause of death from a sports-related injury." Haverkos says that about 21% of traumatic brain injuries in kids are related to sports and recreational activities. Many of those are bicycling, skateboarding and skating injuries.

That's why the first thing you need to do is make sure you're using the right helmet or other protective gear for your sport. And be sure it fits properly.

But virtually any part of your body can be injured during sports or exercise. Many injuries involve the

musculoskeletal system: muscles, bones and associated tissues like cartilage. "**Sprains** and **strains** are among the most common injuries people get," Haverkos says, adding, "Knees, ankles and wrists are commonly injured joints."

Equipment can play a role in these types of injuries as well. From shoes to bicycles to ice skates, whatever your sport, good equipment that fits your body properly can help you prevent all kinds of problems.

Different people tend to get dif-

ferent types of injuries. The bones, muscles, tendons and ligaments of young athletes, for example, are still growing and more prone to injury. Their growth plates are weaker than the nearby ligaments and tendons.

Children who are just learning a sport are at a higher risk for injury. They may be more prone to falls or collisions because their bodies aren't trained to move a certain way. If your child participates in sports, look for programs with certified athletic trainers. If you're supervising a sport, make sure children know and follow the rules of the game and learn proper form. Learning to stroke properly from a swimming coach, for example, can help prevent shoulder problems.

Make sure equipment fits properly, and that the kids are using it safely. And provide a safe environment. A poorly maintained playing field or unsecured soccer goal can cause serious injury.

Haverkos says that, ideally, children should be grouped according to skill level and size, not by age. If that's not possible, design the activities to accommodate children with varying skill

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Definitions

Sprain

An injury to a ligament, which holds bones together at a joint.

Strain

An injury to muscles or tendons, which hold muscles to bone.

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levels. When 2 children of the same age but different levels of physical maturity are pitted against each other, the physically immature child is more likely to get injured.

One mistake parents often make is pushing kids into sports or competition levels that they're not prepared for, Haverkos says. "Competition should be less important than having fun and socializing," she explains. "Sports provide valuable ways to be physically active, learn skills, socialize and have fun."

Kids aren't the only ones who get sports injuries. More adults than ever are participating in sports. Less agile and resilient than they once were, adults can be more prone to injury than they think.

You're more likely to hurt yourself if you haven't been keeping fit. People who take the winter off and start rigorous activity as soon as the weather improves are prone to injury. If you try to pack a week's worth of activity into a day or 2 on the weekend, you're also at risk.

"It's the sudden changes that really get you, the sudden jumps in activity," says Dr. Martha Murray of Children's Hospital, Boston.

If you've been off for a while, don't try to do too much at first. "You should think about any sports participation as something you need to prepare for," Murray says. Whatever your age and whatever level of sport you do, it's important to train your muscles and joints so they have adequate strength, endurance and

flexibility. "Start slow and then build up so you are ready when the activity starts," she says.

Learning to listen to your body will help you avoid injury. "If you have pain when doing an activity, stop," Murray advises.

Parents and coaches should never push a child to play with pain. "If you push on through mild injuries, you can aggravate them and make them worse," Haverkos says.



Wise Choices Dealing with an Injury

If you have severe pain, swelling or numbness, or can't tolerate any weight on the injured area, contact your health care provider or go to an emergency room. It's probably okay to treat less severe injuries at home—at least, at first. Follow the RICE method:

Rest. Give the injured area time to heal.

Ice. Apply an ice pack for up to 20 minutes at a time, 4-8 times a day.

Compression. Wrap the area with an elastic bandage.

Elevation. If possible, keep the injured area elevated above the level of the heart.

If you're using RICE but the pain or other symptoms get worse, contact your health care provider.



Web Links

For links to more about sports injuries, see this story online:

<http://newsinhealth.nih.gov/2009/June/feature1.htm>

You can hurt yourself by overdoing it even if you don't have pain. "If you're fine during the activity, but have soreness that night and feel fine the next day," Murray says, "that's often part of your body getting used to the new activity. But if you're sore for 3 days, you've done too much."

Doing different sports on different days using different muscle groups—called cross-training—can also help prevent injury. "Different sports may have wear and tear on different muscle groups," Murray explains. "If you cross-train, that gives muscles and joints a chance to recover." Strive for a total body mix of cardiovascular, strength training and flexibility exercises.

Warm-up exercises, such as stretching or light jogging, before an activity reduce the chance of muscle strain or other injury. And make sure to cool down. For example, after a race, be sure to walk or jog lightly for 5 minutes so your pulse slows down gradually. After a workout, when the body's tissues are warmer and more flexible, is also the safest time to do stretching to work on your flexibility.

NIH is funding many research projects into repairing sports injuries. Other scientists are looking into why some people are more susceptible to injury than others. Female athletes, for example, have higher injury rates than men in many sports. Both Murray and Haverkos are excited about promising new research into safety training programs and other methods for preventing injuries in the first place.

Don't let the prospect of getting injured scare you off. We already know a lot about how to prevent injuries. And the benefits you can get from sports and exercise are too important to ignore. ■

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Season of Ticks

Don't Let Them Take a Bite Out of Your Summer

With the blossoming of spring, it's time to lace up your hiking boots and head to the great outdoors. But first, take note. Every year thousands of adults, children and pets across the country are exposed to Lyme disease and other diseases carried by ticks. Simple precautions can help you avoid getting sick from these blood-feeding creatures.

In 1975, 51 people came down with a mysterious arthritis-like ailment in Lyme, Connecticut. NIH researchers discovered that the disease was caused by small, coiled bacteria called *Borrelia burgdorferi*, or simply Bb. The bacteria spread to humans from the bite of a tiny deer tick. The tick can be as small as a pinhead.

Lyme disease is now the most common tick-borne disease in the

United States, with over 27,000 cases reported in 2007. Most were in the Northeast and Midwest, but people in all 50 states are at risk. Ticks can also transmit other diseases, including Rocky Mountain spotted fever, ehrlichiosis and anaplasmosis. Peak tick season is in June, July and August.

A deer tick can live on a variety of warm-blooded animals. Immature ticks favor small mammals, while adults tend to feed on white-tailed deer. The small mammals that ticks feed on can act as reservoirs for Bb, harboring it in their bloodstream. After a tick takes a blood meal from an infected animal, or host, the bacteria remain in the tick's gut throughout its life. The tick can then infect any new creature it feeds upon, including humans. However, transmission of Bb to a new host requires 24 to 48 hours.

That's why it's important to carefully check your body and clothing for ticks after being outdoors in woody and grassy areas. If you see a tick, you can lessen the chance of infection by removing it from your body early, even if it's already begun to feed.

A bull's-eye shaped rash at the site of the tick bite is the most reliable early symptom of Lyme disease. It appears 3 to 32 days after a tick bite in 70-80% of cases. The rash has a dark spot in the center where the bite was, with a lighter color ring around the spot.

Other early symptoms of Lyme disease resemble those of the flu. Warning signs include fatigue, headache, joint stiffness, stiff or painful muscles, fever and swollen joints. If the disease progresses, symptoms such as irregular heartbeat, heart palpitations



or neurological abnormalities can develop. In its most advanced stages, Lyme disease can be debilitating.

"Early treatment is the most effective way to clear the infection from the body," says Dr. Joseph Breen of NIH's National Institute of Allergy and Infectious Diseases. The key is to consult a health care provider as soon as you recognize any symptoms.

"Scientists are currently working to understand how Bb interacts with its host," says Breen. "In addition, work is underway to develop more effective diagnostic tools and vaccines."

Gardening, camping, hiking and just playing outdoors are all great spring and summertime activities. But make tick prevention a part of your routine. ■



Wise Choices Preventing Tick- Borne Diseases

- Avoid walking in woody and bushy areas with high grass.
- Stay on groomed trails when hiking.
- Wear long, light-colored pants, sleeves and socks. Tuck your pant legs into your socks.
- Spray exposed body areas and clothing with tick repellent.
- Search your entire body for ticks after being outdoors and immediately wash your clothing.
- Safely remove ticks. Gently grasp the tick with tweezers and slowly pull upward to allow the tick to release its bite.
- Wash the bite area with alcohol or soap and water, and contact a health care provider if you develop a fever, headache, fatigue or bull's-eye rash.



Web Links

For links to more about tick-borne diseases, see this story online:
<http://newsinhealth.nih.gov/2009/June/feature2.htm>

Health Capsules

For links to more information about these topics, visit this page online:
<http://newsinhealth.nih.gov/2009/June/capsules.htm>

Real and Imitation Acupuncture Both Ease Back Pain

Patients with low back pain who had acupuncture improved more than those who got typical medical care, a new study found. But surprisingly, imitation acupuncture brought as much improvement as the real thing. The finding raises questions about how acupuncture relieves pain.

Some people with back pain who aren't happy with standard medical care decide to try acupuncture. In fact, back pain is the main reason people visit licensed acupuncturists.

Acupuncture originated in traditional Chinese medicine. It involves inserting thin metal needles through the skin to stimulate specific points on the body. In the U.S., acupuncture is considered part of complementary and alternative medicine.

To see how acupuncture com-

pares to standard therapies, researchers enrolled 638 adults in an NIH-funded clinical study. All had long-term low back pain but had never had acupuncture.

The patients were divided into 4 groups. Two groups had different types of acupuncture. People in the third group didn't realize it, but they received an imitation of acupuncture, which used toothpicks to stimulate acupuncture points but didn't break the skin. In the 3 acupuncture groups, each patient received 10 treatments. The fourth group had standard medical care for low back pain.

After 8 weeks, all 3 acupuncture groups showed significantly more improvement than the standard-care group. The benefits continued for a year, although they lessened

over time. Surprisingly, there was no significant difference between the 3 groups receiving acupuncture, whether real or imitation.

"This adds to the growing body of evidence that there is something meaningful taking place during acupuncture treatments outside of actual needling," says Dr. Josephine P. Briggs, director of NIH's National Center for Complementary and Alternative Medicine. "Future research is needed to delve deeper into what is evoking these responses." ■

Medicare Basics for Caregivers

If you're caring for an older friend or family member, you've probably had questions about Medicare. Medicare is the federal health insurance program for adults 65 and older and people under age 65 with disabilities. Now you can get some answers at an easy-to-read web site called "Medicare Basics for Caregivers." It's part of the NIH SeniorHealth.gov web site for older adults.

You may already know that Medicare helps pay for medical and prescription drug costs. But it can be challenging to figure out the details of what's covered and what's not.

"Knowing how Medicare works can help a person make better financial decisions about care," says Dr. Marie Bernard, deputy director of NIH's National Institute on Aging. "A caregiver who is knowledgeable about Medicare can be an informed advocate for an older loved one who needs to access the benefits the program provides."

To get a basic overview of Medicare and learn more about its medical and hospital benefits, billing, prescription drug costs, home health care and much more, visit <http://nihseniorhealth.gov/medicare/toc.html>. ■

Featured Web Site Know Stroke

<http://stroke.nih.gov/>

Fast medical action is key to successful recovery from stroke. This web site helps you learn the signs of stroke and the importance of getting to the hospital quickly. Stroke strikes fast, and you should too. Call 911 if you think someone is having a stroke.

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