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On The Canal

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MRSA in the USA
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Methicillin Resistant *Staphylococcus Aureus*

(MRSA) are strains of the bacteria *staphylococcus aureus* – also known as “staph” – that do not respond to the common antibiotics used to treat staph, such as penicillin, amoxicillin, methicillin, oxacillin, and cephalexin.

What is *staphylococcus aureus*?

Staphylococcus aureus are bacteria commonly carried on the skin or in the nose of healthy people. Approximately 25% to 30% of the population is colonized (when bacteria are present, but not causing an infection) in the nose with staph bacteria. Sometimes, staph can cause an infection. Staph bacteria are one of the most common causes of skin infections in the United States. Most of these skin infections are minor (such as pimples and boils) and can be treated without antibiotics.

Staph infections, including MRSA, occur most frequently among persons in hospitals and healthcare facilities (such as nursing homes and dialysis centers) who have weakened immune systems. These healthcare-associated staph infections include surgical

wound infections, urinary tract infections, bloodstream infections, and pneumonia. Before the introduction of penicillin in the 1940s, these types of staph infections were often fatal. Only 1% of people are colonized with MRSA, and until recently, all of them have been in a hospital or other healthcare facility within the previous year.

What is new about community acquired MRSA (CA-MRSA)?

Since the year 2000, MRSA has also been found to cause illness in persons outside of hospitals and healthcare facilities. MRSA infections that are acquired by persons who **have not** been recently (within the past year) hospitalized nor had a medical procedure (such as dialysis, surgery, catheters) are known as community-acquired MRSA (CA-MRSA) infections. MRSA infections in the community are usually skin infections, such as pimples and boils, and occur in otherwise healthy people. The patients in which CA-MRSA has been reported so far include groups living in crowded conditions or with close contact, such as schoolchildren, military recruits, prisoners, and athletes.

What is different about sports related CA-MRSA?

At this time, there are at least three different strains, or families, of staph in the United States that can cause CA-MRSA infections. The one found to be involved with the St. Louis Rams professional football team (see *Sports Illustrated* February 28, 2005) as well as in other athletic settings elsewhere in the United States is called USA300 by the Centers for Disease Control and Prevention (CDC) and appears to have some unique biologic and

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genetic properties that allow it to spread more easily and cause more skin disease compared with the traditional hospital-based MRSA strains. USA300 has also been associated with a concerning rise in the number of deep tissue infections that destroy muscle and fascia (necrotizing fasciitis and pyomyositis) in Los Angeles and Washington, DC.

How do I get it?

Factors that have been associated with the spread of MRSA skin infections include close skin-to-skin contact, openings in the skin such as cuts or abrasions, contaminated items and surfaces, crowded living conditions, and poor hygiene. Contact sports such as football and wrestling are obvious ways of passing staph, but un-cleaned shared equipment, such as the sensing wire implicated in an outbreak among fencers in Colorado, may also cause transmission.

How do I know if I've been infected?

MRSA most often starts as skin or soft tissue infection such as a boil or abscess. It may look like a "spider bite." The involved site is red, swollen, and painful and may have pus or other drainage. Staph infections also can cause more serious infections, such as blood stream infections or pneumonia, leading to symptoms of shortness of breath, fever, and chills. However, there is no way of telling if the staph is MRSA or routine antibiotic-sensitive staph (MSSA) without a doctor performing a culture of the wound or pus.

Can my doctor treat me for MRSA?

Yes. There are still antibiotic agents that can kill MRSA, but these infections may also require incision and drainage of pus or other surgical procedures to clean the wound or abscess. The key is for the doctor to be able to evaluate the infection early, so cultures can be performed to determine what antibiotics are useful.

How can I prevent infection with MRSA?

1. Practice good hygiene: keep your hands clean by washing thoroughly with soap and water or an alcohol-based hand sanitizer and shower with soap after all practices and competitions.
 2. Keep cuts and scrapes clean and covered with a clean bandage until healed.
 3. Avoid contact with other people's wounds or bandages.
 4. Avoid sharing personal items such as towels or razors.
 5. Make sure that athletic equipment is properly cleaned before being shared.
- Since inappropriate antibiotic use creates MRSA, do not use antibiotics except as prescribed and instructed by a doctor.

Where can I find more information?

The CDC has dedicated a web page to CA-MRSA that can be accessed at:

http://www.cdc.gov/ncidod/hip/aresist/ca_mrsa_public.htm



Guidelines For Parents, Coaches, and Athletes: Foot Pain

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Foot Pain

Foot pain in the young athlete is a common problem encountered in all sports. Many injuries are unique to certain sports, whereas others are seen in all types of activity, especially those involving running. Injuries may involve the bones, ligaments, tendons, or other soft tissue structures in the foot.

Foot Injuries

Injuries to the foot can occur suddenly (acute), or gradually develop over time (chronic). Examples of acute injuries are fractures, sprains, and bruises (contusions). These injuries result in immediate pain and loss of function. Examples of injuries that develop over time are stress fractures and tendonitis. They are often described as nagging injuries that worsen over time and no clear cause can be recalled.

What to do When an Athlete has a Foot Injury

For severe acute injuries where fracture is suspected, the athlete should immediately be evaluated by medical personnel. It is also important to be seen if there are any signs of altered movement, sensation, or blood flow to areas distant to the injury. For most other injuries, try rest, ice, compression (ACE wrap, etc.), and elevation. If no improvement is seen within 2-3 days, and the athlete has a limp, swelling, or difficulties doing normal activities, he/she should be evaluated to rule out a more serious injury.

What Will my Doctor do to Diagnose and Treat my Foot Injury?

Your doctor will ask several questions about how the foot pain began, where it is located, and what makes it worse. He/she will examine your foot to identify the injury that has occurred. X-rays are often needed to help with diagnosis, and other tests are occasionally used as well (bonescans, MRI, etc).

Treatment and Return to Play

Every type of foot injury has a specific treatment, and your doctor will begin this once the diagnosis is made. He/she may need to refer you to a Sports Medicine specialist or Orthopedic surgeon for further evaluation and treatment. In general, athletes can safely return to their activities when they are able to pass the "5-step test," which can be done quickly and easily in the Pediatrician's office. The athlete must be able to (1) walk/run with full range of motion, (2) walk on "tiptoes" without pain, (3) hop on both feet without pain, (4) hop on affected foot without pain, and (5) show satisfactory balance while performing a single-leg stance on affected side. Though the athlete may not be fully recovered at this point, passing these simple tests usually indicates that the athlete can safely and effectively return to play.

Prevention of Foot Injuries

Many types of injuries can be prevented from returning in the future. Some things that help prevent injury in general are stretching before activity, wearing properly-fitting footwear, good nutrition, etc. Other measures may include taping or bracing, shoe inserts, etc. Your doctor can advise you as to the best way to prevent recurrence of your particular injury. In addition, the following shoe buying tips will help you find the best shoe for you:

1. The best way to get the right running shoe is to spend time in a running specialty store and ask for help from a salesperson who understands running. They should watch you walk without shoes or socks, and ask questions about where and how much you run.
2. Try on running shoes late in the afternoon or evening when your feet are swollen and stretched from the day. Runner's feet swell and expand with running. Don't be surprised if your running shoes are a half to full size larger than your street shoes.
3. Try on a variety of different brands of shoes that are appropriate for your foot type and running style. Bringing in your old pair of running shoes will also help.
4. Bring the socks you most often use for running and orthotics (custom shoe inserts), if you wear them.
5. Make sure the shoe fits adequately. Running shoes should feel comfortable immediately after you put them on. The heel should fit snugly, without sliding. The uppers should be snug but not constricting and you should have at least a thumbnails space at the tip of your longest toe. This allows for foot expansion.
6. Take the shoes for a test run in the store before you buy them.
7. Once you find a pair of shoes that works for you, stick with them. It helps to buy two pairs of shoes and alternate them running. The risk of injury increases with breaking in new shoes or running in worn out shoes.
8. Replace shoes every 300-400 miles. Even though they may look in good condition, the midsole will have lost its support and cushion.



Martial Arts: Life Lessons for All Ages

Laura Tomayko, P.T.

Allied Health Rehab Centers

I believe that everything we choose to do should have the ultimate goal of making us a better person. Exercise and sports are certainly a part of this lifelong journey. Exercise helps keep the body healthy and helps us release some energy. Individual exercise teaches us the life lessons of discipline, practice, and learning about our body. Sports or group exercise also teaches us how to work with people, encourage each other, and be better leaders.

Martial arts in particular are especially concerned with

building character – in participants of all ages. There are many styles and training methods to experience. I have been training in Kung Fu and Tai Chi for over 2 years now, with numerous benefits, and I have just begun to include them in my practice of physical therapy.

The martial arts like Kung Fu, Tae Kwon Do, Aikido, Karate, Judo, etc., are an excellent way to build strength and coordination. Becoming proficient at self-defense is always a valuable skill. Children and teens especially can learn a lot about respect, confidence, discipline, strength, and flexibility, all while having fun. Since martial arts usually do not focus on only one part of the body, but train the whole body, workouts tend to be well rounded. This makes overuse injuries much less common than in throwing athletes and runners, for example. That is not to say that a misplaced kick or a poorly executed fall does not hurt. But these injuries are usually the result of someone not paying attention to technique or instruction.

I continue to be amazed by a row of silent and still 8-14 year olds as they wait to salute their teacher. Smiles creep into the corners of my mouth as the girls train right next to the boys. Brothers and sisters in the same class only punch each other a *little* harder than everyone else. Parents learn too and families help each other. Competition remains healthy as you mostly compete against yourself for your next belt. The skills that are gained in this environment help people grow.

Tai Chi is also one of the martial arts. This practice is particularly good because it is easily practiced throughout your whole life. People taking Tai Chi at the studio I attend range in age from 20 to 85. Tai Chi focuses on learning to move "chi" or "life-force" throughout the body. This is done for health purposes and to create power for self-defense. It combines posture, balance, and relaxation. In the USA now, there are many places that offer Tai Chi for health purposes, you may have to look a little harder to find a teacher who adds the self-defense aspects. Tai Chi has an extremely low risk of injury, and the only physical requirement to begin is to be able to stand. As one accepts Tai Chi as a life-practice, this moving meditation will affect your spirit and mind, along with your body.

If you are looking to start exercise for the first time, or looking for something new, consider martial arts. You can start at any age and continue until any age. It is amazing to see the changes that become a part of your life in so many ways.