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Central States Orthopedics
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SPORTS MEDICINE MONTHLY

Editor: Darren H. Lunow, M.Ed, ATC, LAT, Athletic Trainer

Surgical & Non-Surgical Care. Sports Medicine. Physical Therapy.

Volume 7, Issue 8, March 2016

ON-SITE ORTHOPEDIC CLINICS EACH WEEK

- No Charge
- Open to patients of all ages
- Appointments (918) 346-7800

Collinsville Public Schools
Monday/Wednesday
2:00pm—3:00pm

Coweta Public Schools
Wednesday
2:45pm—3:30pm

Edison Preparatory School
Monday/Thursday
2:45pm—3:30pm

Glenpool Public Schools
Wednesday
2:45pm—3:30pm

Kellyville Public Schools
Wednesday
Noon—12:45pm

Regent Preparatory School
Wednesday
Noon—12:45pm

Rejoice Christian School
Monday/Wednesday
3:15pm—4:00pm

Victory Christian School
Tuesday
2:45pm—3:30pm

Wagoner Public Schools
Wednesday
2:45pm—3:30pm

*Hosted by CSO Athletic Trainers and Physician Assistants.

EXAMINATION OF THE SPINE AND EXTREMITIES: THE LOWER LEG

In an athletic arena that is largely dominated by news stories on concussions, ACL tears, and ulnar collateral ligaments, the lower leg usually doesn't make the news. However, whether you're a weekend warrior or a secondary school athlete, the lower leg is often a source of pain and limitation that is all too familiar for some. And, without obtaining specific medical guidance on the exact nature and the exact pathology of the injury, lower leg pain is often misunderstood in its etiology and mistreated in its rehabilitation.

Skeletal Anatomy: Tibia, Fibula
Ligaments: Superior and inferior stabilizing ligaments and an exceedingly strong interosseous ligament that connects the interior border of both bones.
Muscles: Numerous, divided into an anterior, lateral, deep posterior, and superficial posterior compartments.

Lower Leg Physiology

As the two bones of the lower leg are literally anchored together at the top, bottom, and all the way in between, only a very small amount of movement actually occurs between these two bones. However, as their shape and size demonstrate, the tibia is much larger and carries approximately 2/3rds of the entire weight and force during activity. The fibula however, is also an integral part of the lower leg that provides for muscular attachment, force absorption, and compartmentalization of the lower leg.

In any level of activity, the primary duties of the lower leg are to transmit force, position the foot and ankle for movement, and stabilize the same joints during such movements. In fact, a vast majority of the muscles that mobilize and stabilize the foot and ankle joints arise from the lower leg. As such, progressive strengthening of all the musculature in the lower leg provides for a great deal of increased stability and control for the ankle and foot. Agility exercises such as heel raises, jumps ropes, foot ladders, etc...can easily improve your game and reduce your risk for injury. In other words, whether you are competing in high school, in a rec league, or playing soccer on the weekends, if you will focus on strengthening and stabilizing the muscles of the lower leg, you will find that you are more effective in your competition and less likely to sustain an injury.

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Common Injuries

Anterior Tibialis Fatigue:
Often seen in individuals who are either just beginning a running regimen, or even in those who have just increased their regimen, insufficiency of the Anterior Tibialis is just what it sounds like; a weakness of the musculature. Because the Anterior Tibialis is the primary muscle for raising the ankle and foot back up towards the anterior lower leg during gait, any dramatic increase in running requires increased demands on the muscle. Most patients note general to chronic soreness in the lateral aspect of the upper lower leg that usually alleviates with appropriate rest and gently stretching.

Compartment Syndrome:
During activity, the pressure in each lower leg compartment increases slightly and then returns to normative levels after exertion. However, as a result of long-term, over-intensive training, the pressure does not return to normal and continues to elevate with continued activity. As pressure steadily increases, these patients can present with progressive, yet broadly dispersed pain and even possibly nervous tissue dysfunction (i.e. tingling, numbness, etc…) due to nerve compression. Often mislabeled as shin splints, this condition often can go untreated for some time. However, consulting medical care will usually reveal the pathology and likewise recommend rest as the appropriate treatment. However, surgical release of the compartment may also be necessary if the condition is not addressed early on.

Stress Fractures:
A common overuse injury in runners, stress fractures develop over time due to repetitive stress and limited rest. Over time, a slow onset, boring-type pain that slowly comes and goes is usually thought of as a normal byproduct of the exercise. Without rest, this pain worsens, focuses usually to a very specific location, and is actually most painful immediately after activity. As such, attempts to ice or just rest for a few days at this point are insufficient and the pain only comes back when one returns to running.

Injury Prevention

Preventing injury in the lower leg hinges predominantly on two major facets: Force Transmission and Progression.

Force Transmission:
Every time the foot contacts the ground, force is transmitted into the foot, through the ankle, and up the lower leg. And, by design. these bones and joints are ideally positioned to managed this force. However, when the design of the bones or joints are modified, the ability to manage force is also modified. Conditions such as increased foot pronation, a higher arch, or perhaps even a bone spur change the way force is transmitted through the foot, ankle, and lower leg. And, if not corrected by shoe selection, orthotics, and sometimes surgery, these conditions cause areas of increased force, structural overload, and subsequent injury.

Progression:
As any avid runner or even any athlete in a running-based sport would probably testify, some of the most common injuries to the foot, ankle, and lower leg are caused by overuse. And, while specialization in one sport can be effective for some level of skill development, a lack of rest for the body will wipe out any such development due to injury. In fact, without rest, the body will never have the opportunity for repair, strengthening, or develop.

In a day of increased focus on health and wellness, it is just as important to realize that each exercise day must be accompanied by a like time of rest and recovery. How much rest is appropriate? Let your physician and your body be the guide. Have regular health checkups prior to beginning activity and likewise listen closely to what your body is telling you. Chronic pain and dysfunction that doesn't alleviate with rest, ice, or medication is usually a very individualized and accurate indicator of a worsening condition.

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918-528-3300

Owasso Clinic
13616 E. 103rd St. N., Ste. B
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918-272-4488

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