Hughston Health Alert

6262 Veterans Parkway P.O. Box 9517 Columbus GA 31908-9517

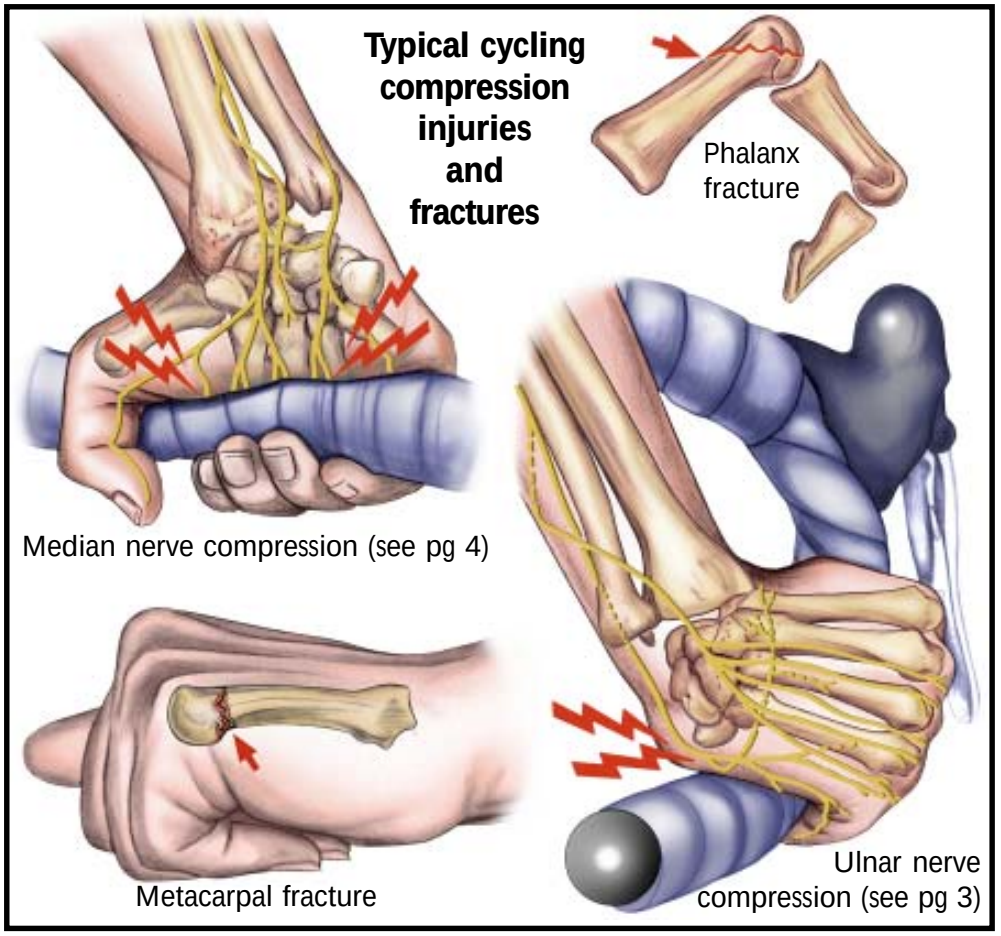
VOLUME 15, NUMBER 3 | www.hughston.com | SUMMER, 2003

Bike Injuries

Collision-related trauma

The popularity of cycling has increased by leaps and bounds over recent years. Bicycling has always been a favorite form of recreation for children, but, recently, more adults have migrated to cycling for its benefits as an aerobic exercise and as an inexpensive mode of transportation. The popularity of professional on-road cycling has spread from Europe to the United States and has been boosted by the accomplishments of American, Lance Armstrong. Both professional and recreational off-road mountain biking are gaining popularity, as well. Organized cycling events now range from short BMX (Bicycle Motocross Racing) sprints and acrobatic demonstrations to on-road races that stretch hundreds of miles and off-road races that take place over difficult terrain.

Inside This Issue:



Unfortunately, along with the increase in cycling popularity, there has been an increase in cycling related trauma. Today, more bicycles are sold annually than automobiles, and more than 17 million adults are estimated to ride at least twice weekly. Cyclists now account for 2% of all traffic deaths, and cyclist–related accidents make up as much as 4% of all emergency room visits.

Traumatic cycling injuries to the upper extremity are more frequent than injuries to the lower extremity. Simple abrasions and lacerations are the most common injuries, followed by sprains and contusions, with fractures being the least common. Head and facial injuries occur frequently, but are often less severe because helmet use has increased. On the other hand, injuries to the

abdomen and thorax are relatively rare, but are usually severe. When cycling related fatalities are reported, an automobile–versus–cyclist accident is usually the cause.

Abrasions and lacerations

Although they are usually minor, abrasions and lacerations require proper care. Most can be taken care of at home with cleaning and bandage changes. However, severe cases of road rash, which involve large surface areas or contamination by dirt or debris, or deep lacerations should be properly evaluated and cleaned. Debridement (removal of foreign material) is usually carried out in the emergency room, but can occasionally require the use of the operating room. These injuries often improve with a short period of antibiotics to guard against infection.

Spoke injuries to the feet and toes are usually seen in children. These injuries often cause significant damage to the soft tissues, which can sometimes result in amputation. Spoke injuries are easily prevented by using spoke shields and wearing appropriate shoes.

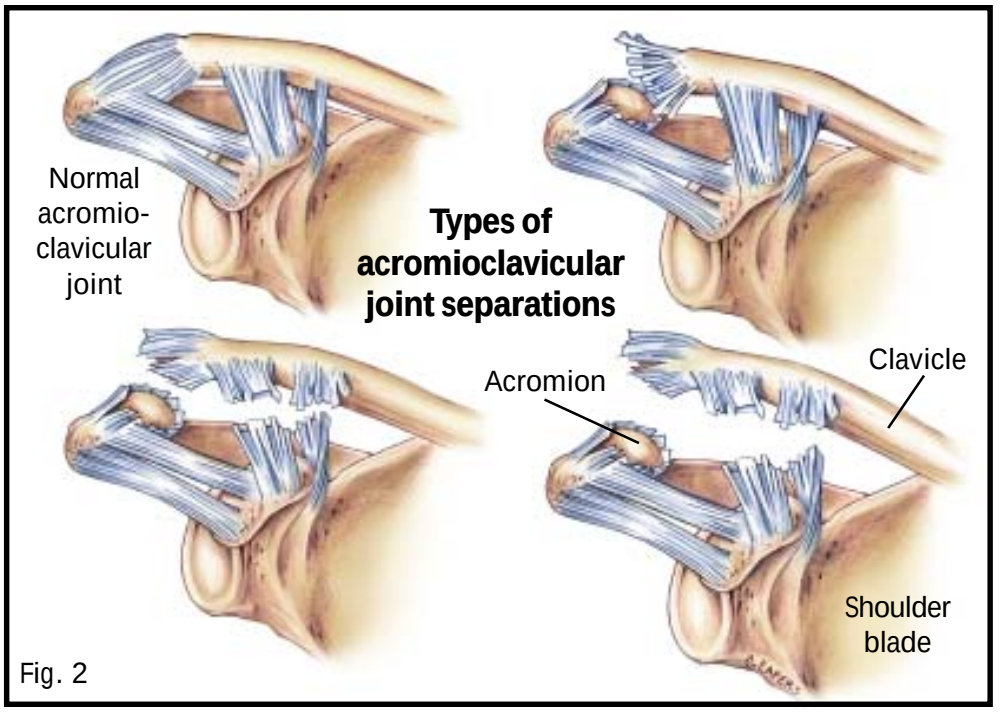


Fig. 2

Sprains and contusions

Sprains and contusions usually heal with the application of rest, ice, compression, and elevation (RICE). Over the counter anti-inflammatory medications, such as aspirin or ibuprofen, can also help control swelling and pain. Sprains that do not improve with these simple measures may be a more serious ligament injury and should be evaluated more thoroughly.

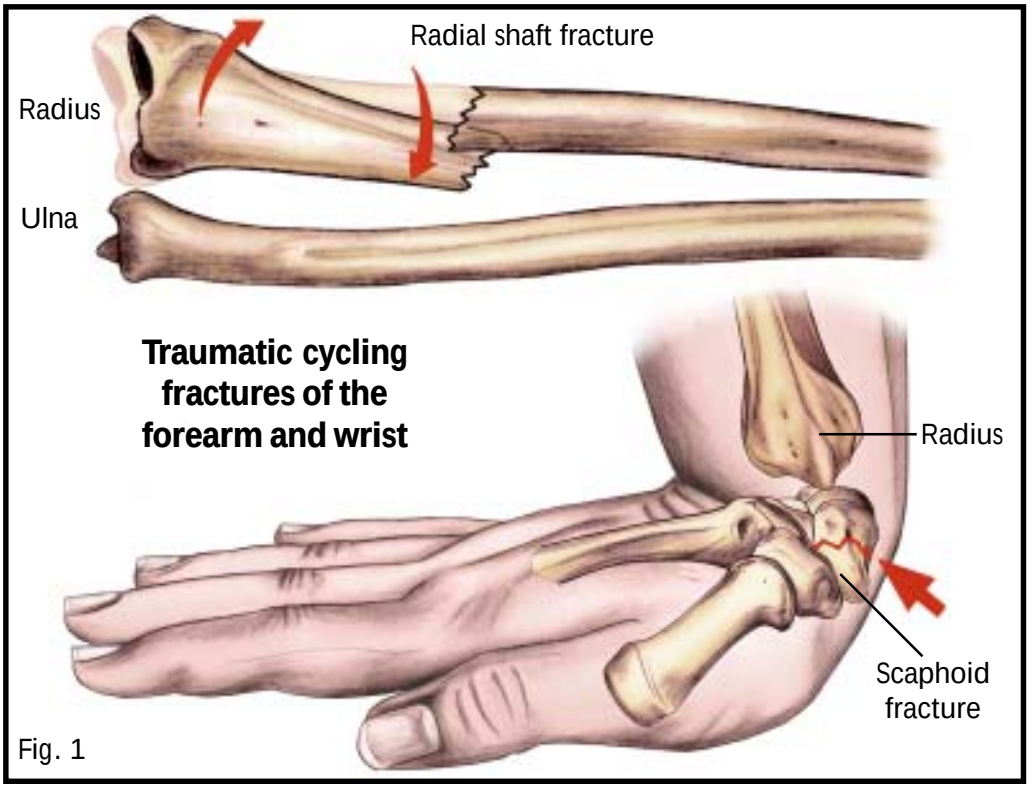


Fig. 1

Fractures

For cyclists, fractures (broken bones) are most common in the hand, wrist, forearm, or shoulder. They occur when the rider attempts to break his or her fall with an outstreched arm. After a fall, marked and immediate pain and swelling usually indicates a fracture of the distal radius, scaphoid, hamate, (wrist bones) (Fig. 1) or clavicle (collarbone). Separations or dislocations of the acromioclavicular joint (joint between the clavicle and shoulder blade) are also common when the rider lands directly on the shoulder (Fig. 2). Treatment depends on the bone involved, the amount of displacement (how much the bone has moved from its normal anatomic position) and whether the fracture is open (fractured bone breaks through skin) or closed.

Head and facial injuries

Head and facial injuries are most common in children, who often react more slowly than adults when protecting themselves during a fall. Helmet use has significantly reduced serious head injuries, however, it does little to protect the face. For this reason, safety experts recommend that BMX, which imitates motorcycle racing, and off-road riders wear a mouthguard to protect the teeth. After a fall, any symptoms of confusion, dizziness, diplopia (double vision), loss of consciousness, excessive sleepiness or severe headache should be promptly evaluated. These symptoms could represent a cerebral (brain) concussion, contusion (bruising) or hematoma (bleeding)—conditions that require immediate attention. A cyclist with persistent neck pain should be evaluated to rule out cervical vertebral (neck) fractures.

Avoiding injuries

To avoid injuries, cyclists and motorists should be aware of each other's presence and follow traffic regulations. Cyclists should follow the same traffic rules motorists do and should always dress appropriately with a helmet and bright reflective clothing. Motorists, in turn, should always be on the lookout for cyclists and should yield them the right of way when possible. Cyclists should be aware of road damage and debris, which can cause a fall and lead to injury. Interestingly, 47% of cyclists involved in accidents in urban settings, cited themselves as being at fault; therefore, an "ounce of prevention" truly is worth a "pound of cure."

C. Curt Starling, MD
Valdosta, Georgia

Cyclist's Hands

Overcoming overuse injuries

After a ride on your bike, have you experienced numbness, tingling, or pain in your arm, hand, wrist, or little finger? If you have, you could be suffering from an overuse injury. Approximately one-third of all bicycling overuse injuries involves the hands. The 2 most common are handlebar palsy and carpal tunnel syndrome. By making some adjustments to your bike and by wearing some protective equipment, you can prevent these injuries from occurring.

Handlebar palsy

Ulnar neuropathy, known to cyclists as handlebar palsy, is caused by compression of the ulnar nerve at the hand and wrist (Fig. 1). The ulnar nerve controls sensation in your ring and little finger and controls most of the muscular function of your hand. Compression of the ulnar nerve is a common problem for competitive and recreational cycle enthusiasts, alike. Compression is the result of direct pressure on the ulnar nerve from the grip on the handlebars. Often, the nerve may be stretched or hyperextended (extension beyond its normal limit) when a drop-down handlebar is held in the lower position. The pressure placed on the ulnar nerve results in numbness and tingling in the ring and little fingers or hand weakness, or a combination of both. Symptoms can take from several days to months to resolve, but surgical treatment is rarely necessary. Rest, stretching exercises, and anti-inflammatory medications, such as aspirin, usually help relieve the symptoms. Applying less pressure or weight to the handlebars and avoiding hyperextension can help to prevent a recurrence.

Carpal tunnel syndrome

Although it is less common than handlebar palsy, carpal tunnel syndrome (compression of the median nerve at the wrist) is another overuse injury that cyclists often

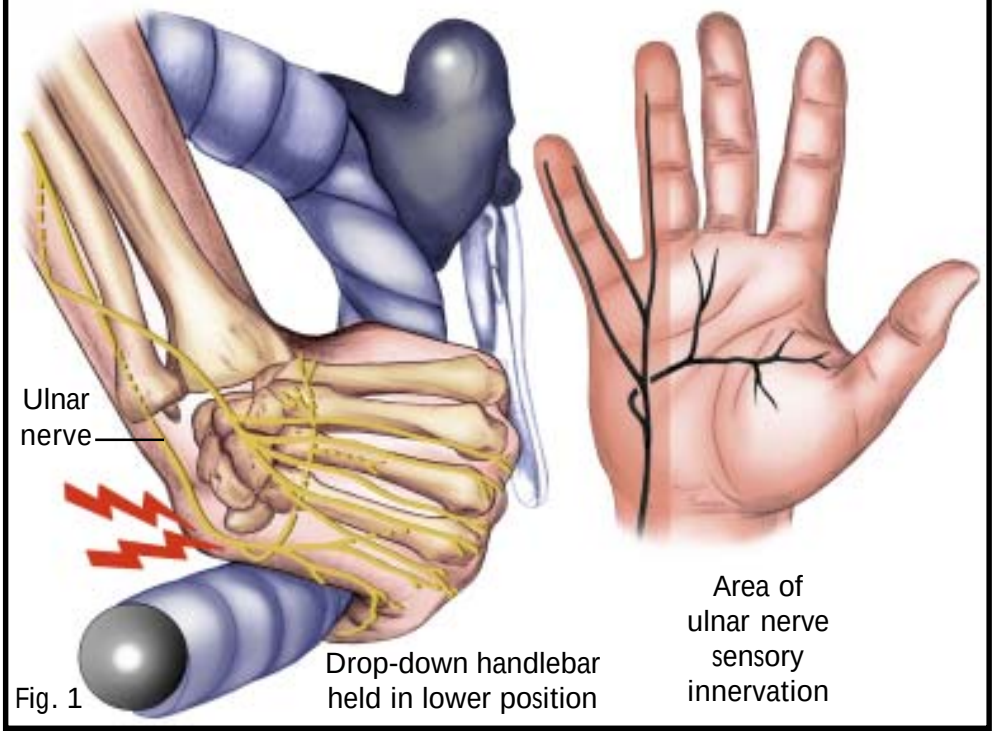


Fig. 1

experience (Fig. 2). Injury often occurs when a cyclist holds the handlebars on top and applies pressure directly on the median nerve. Symptoms include numbness and tingling in the thumb, index, middle, and ring fingers and weakness of the hand. Symptoms usually resolve quickly once you stop cycling for a short period of time. Although handlebar pressure contributes to these symptoms, there can be other causes for hand pain and numbness; therefore, an evaluation for other possible causes of carpal tunnel syndrome should be performed by your health-care professional.

Prevention

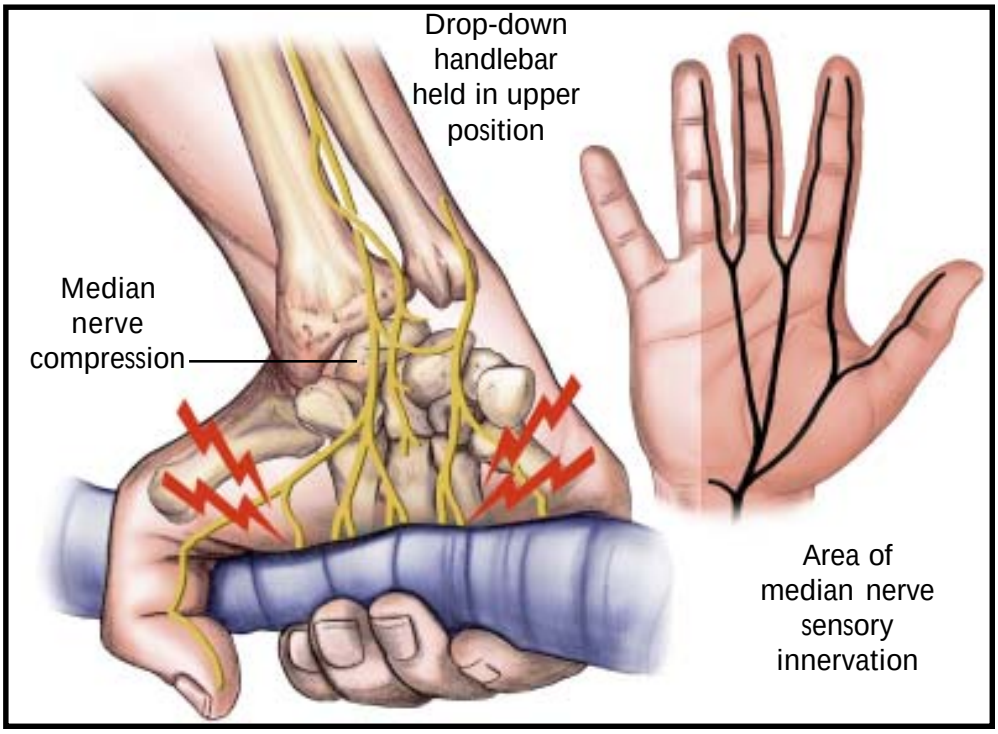
You can overcome or prevent overuse injuries altogether by making some adjustment to your equipment and behavior. Adjusting the handlebars, the seat, and the pedals to your fit is the key to preventing most overuse injuries. Adjust the bike so you sit in a more upright position, taking the weight and pressure off your hands and wrists. Take a rest during long rides and change your hand position on the handlebars often. Shift your weight from the center of your palms to the outside edge of your palms as often as possible. Wear padded gloves and add handlebar padding to your bike to help protect your hands from injury. The padding absorbs the shocks and jolts from the road, limiting the stress transmitted to your hands. Your hands will also be able to handle the stress from the roads much better if you complete a short session of hand and wrist stretches before hitting the road.

Most often, overuse injuries experienced by cyclists stem from a lack of specific preparation. With the proper training and equipment, you can minimize the risk of these hand injuries.

David C. Rehak, MD
Columbus, Georgia

Further Reading

Hems TE, Simpson H. Prevention of hand injuries in cycle accidents. *J Trauma.* 1992;32:683-685.
Ellis TH, Streight D, Mellion MB. Bicycle safety equipment. *Clin Sports Med.* 1994;13:75-98.
Richmond DR. Handlebar problems in bicycling. *Clin Sports Med.* 1994;13:165-173.



Returning to Cycling Fitness

Are you ready to roll?

So, you've become a card-carrying member of the *Old Guys Who Get Fat in the Winter* Cycling Club, and you're carrying a spare tire under your jersey as well as the one in your pocket. You've seen a flyer for a midsummer century ride or the Labor Day triathlon, and you're starting to have those familiar Lance Armstrong *maillot jaune** delusions. It's a little too late to make the US Postal travel team for France this year, but there's still time to get into shape to enjoy your event and avoid injury.

Think general fitness first

A 30-minute run or a 20-minute swim can give you roughly the same cardiovascular benefit as an hour out on the bike. This can be a big help on days when the weather or your schedule will not allow you to get out and do a ride. A few minutes in the weight room each week can also help supplement your time on the road. Exercises that work the large muscle groups—bench presses, squats, lunges, abdominal crunches—will give you the most cycling bang for your buck. If you are not currently exercising at all, make sure you clear your exercise plans with your primary care physician before you get started.

Focus your riding time

If you have a full-time job, finding the time to ride is probably your biggest challenge. An indoor stationary trainer, such as a wind trainer or magnet trainer, can be helpful on those days when you get home after dark. However, you should ride the roads at least once a week, gradually building the mileage until it approaches the distance of your chosen event. Joining a weekly

***1. Lunge**: to strengthen hip flexor, quad, and hamstring muscles **2. Ab crunch:** to strengthen abdominal muscles **3. Squat:** to strengthen hip flexor, quad, and hamstring muscles **4. Wrist extension:** to stretch the extensor muscles of the forearm **5. Wrist flexion:** to stretch the flexor muscles of the forearm.*

photos by Carol Capers

club ride or other group ride is the best way to stay motivated, learn from more experienced riders, and push yourself to higher levels of fitness. Check the Internet or your local paper for information on group cycling activities in your area.

Become familiar with the course

There is nothing worse than getting to the last few miles of a cycling event only to discover an unexpected monster hill to climb. This can literally ruin your whole day. To avoid this unwelcome surprise, drive the course before the race, note the rough spots, and then come back with your bike and ride through the toughest climbs. If distance will not allow for a pre-race visit, get some specifics on the course from the event director and train on similar terrain, if possible.

Get an equipment tune-up

Unless you happen to be a master of the wrench, take your bike to your local bike shop for a bicycle tune-up. A true wheel set and lubricated bearings will make the bike go faster and will cause less stress to the engine (i.e., you!). While you are in the store, have your shoes and pedals checked for excessive wear. If your helmet is old or has survived a crash, throw it out and get a new one. These are common sense practices that can keep you safe by avoiding an equipment-related crash.

Following these simple tips, using your own good judgment, and faithfully sticking to your program will help you get back in the saddle and complete your chosen event. Always remember, obey the traffic laws and be courteous to the drivers you share the roads with. Think safety first and have a great time training and racing!

David Curd, MS
Kennesaw, Georgia

**Maillot jaune is French for yellow jersey. Since 1919, the leading cyclist (for the day) of the Tour de France has the honor of wearing the yellow jersey. The jersey is worn so spectators and the other cyclists know immediately who is leading the race.*

Safety

"It's as easy as riding a bike."

For the new and inexperienced cyclist, bike safety isn't always that simple. Accidents and overuse injuries are common and can be serious. However, using your common sense and good equipment can help to keep you safe. Following some sound advice can make riding a bike as easy as the saying goes.

Join the club

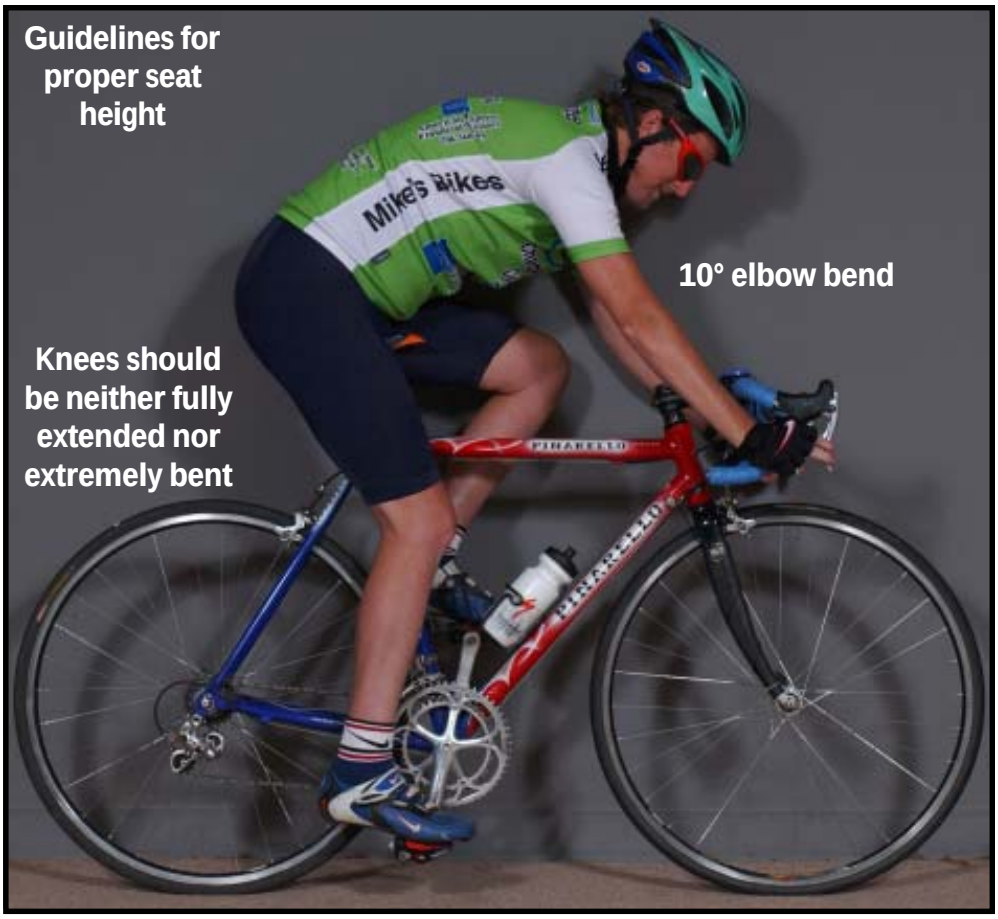
Bike enthusiasts and shop owners, Bill Arnold of Arnold's Bikes and Mike Kindrick of Mike's Bikes in Columbus, Georgia, recommend that new cyclists join a cycling group for exposure to more experienced, veteran riders. A cycling group can prove priceless because members can offer tips on the best places to ride, such as scenic locations, low traffic areas, and safe terrain. Many cycle clubs offer training classes for beginners on cycling safety, routine bike maintenance, and health issues concerning cyclists.

Choosing a bike that fits

Before purchasing a bike, know where you plan to ride. A bike for pavement is designed differently than a mountain bike for off-road riding. Once you know the terrain and style of riding you want to do, you're ready to have the bike fitted to you.

The right fit will reduce pain from long rides; help you handle the bike better, thus, lowering your risk for an accident; and help prevent overuse injuries. The bike should be fitted according to your height, weight, leg length, arm length, and shoulder span. Here are a few things you can do to be sure of a good fit:

- Place your arms on the handlebars. There should be a 10° bend at your elbows (see photo on next page).



● Sit on your bike with your foot on the pedal. Your knees should bend at a 10° to 15° angle (see photo above).
● Pedal the bike. Your knees should be neither fully extended nor extremely bent (see photo above).
● Stand, straddling the cross bar, with both feet flat on the ground. Lift the bike until it touches the groin area. If the fit is correct, you should be able to lift the front tire 1 to 2 inches off the ground (see photo at right).

After the fitting, you may need to make minor adjustments, so ride where you are comfortable and where there are few or no cars. Before participating in a competition or a long ride, make sure all the adjustments have been made, and you are comfortable with your new bike.

Wear the right equipment

The correct use and proper fit of equipment is essential for cycling safety. When looking for protective equipment, you want to first begin with a good helmet.

Bike helmets are made of stiff foam called expanded polystyrene (EPS), which is similar to that in a white Styrofoam cooler. The spongy foam is great for comfort and fit, but, once crushed, the EPS does not recover. Damage may not always be visible, so you should replace your helmet after any crash. Even if the helmet does not appear to be broken, it may have a hairline crack that reduces its effectiveness.

The bike helmet is designed to break and absorb force upon impact rather than transferring it to your head. Although, the holes in a cycling helmet keep the head cool and the helmet lighter, they are designed mainly to help disperse the force of an impact.

The best helmet fits properly and has been manufactured to meet safety standards. Your new helmet should fit level and square on your head (see photo at right), and the front should cover the forehead without obscuring your view. Look for a helmet that has been tested and is approved by the American National Standards Institute or Consumer Product Safety Commission.

Essential protective equipment also includes padded gloves that protect during accidents and help prevent

overuse injuries. The gloves should cover your fingers completely and have reinforced padding between the thumb and the index finger to prevent thumb ligament injuries (see photo below). The padding will protect your hands from abrasions, but it can also help decrease the risk for carpal tunnel syndrome or ulnar nerve compression caused by gripping the handlebars.

Other forms of safety equipment include shoes that prevent little, if any, flexion (bending), eyewear that protects you from road debris and UV rays, and clothing such as padded

shorts that keep you comfortable during long rides.

Join a club, choose a bike that fits you, and wear the necessary equipment to keep you safe. Follow this sound advice, and you'll see that safety is "as easy as riding a bike."

Lisa Kimbrough, BS and
Bruce Getz, ATC
Columbus, Georgia

West Nile Virus

Should it be bugging you?

The West Nile virus, sometimes referred to as West Nile fever, is a virus carried by birds. Mosquitoes transport the virus after biting infected birds, and humans can acquire the virus if infected mosquitoes bite them. The first cases were reported in the United States in 1999 in New York City. Seven of the 62 reported cases resulted in death. During 2002, the virus killed 150 people, infected 2900 and spread over 35 states. The virus has been most common in Illinois, Michigan, Ohio, Louisiana, and Mississippi in the United States, but it is also common in Europe, the Middle East, Asia, and Africa.

Although it has not been proven, some researchers believe the West Nile virus can be transmitted by blood. It has been documented that the virus can be transmitted through organ transplants however. Currently, researchers are studying all of the ways the virus can be spread, and they are looking for ways to treat it effectively.

Symptoms

Symptoms of the West Nile virus range from mild to severe, and only occasionally does the virus result in death. The virus has an incubation period of 3 to 14 days and does not cause symptoms in 80% of infected humans. Approximately 19% of those infected have mild symptoms, such as fever, malaise (a vague feeling of discomfort and fatigue), and swollen lymph nodes. Less than 1% experience severe illness, including infections of the central nervous system, such as meningitis (inflammation around the brain) and encephalitis (inflammation within the brain). Another 1% of those infected can develop profound muscle weakness, which can result in respiratory distress. Most patients recover in 1 to 2 weeks, although the mortality rate with severe illness is expected to reach 14%. Elderly persons, diabetics, and people whose immune systems are suppressed are at the highest risk.

Diagnosis

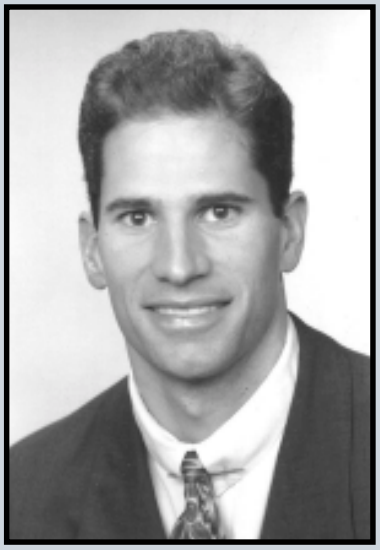
Someone at a high risk for the virus and who shows symptoms may be tested for the virus. A positive blood test for the immunoglobulin (IgM) antibody indicates exposure to the virus. Patients who develop central nervous system symptoms should have a lumbar puncture to test their spinal fluid for the virus. Presence of the IgM antibody in the spinal fluid indicates a central nervous system infection.

Prevention

During the warm months, individuals should be well covered and wear mosquito repellent while outdoors, especially during the early morning and at dusk when mosquitoes are most active. Eliminating garbage and containers, such as flower pots, kiddie pools, and birdbaths, that collect freestanding water can help control the mosquito population in your area. Effective mosquito repellents often contain DEET (N,N-diethyl-meta-toluamide). This repellent is available in the 10% and 50% strengths. The 50% strength lasts longer, but it should not be used on children because DEET can irritate the eyes and mouth. The drug is not recommended for children under 2 years of age.

If you suspect you have been infected by the West Nile virus and develop symptoms such as a high fever, confusion, muscle weakness, a stiff neck, and severe headaches, you should see your family physician.

William E. Roundtree, MD
Columbus, Georgia



Curt Starling, MD, has returned to his home town of Valdosta to expand the services of The Hughston Clinic to patients in south Georgia. Dr. Starling specializes in surgery of the knee and shoulder and his focus is on arthroscopic surgery, sports medicine, and total knee arthroplasty.

Dr. Starling is board certified by the American Board of Orthopaedic Surgery. He is a member of the American Orthopaedic Society for Sports Medicine, the Arthroscopy Association of North America, and the American Academy of Orthopaedic Surgeons.

Dr. Starling graduated summa cum laude with highest honors from the University of Georgia. He earned his medical degree at Emory University School of Medicine, where he was named the James L. Campbell Scholar in Medicine. He completed his orthopaedic surgery residency at Emory University and his sports medicine fellowship in Knoxville, Tennessee at the Knoxville Orthopaedic Clinic, where he was actively involved with caring for University of Tennessee athletes.

Dr. Starling and his wife, Amanda, have two children, Sheridan and Sky. During his free time, he enjoys weightlifting, running, and biking.

The *Hughston Health Alert* is a quarterly publication of the Hughston Sports Medicine Foundation, Inc. The Foundation's mission is to help people of all ages attain the highest possible standards of musculoskeletal health, fitness, and athletic prowess. Information in the *Hughston Health Alert* reflects the experience and training of physicians at The Hughston Clinic, PC, of physical therapists and athletic trainers at Rehabilitation Services of Columbus, Inc., of physicians who trained as residents and fellows under the auspices of the Hughston Sports Medicine Foundation, Inc., and of research scientists and other professional staff at the Foundation. The information in the *Hughston Health Alert* is intended to supplement the advice of your personal physician and should not be relied on for the treatment of an individual's specific medical problems.

 ISSN# 1070-7778

For complete articles from the *Hughston Health Alert* or for information about the Hughston campus visit www.hughston.com.

Health Alert Subscription

Would you like to receive the *Hughston Health Alert* by e-mail?
If so, go to www.hughston.com/hha/hhamail.htm.
Your electronic *Hughston Health Alert* will arrive earlier and your subscription never has to be renewed.

Hughston Health Alert
P.O. Box 9517
Columbus GA 31908-9517