Hughston Health Alert

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Inside...

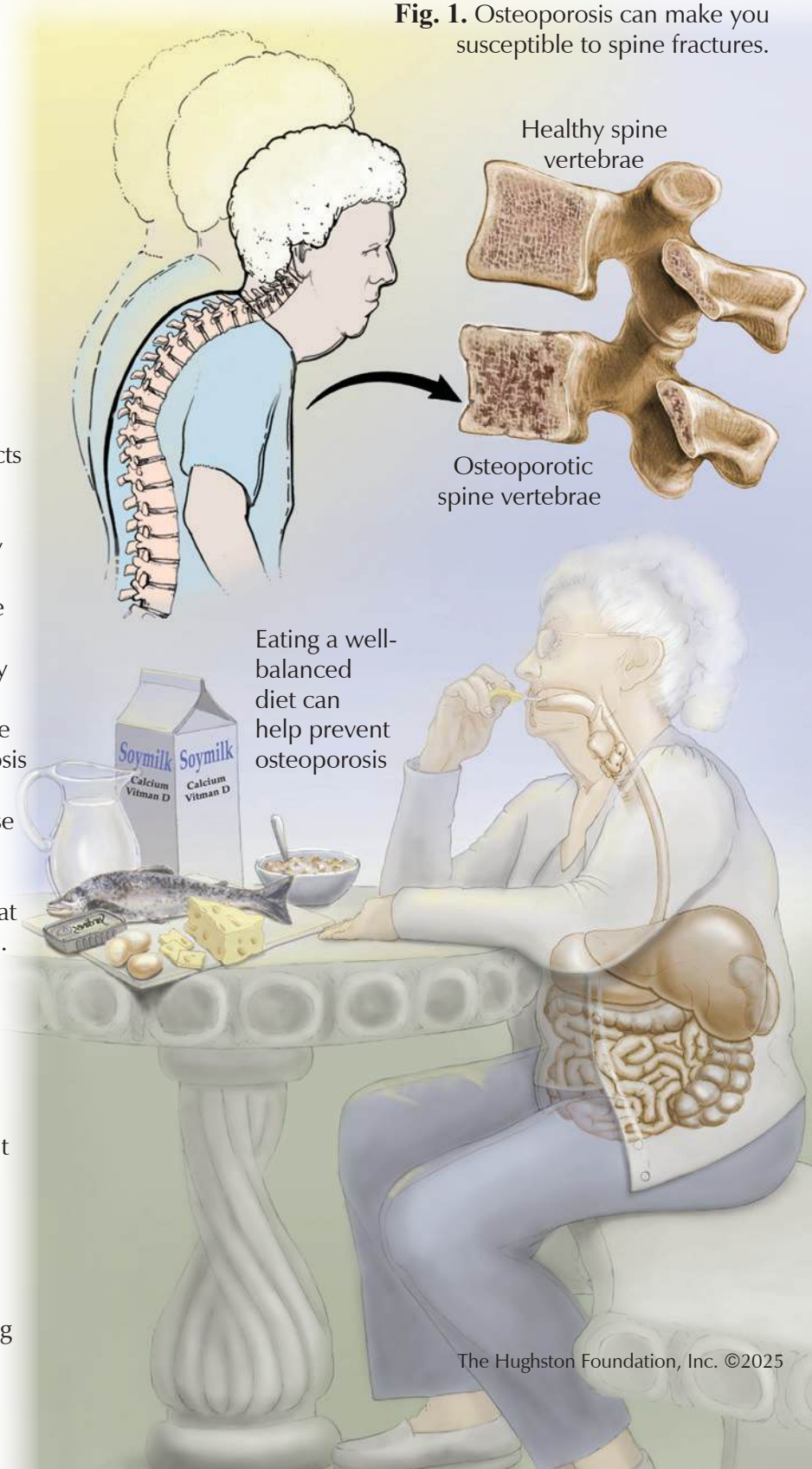
Osteoporosis

Have you ever been told you have "weak bones?" Osteoporosis, or poor bone quality, affects millions of people as they age. An estimated 10 million people in the United States have osteoporosis, and women are 4 times more likely to develop osteoporosis than men. However, did you know that osteoporosis is actually not a bone quality problem? Instead, as you grow older, it becomes increasingly more difficult for your body to make enough bone to maintain good bone density and strength. Therefore, as bones become thinner, they are more likely to break. Osteoporosis makes your bones susceptible to fractures, or breaking, which can be very painful, can decrease your ability to enjoy life, and can even increase your risk of serious illness and subsequent death. Don't worry, physicians have become very good at identifying, diagnosing, and treating osteoporosis.

Causes and risk factors

The most common type of osteoporosis is postmenopausal, which occurs most often in women aged 50 to 70, who have a decline in female hormone levels. Osteoporosis can also occur in men or in women older than age 70, but this results from a combination of other factors. These can include lifestyle factors such as poor diet, little exercise, long-term tobacco or heavy alcohol use, as well as medical conditions such as diabetes, kidney disease, thyroid disease, or cancer. You even have a greater risk of developing osteoporosis if your parents had it.

Fig. 1. Osteoporosis can make you susceptible to spine fractures.



Symptoms

Unfortunately, most people do not realize that they have osteoporosis until they fall and break a bone. The 3 most common types of "fragility" fractures (those due to osteoporosis) are vertebral body (spine), hip joint, and distal radius (wrist) fractures. The majority of fragility fractures occur when falling from a standing height. If you sustain a fall and are unable to bear weight, unable to move your limbs without extreme pain, or have significant swelling, seek immediate medical attention. An orthopaedist can identify and stabilize a fracture and provide immediate management of your injury.

Diagnosis and screening

Physicians can observe osteoporosis or thinning bone on all types of medical imaging, including x-ray, CT scan, or MRI. If there is concern, your doctor may refer you for a Dual Energy X-ray Absorptiometry, or DEXA scan, which is the best imaging study used to diagnose osteoporosis. However, you can also receive an automatic diagnosis of osteoporosis if you sustain any of the 3 fragility fractures. If you have already sustained a fracture of this kind, you should obtain a DEXA scan to help your doctor determine your bone health and if you require treatment to decrease your risk of additional fractures in the future. The U.S. Preventative Services Task Force (USPSTF) recommends that all women who are postmenopausal and older than 65 years of age undergo DEXA scanning for osteoporosis. However, even postmenopausal women younger than 65 years should undergo DEXA scanning if you have risk factors.

Management and prevention

Management of osteoporosis is prevention of osteoporosis.

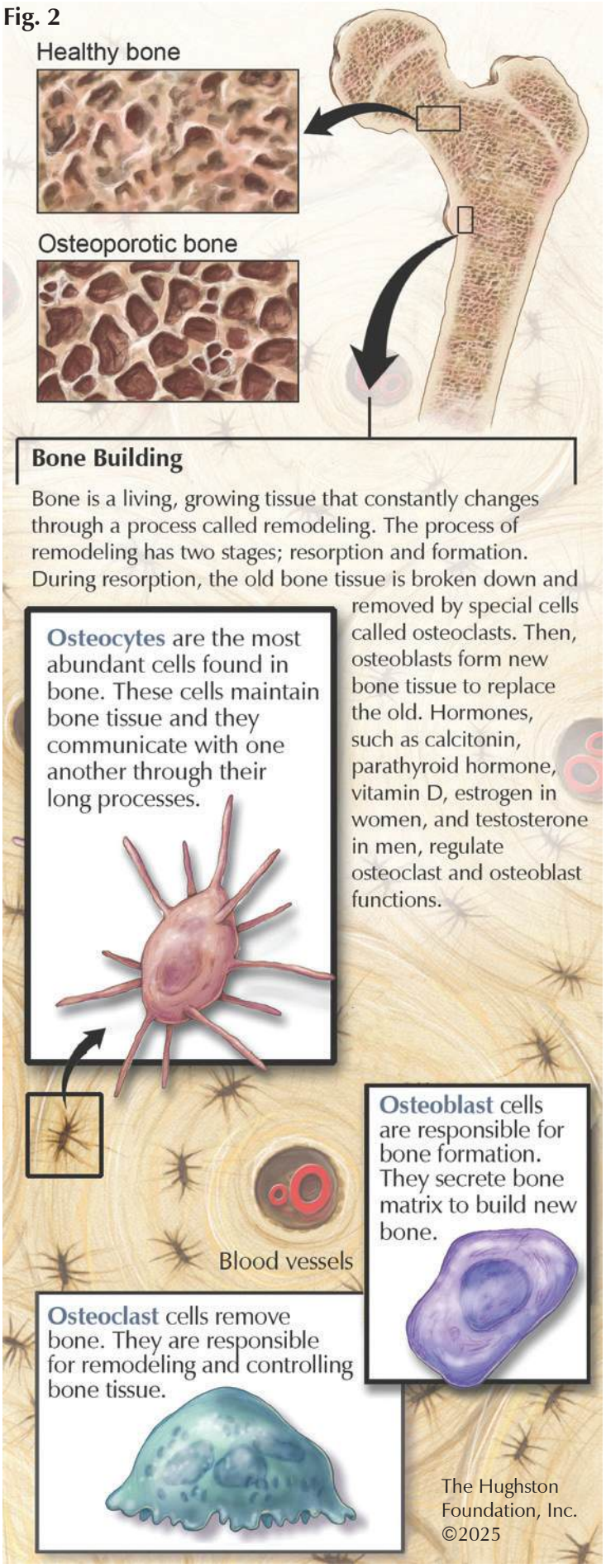
Box. Practical ways to prevent osteoporosis:

1) Eat a well-balanced diet. Protein is essential for strong bones.
2) Exercise regularly with cardio and strengthening exercises.
3) Lose excess weight.
4) Ensure your medical conditions, like diabetes or kidney disease, are well controlled.
5) Do not smoke and minimize alcohol consumption.
6) Take vitamin D and calcium supplementation (recommended for all ages).

Treatment

If you are diagnosed with osteoporosis or sustain a fragility fracture, the best treatment is with medications called bisphosphonates, which inhibit osteoclasts (cells that break down bone.) This allows osteoblasts (cells that make bone) to make more bone before it breaks down (**Fig. 2**).

Fig. 2



Remember: osteoporosis occurs when the body isn't able to make enough bone. Additionally, individuals of all ages should take vitamin D and calcium supplements, as it is hard to obtain the full daily requirement from your diet alone.

Outcomes

Of patients with untreated osteoporosis who sustain a fracture, 10% will sustain another fracture within 1 year, 18% within 2 years, and 31% within 5 years. Patients who sustain a vertebral body fracture, have a 30% increase in mortality rate, and these patients also have a 5x higher chance of sustaining a hip fracture.[1] Similarly, hip fractures increase the risk of death by up to 36% within the first year after fracture[2] and multiply the risk of a second hip fracture by 10 times.

With bisphosphonate therapy alone, studies have shown a 14% reduction in mortality rate following vertebral fractures.[3] Most importantly, the longer the patient is on the treatment, the greater the risk reduction. Similarly, the cumulative risk of hip, spine, and wrist fractures can decrease by as much as 50%. Likewise, with appropriate calcium and vitamin D supplementation, you can reduce your fracture risk 34% and 30%, respectively.[4]

You're not alone

Osteoporosis affects millions of people worldwide, so you're not alone! Know your risk factors and seek appropriate treatment to avoid fracture injuries, which can increase your risk of future fractures and fracture-related mortality. The key to treatment is prevention. Physicians recommend lifestyle changes that include a balanced diet and exercise along with vitamin D and calcium supplementation. If you do develop osteoporosis, there are treatment plans that are effective in reducing your fracture risk.

Above all, ask your primary care doctor or an orthopaedic provider about your risk factors and treatment options to maximize your bone health and improve your quality of life.

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Resources

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Osgood-Schlatter Disease

Take a moment to envision yourself as a young athlete. You are pushing yourself to run faster, jump higher, and compete harder, only to be hindered by a pain in your knee. Every athlete knows the feeling of post-hustle fatigue, but when the knee pain lingers, it might be more than just soreness. For many growing teens, it is Osgood-Schlatter disease.

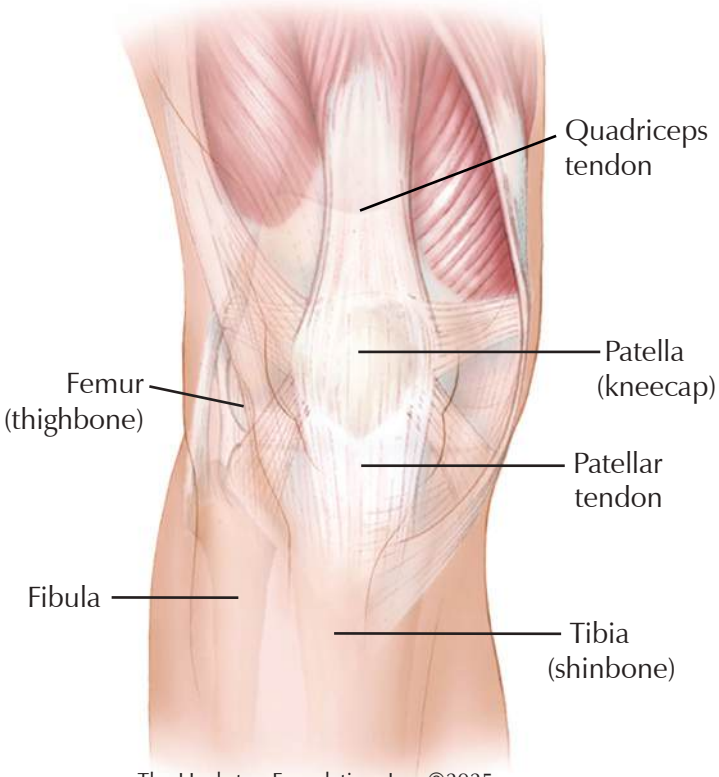
What causes Osgood-Schlatter disease?

Osgood-Schlatter disease is an overuse injury that primarily affects young, growing athletes playing a sport that involves of a lot of running and jumping. The disease often appears in children between the ages of 10 and 15 during periods of rapid growth.

As children are developing, their bones are not as strong as mature adult bones, which makes them more vulnerable to injury.[1] Physes, or growth plates, have soft areas of cartilage cells that play a key role in the growth and development of long bones. After the growth plates have done their job, and children finish growing, the growth plates fuse into strong, solid bone.

The patellar tendon connects the kneecap (patella) to

Fig 1. Normal right knee anatomy



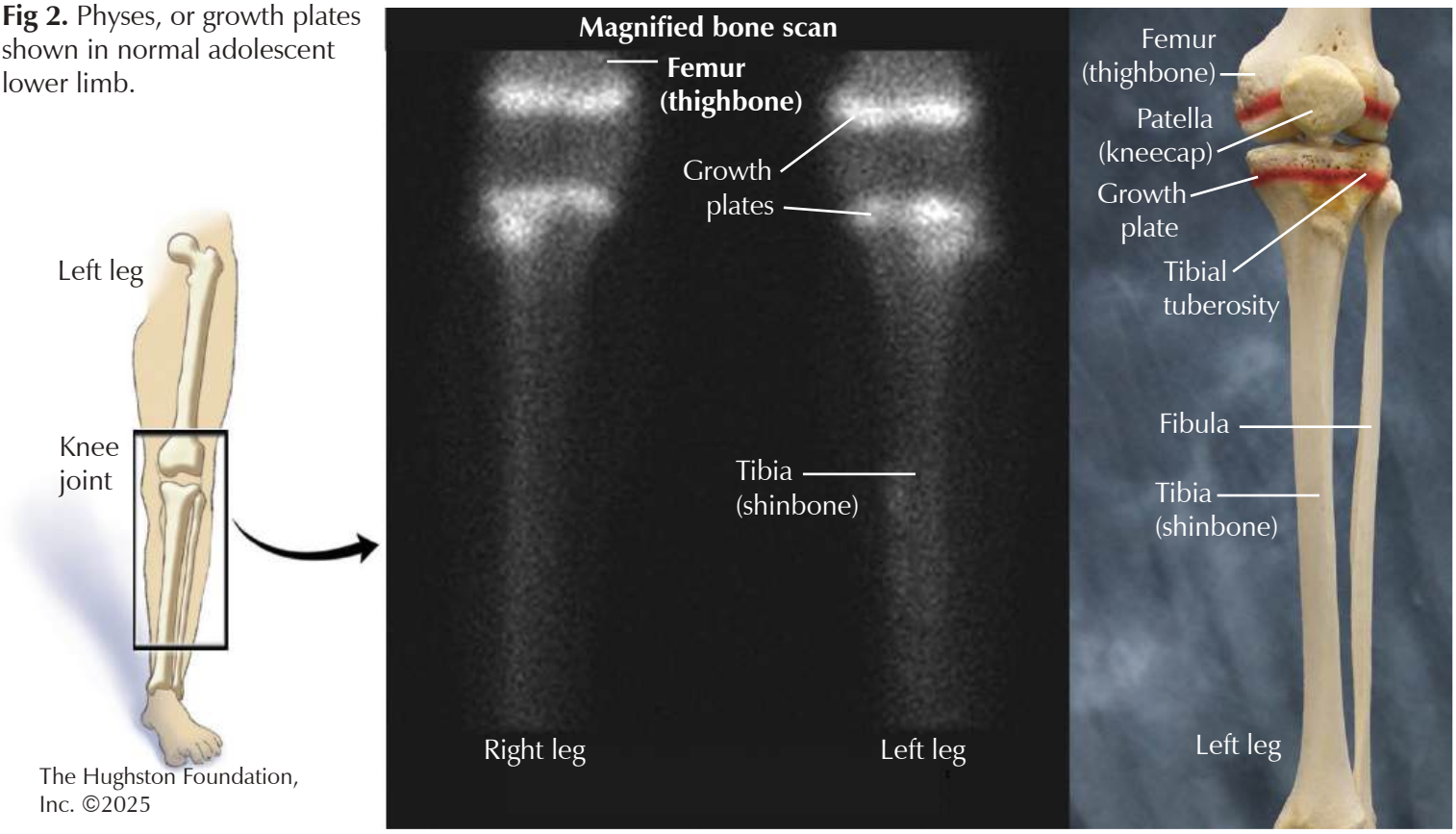


Fig 2. Physes, or growth plates shown in normal adolescent lower limb.

the shinbone (tibia) and attaches to the tibial tuberosity (the bump of the shinbone just below the knee) (**Fig. 1**). When children perform movements like running or jumping, the quadriceps muscles contract, pulling on the patellar tendon, and tugs on the tibial tuberosity, which is located over a growth plate. Performing these movements repeatedly places a lot of stress on the knee. This continual stress can cause inflammation that irritates the growth plate, eventually leading to an overuse injury[2] (**Fig.2**).

Who is at risk?

Studies estimate the prevalence of Osgood-Schlatter in adolescents to be around 10%.[2,3] The sport that the athlete is involved in also contributes to the development of the condition. Sports that consist of repetitive jumping, sprinting, and abrupt changes in direction impose a higher risk. Therefore, athletes who participate in sports like basketball, soccer, gymnastics, and track and field are particularly susceptible to Osgood-Schlatter disease.[3] Aside from athletes, Osgood-Schlatter disease is commonly seen in boys, but girls can be affected too. For both sexes, symptoms often present during growth spurts, which tends to occur in boys ages 12 to 15, and in girls around 8 to 12 years old.[2]

Symptoms

Osgood-Schlatter disease can affect one knee or both knees. Patients often present with a dull ache, tenderness, and swelling below the kneecap. Since Osgood-Schlatter is an overuse injury that occurs due to an accumulation of stressors over time, patients may not be able to trace the onset of symptoms back to a specific injury or event. Kids with Osgood-Schlatter disease may begin limping or complaining of knee pain after a long day of physical activity or sports.[2,3] As a result of the patellar tendon thickening, some individuals with Osgood-Schlatter may develop a prominent bump on the front of the knee. The bony prominence can persist into adulthood, but it should become pain-free after growing is complete.[3]

Seeing your doctor.

If knee pain begins to interfere with the enjoyment of sports or other activities, it might be time to make an appointment with an orthopaedist. The good news is that diagnosing Osgood-Schlatter disease is simple and painless. During the appointment, the doctor will take the patient's medical history, perform a physical exam, and possibly order radiographic imaging, such as an x-ray. When taking the medical history, the doctor may ask the patient to describe their symptoms and talk about their activity level or involvement in sports. When performing the physical exam, the doctor will take a good look at the knee and press on it to check for tenderness. The doctor may ask the patient to

perform certain movements, like jumping or squatting, to see if it makes the pain worse. The doctor may order an x-ray to get a better look at the knee and rule out any other potential problems to confirm the diagnosis.[2]

Treatment

Hearing the word "disease" in a diagnosis can be anxiety inducing; however, Osgood-Schlatter disease is not something a child has to deal with forever. Symptoms subside soon after growing is finished and growth plates fuse. In the meantime, symptoms can be managed at home. Using cold therapy, like an ice pack, with over-the-counter anti-inflammatories, like ibuprofen, can reduce pain and swelling. Taking the time to thoroughly warm up and cool down before and after physical activity is a good idea too. Implementing stretching and strengthening exercises, paying extra attention to the quadriceps and hamstrings, into a daily routine can go a long way when it comes to managing symptoms. Some doctors may recommend visits with a physical therapist to help create a guided and more individualized plan. The doctor may prescribe an infrapatellar strap or kneepad that can protect the knee and provide support. Athletes dealing with Osgood-Schlatter should not push or play through the pain. Modifying physical activity or taking a break from sports is recommended until symptoms improve and become more tolerable.[2,3,4]

Prioritize your health

Osgood-Schlatter disease is not a one-way ticket to sit on the sidelines. With the right "game plan," most young athletes can keep up with their active lifestyle. Recognizing symptoms early and taking the proper precautions to reduce stress and traction on the knee are fundamental. Thankfully, as children's bones mature, pain and symptoms associated with Osgood-Schlatter disease go away. Understanding Osgood-Schlatter disease and teaching young athletes to prioritize their health is key to keeping them off the sidelines and competing pain-free.

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The Role of the Team Physician in High School Sports

High school sports are an integral part of the educational experience, providing students with opportunities for physical development, social interaction, and personal growth. While the benefits of sports are numerous, they come with the inherent risk of injury, particularly for young athletes who are still developing physically. To ensure the safety and well-being of student-athletes, the role of the team physician is critical.

A team physician oversees the health and medical care of athletes including injury prevention, diagnosis, treatment, rehabilitation, and management of emergency situations. The high school team physician also collaborates with coaches and athletic trainers concerning the health and wellbeing of each individual athlete and the team as a whole.

Preventing injuries and promoting health

One of the most important responsibilities of a team physician is preventing injuries and promoting overall athlete health. Prevention begins before the athlete steps onto the field with preparticipation physical exams, which help identify any underlying health conditions that could predispose an athlete to injury, such as heart disease, asthma, or musculoskeletal diseases. The team physician conducts these exams, ensuring that athletes are physically prepared to participate in their chosen sport.

The team physician also plays a key role in educating both athletes and coaches about injury prevention strategies. This includes promoting proper warm-up routines, strength training, and flexibility exercise, which reduce the risk of strains and sprains. Furthermore, they may provide recommendations for safe training techniques, rest periods, and appropriate equipment to avoid overuse injuries. A physician's guidance ensures that young athletes receive the necessary support to stay healthy and compete safely.

Injury diagnosis and treatment

Despite the best efforts to prevent injuries, accidents can still occur. When an athlete becomes injured, the team physician and athletic trainer are the first points of contact for evaluation and care. The physician can quickly assess the severity of injuries, which may range from minor sprains to serious fractures or head trauma. The physician's ability to make rapid and accurate decisions regarding treatment is critical in ensuring the athlete's immediate safety.

In cases of serious injuries, such as fractures, concussions, or joint dislocations, the team physician provides first aid, stabilizing the injury, and determining whether the athlete needs further medical intervention. For less severe injuries, the physician may provide on-site treatment, such as ice,

compression, and elevation, or even refer the athlete for physical therapy or follow-up care. The physician manages the athlete's return to play. This is particularly important when it comes to head injuries, like concussions, where the physician must ensure that the athlete does not return to play prematurely, as doing so can lead to serious long-term health consequences.

Concussion management

One of the most important areas of concern for team physicians in high school sports is concussion management. Concussions have garnered significant attention in recent years due to the potential long-term cognitive effects that result from repeated head injuries. The team physician plays a critical role in the identification and management of concussions. According to the Centers for Disease Control and Prevention (CDC), any athlete who is suspected of having sustained a concussion must be removed from play immediately and undergo a medical evaluation before returning to the sport. The physician conducts a thorough assessment to determine if a concussion has occurred and whether the athlete can return to play.

The physician follows established concussion protocols, including the use of standardized assessment tools, to evaluate the athlete's symptoms, cognitive function, and balance. They are responsible for managing the recovery process and ensuring that the athlete follows a gradual, step-by-step return-to-play protocol. This process ensures that the athlete does not return to play until they are fully recovered, reducing the risk of a second concussion or second-impact syndrome, a potentially fatal condition that occurs when an athlete sustains a second concussion before fully recovering from the first.

Emergency preparedness and response

In the case of a medical emergency, the team physician is a critical part of the emergency response plan. High school athletes, like all individuals, are at risk for severe injuries or sudden medical conditions, such as cardiac events, heat stroke, or severe allergic reactions. The physician works closely with athletic trainers, coaches, and emergency medical personnel to develop and implement emergency action plans (EAPs). These plans outline how to respond to various types of medical emergencies, ensuring that the athletic team is prepared for any situation that may arise. For instance, if an athlete collapses due to a cardiac event, the team physician's ability to perform CPR and use an Automated External Defibrillator (AED) can be lifesaving. In the case of heat-related illnesses, such as heat stroke, the physician's role includes immediate intervention and appropriate cooling methods to prevent life-threatening complications. The team physician manages emergencies swiftly and effectively, making their role vital in ensuring the safety of all athletes.

Collaboration with coaches and athletic trainers

The team physician does not work in isolation; they collaborate closely with coaches, athletic trainers, and other medical professionals to ensure the wellbeing of athletes. Coaches and athletic trainers often have daily contact with athletes and are usually the first to notice signs of injury or illness. The physician's role is to provide medical expertise in diagnosing and treating injuries, while athletic trainers take the lead in rehabilitation and day-to-day injury management. A strong partnership between the physician and these staff members ensures that athletes receive comprehensive care, from injury prevention and rehabilitation to safe return-to-play decisions.

Playing a crucial role

The team physician plays a crucial role in ensuring the health, safety, and wellbeing of high school athletes. Their responsibilities extend from preventing injuries and promoting health to diagnosing and treating injuries, managing concussions, responding to medical emergencies, and collaborating with other professionals to create a safe and supportive environment for athletes. By working with coaches, athletic trainers, and other medical staff, the team physician helps ensure that students can enjoy the benefits of sports while minimizing the risks. In an era where youth sports injuries are a significant concern, the team physician's expertise is indispensable in safeguarding the health of student-athletes and contributing to their overall success.

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Trigger Finger

Stenosing tenosynovitis, or trigger finger, is a condition that causes the tendons (connects muscle to bone) in your hand to click when you bend your finger or thumb. In severe cases, the tendon becomes trapped and locks your finger in place.

In the hand, there are flexor and extensor tendons that connect to muscles in the forearms. Flexor tendons are on the palm side of the hand and when their attached muscles contract, they allow you to curl your fingers inward as if you were making a fist. These tendons are covered with a protective sheath that attaches at the ends of the bones in the fingers and thumbs. Multiple ligaments (tissue that connects bones to bones) hold the tendon and sheath down towards the bone. The tendon sheath produces a small amount of fluid, which allows it to glide during times of flexion (bending) and extension (straightening). The tendon sheath can become inflamed and swollen which prevents the tendon from sliding smoothly and can cause the finger to catch and lock in a bent position causing pain and impairment.

Risk factors

Trigger finger is about 6 times more common in women than in men. It has its highest incidence in adults 40 to 60 years of age; and, interestingly enough, it can occur in children less than 8 years old. For children, the condition is usually painless and resolves on its own. Trigger finger happens to roughly 2% of the population and around 20% of patients with diabetes[1]. Other conditions like chronic inflammation from rheumatoid arthritis or patients with carpal tunnel syndrome can develop trigger finger as well. Patients with Dupuytren's contractures (fibrosis of the hand's connective tissue) tend to develop trigger finger at higher rates as well.

Symptoms

The symptoms of trigger finger develop gradually, usually without any underlying evidence of a preceding injury. Pain in the finger along the base with movement or applied pressure is an early symptom of the disease. After a while, you may develop a lump that can be palpated (felt) during a physical exam. The finger can become stuck in the flexed position and during times of extension, you can hear an audible click. The release of the bump past the ligament can cause significant pain. Symptoms are usually worse in the morning or after extended periods of rest. As the day goes on and you use your hand more, you often experience improvement in movement. The ring finger and thumb are the most common fingers affected.

Diagnosis

An orthopaedist can diagnosis the disorder in the office after a physical exam. During your exam, the doctor may try to extend the fingers to check for stiffness and catching of the tendon while also noting any tenderness. Your physician may not order imaging since x-rays will not show anything significant. While MRI (magnetic resonance imaging shows the bones, muscles, tendons, and ligaments) could show a swollen tendon, it can be an unnecessary expense.

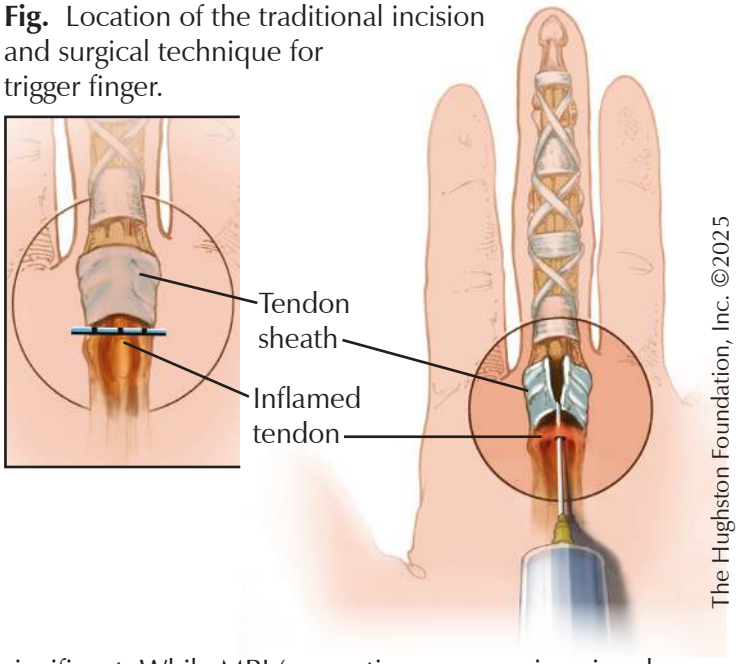

Fig. Location of the traditional incision and surgical technique for trigger finger.

Nonsurgical treatment

Your doctor will start with conservative methods first. This involves resting your hand, which helps decrease the swelling within the tendon. Exercises to help with stiffness and the range of motion of the fingers can decrease or alleviate symptoms. Patients can also wear a splint to help prevent the finger from bending. If no improvement occurs, the doctor can prescribe medication in the form of nonsteroidal anti-inflammatory medications (NSAIDs), such as ibuprofen, to help with the inflammation. Injections of steroids into the base of the tendon where it catches can help to resolve the condition with a 90% success rate.[1] The steroids help in the form of reducing inflammation. Steroid shots can be less effective in patients with diabetes, especially since the steroid can cause the blood sugar to rise.

Surgical treatment

If the injections stop providing relief or if the finger locks into the flexed position, your doctor may recommend surgery. The procedure involves a small incision at the base of the affected finger. The surgeon can cut the sheath so that the tendon can glide freely once again. Surgeons perform the surgery as an outpatient procedure and recovery usually takes 2 weeks. Some patients with jobs that require frequent strenuous use of their hands can take a month to recover; however, full recovery with no symptoms of swelling or stiffness takes about 3 months postsurgery.

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