



THE UNIVERSITY OF TOLEDO MEDICAL CENTER

# ORTHOPAEDIC MONTHLY

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## How to Score Well On An Exam

To score well on an exam you need to prepare for the exam, manage your time and make a schedule for yourself.

### Preparation

1. To prepare for the exam you need to study past exams. See what the old exams cover and repeat studying these past examinations.

2. The second step when preparing for the exam is to know the test format so that you avoid any surprises during the exam. You need to familiarize yourself with the format of the test.

3. The third step of preparing is to know your strengths and weaknesses. You need to work on your weaknesses in order to get to the mean in all of the topics. If you reach the mean in all topics, you will probably receive a good score. You will not be able to achieve a good score if you have topics below the mean. Have a strong commitment to work on the weak areas and beat it!

4. The fourth step of preparing is to make sure to study key concepts. Compile the key concepts and keep studying them. No matter how the concept is presented, they are all the same (a cat is a cat).

5. The fifth step of preparing is the need to study on a regular basis, give yourself enough time to practice. Use multiple sources and time yourself, practice speed and strive to cut that time in half. Practice under adverse and stressful conditions. Simulate the worst possible condition that you could face on the day of the exam.

Build confidence and mental stamina. Recreate the test environment as closely as possible. You predict, anticipate and then select! When you see it, you kill it! Stay confident and tell yourself "I have seen this before and I know which key will open that door!" You need to study something every day, no matter what, even if it is only ten minutes. You need to have dedication, commitment and discipline! You need to study on a regular basis!

Time Management: Ask yourself; how much time do I need? When do I begin? Do I need a structured plan? Do I need six months or a year?

How much time do I need? Multiple question exams require a long time devoted to studying. These types of exams focus on details and are not a short term thing. You cannot retain many details effectively

How To Score Well On A Test

**2 MANAGE YOUR TIME**

Multiple question exams require a long time devoted to studying.

- this focuses on details and is not a short term thing.
- you cannot retain many details effectively in short term memory.
- avoid cramming to decrease your stress level.

in short term memory. Avoid cramming to avoid your anxiety and decrease your stress level. In fact, you can get a great score while you are working if you have enough time to study. If you learn a little bit every day and allow plenty of time for repeated review, you can build a very reliable long term memory.

When do I begin? Start now and do not delay (it can be very hard to begin studying).

Do I need a structured plan? Have a written, structured plan for studying and strive to comply with this plan. Balance competing factors such as work, personal time, family time, weekends, holidays or vacations.

Make a schedule, stay with the schedule! Try to finish ahead of the schedule! Use the "salami technique". A thin slice every day (even if it is only 10 minutes a day), so you can digest it and enjoy it!

If you focus on the important concepts, and study at least a little every day then you will be complete! Study to sharpen your skills (your brain will be prepared and ready), train the brain, anticipate and select.

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# Sciatica

Sciatica is a condition in which the sciatic nerve or one of its roots or branches is compressed resulting in pain in the lower back and buttock, and sharp shooting pain in the leg, usually on one side.

The sciatic nerve arises from the lumbosacral plexus. The sciatic nerve is a huge nerve which originates from L4, L5, S1, S2 and S3. There are five nerve roots and each one has its own dermatomal distribution.

When a nerve root is compressed, it gives pain and symptoms in a specific area. The most common disc herniation is between L5/S1, which will affect the S1 nerve root and involve the lateral side of the foot. If the L4 nerve root is involved, this will involve the medial side of the foot.

These dermatomes are important in knowing which level is the herniated disc. For the diagnosis of sciatica, this is not very important for a non-medical person, because what matters is the presence of pain that is shooting down the buttock and leg. Sciatic may be self-diagnosed.

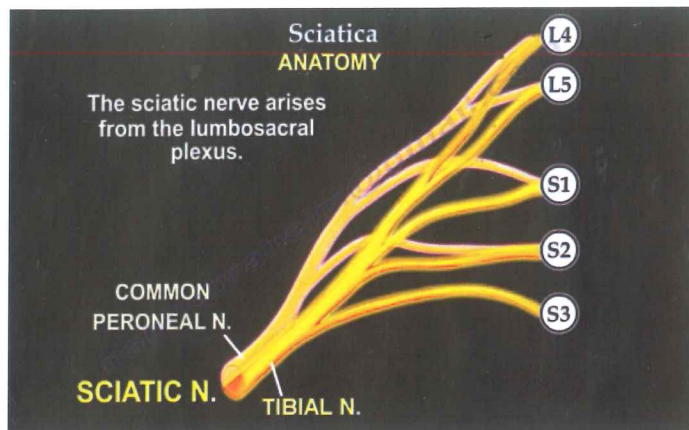
What is the course of sciatica? The sciatic nerve starts in the lower back and runs through the buttock and lower limb. The sciatic nerve runs predominantly in the posterior aspect of the buttock and the lower extremity.

Symptoms and Signs: There will be sharp, shooting pain down the buttock, thigh and leg. These symptoms of shooting pain are usually on one side of the body with numbness, tingling and burning. The area of symptoms and pain usually depend upon the nerve that is involved. Sitting may aggravate the nerve causing pain. Similar to the straight leg raise sign, sitting will place tension on the nerve or stretching of the nerve, which is why there is pain from sitting. Coughing, sneezing, or moving may also aggravate the sciatic nerve, causing pain. Sciatic pain will improve by standing.

Provocative Tests: The straight leg raise sign will be used. With the patient either sitting or supine, raising of the leg will reproduce the pain and paresthesia at 30-70 degrees of hip flexion. This helps to identify if the patient is a good candidate for surgery. If the patient has a positive tension sign, they will improve with surgery. The Lasegue's sign will also be utilized. Straight leg raising pain is aggravated by forced ankle dorsiflexion.

What are the causes of sciatica? Sciatic usually occurs due to a herniated disc of the lumbar spine.

What is a disc herniation? The intervertebral disc is an elastic soft



cushion between the vertebrae of the spine. It links the vertebrae together and gives stability to the spine, allowing the spine to move. The intervertebral disc has two parts; the annulus fibrosus (fibrous outer layer) and the nucleus pulposus (soft inner layer). The soft inner material leaks out or herniates through a tear in the fibrous outer layer, becoming a disc herniation. A tear of the disc may allow the gel-like material in the center of the disc to protrude, causing a herniation of the disc which presses into the nerve root as it exits the spine. Sciatic is one of the most common symptoms of lumbar disc herniation.

Treatment will begin conservatively. This will include anti-inflammatory medication, muscle relaxation and physical therapy. Usually the condition resolves itself in a few weeks. If the pain does not improve after six weeks of conservative treatment, surgery is considered. The surgery is usually done to remove the intervertebral disc and relieve the pressure being placed on the nerve.

There will be a good outcome from surgery if the patient has leg pain, a positive straight leg raise sign, neurological deficit, and the clinical findings correspond with the MRI findings. The surgery is usually a discectomy or laminotomy.

Piriformis syndrome can also cause sciatica-like symptoms and this needs to be differentiated from sciatica that is caused by a disc related problem. Both may have the same symptoms, but have different causes. The diagnosis of piriformis syndrome should be done by exclusion of any possible spine problems, which could be compressing the spinal nerve root and causing true sciatica. If the patient complains of sciatica and the MRI does not show that there is a disc problem, then the patient probably has piriformis syndrome.

# Turf Toe

Turf toe is a hyperextension dorsiflexion injury of the big toe's first MTP joint. This injury tears the insertion of the plantar plate from the proximal phalanx which leads to an incompetent plantar sesamoid complex. Turf toe is more commonly seen in contact sports that are played on rigid surfaces.

The big toe (MTP joint) is positioned in hyperextension and the

forefoot is fixed to the ground. With axial load to the heel, the plantar plate sesamoid complex tears. The sesamoid bone may fracture or proximally migrate. An occult fracture of the proximal phalanx may be present. When you classify these injuries, they can be a sprain, partial tear, or a complete tear.

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There are many factors implicated with an increased incidence of turf toe. A combination of multiple factors associated with turf toe includes an increased hardness of the artificial turf and increased shoe flexibility. Factors that are associated with the patient developing turf toe are the weight of the athlete/patient, age, the type of sport being played and factors associated with the foot itself. Turf toe injuries occur with a lot of different sports; however they are common with football players.

**Clinical Picture:** The patient will present with pain, swelling and an inability to “push off” with the big toe. The patient will have plantar swelling, tenderness and ecchymosis. The vertical Lachman’s test will be positive. Varus and valgus instability will be present. The physician should always compare the injured foot to the other side.

An x-ray will need to be obtained. Either a fracture or proximal migration of the sesamoid bone will be seen. If seen on an AP view x-ray, this means that there is complete rupture of the plantar plate. The sesamoid bone will not move under fluoroscopy with range of motion of the first MTP joint.

**Treatment:** These injuries have the potential to become a chronic

problem. Most athletes and coaches perceive this injury as a small, trivial injury. Most athletes return to sports without sufficient time for healing and recovery. Approximately 50% of these patients will complain of persistent symptoms, such as stiffness of the big toe or hallux valgus deformity after more than five years after the injury occurred. This will lead to chronic disability and prevent the athlete from competing.

Most of these injuries can be treated conservatively with ice, rest, taping, and orthotics (rigid Morton’s extension). In the most severe cases, a boot or a cast will be worn for a few weeks followed by therapy for motion.

Surgery for repair is rare. Surgery is done if there is failure of conservative treatment. Surgery is also done if there is a Grade III tear (complete tear of the plate). The physician repairs the plantar plate to the proximal phalanx through a plantar approach. The sesamoid bone may be exercised partially or completely if it is fractured. The return to play is usually about 3-4 months after surgery. The late sequela is hallux rigidus, which may need rigid Morton’s extension or surgery, called cheilectomy.

## Osteochondral Lesion of the Talus

The talus is the third most common location for OLT or OCD lesions following the knee and the elbow.

The cartilage thickness is about 1-2 mm. The cartilage receives at least five times the body weight during normal ambulation. About 60% of the surface of the talus is covered by cartilage. It is not unusual for OCD lesions to occur in the talus. More than 10% occur bilateral and OCD lesions are more common in males. About 6% of patients with ankle sprains will have this lesion. A lot more patients will have an OCD lesion if they have an ankle fracture.

The OCD lesion is also seen in patients that are having lateral ligamentous reconstruction. The lesion may be a contributing cause of ankle instability. Most of the patients with symptoms usually play sports and are very active. Some believe that the primary cause of the OCD lesion is trauma; however, this is controversial. The patient may have an acute fracture, with repeated microtrauma, or the patient may not have a history of trauma at all.

**Clinical Examination:** The patient presents with either acute inversion injury or chronic ankle pain with swelling, catching, locking, and possible ankle instability. When the patient complains of frequent instability of the ankle, the evidence of ligament laxity on stress view x-rays are usually absent. Most patients who have symptoms are usually active individuals in their 20’s or 30’s.

Aside from getting x-rays for the initial evaluation, there are other studies that should be taken. MRI is the study of choice if you suspect that there may be an OCD lesion of the talus. When you treat an ankle sprain and it does not get better, you may want to order an MRI to rule out an occult lesion of the talus.

A fluid signal behind the lesion on MRI indicates that there is a

continuation between the joint and the lesion and the lesion could be unstable and less likely to heal by itself. CT scan is the study of choice if you know that there is an OCD lesion present and you want to follow the lesion. It is interesting how the x-ray staging and the MRI staging are close in comparison.

**X-ray staging:** 1. Subchondral compression fracture. 2. Partial detachment of the fracture. 3. Complete detachment of the fracture with no displacement. 4. Complete detachment of the fracture with complete displacement (free fragment)

**MRI staging:** 1. Articular cartilage edema. 2. Fracture similar to the x-ray classification. 3. Fracture that is detached by not displaced. 4. Completely displaced fracture fragment (Stage III and Stage IV appear the same as in x-ray stage). 5. Subchondral cyst formation.

It should be noted that the radiographic and the arthroscopic findings do not always correlate.

What are the lesions that you will usually see? The two types of lesions are posteromedial and anterolateral. I find that these lesions are actually opposite to common sense understanding. The medial lesions are common, usually non-traumatic, larger/deeper, and posterior. The medial lesions are less symptomatic. The lateral lesions are less common, traumatic, smaller/shallow, anterior or slightly central. The lateral lesion is usually symptomatic and difficult to treat without surgery. The lateral lesion has a lower incidence of spontaneous healing and becomes displaced in the joint and is symptomatic. Displaced means that the lesion is a Stage IV in either the x-ray or MRI classification. This lateral lesion usually occurs due to an inversion or inversion dorsiflexion trauma.

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*Osteochondral Lesion of the Talus continued*

You treat this lesion conservatively first by non-weight-bearing, short leg cast, or a boot for 4-6 weeks, especially if the lesion is acute and nondisplaced. In general, if the lesion is a lower grade lesion such as Stage I or Stage II, you will treat the lesion conservatively. Surgery is done if the conservative treatment fails. Surgery is also done if the lesion is a high grade lesion such as Stage III or Stage IV by an MRI. Surgery is usually done arthroscopically.

Regardless of how the lesion appears on x-rays, if the patient is asymptomatic after conservative treatment, then observe the patient, even if there is no evidence of healing of the lesion on x-rays or MRI. Loose fragments on x-rays are an indication for surgery.

If it is an acute fracture, especially the anterolateral fragment, consider reduction and fixation with bioabsorbable screws. If the OCD lesion is less than 1 cm, you will do an excision, curettage or drilling of the lesion. If it is greater than 1 cm with the cartilage intact or the cap intact, you will do retrograde drilling or bone grafting. If the OCD lesion is greater than 1 cm and displaced, you will perform ORIF or osteochondral grafting.

Ankle arthroscopy is usually the procedure that is used in OCD lesions of the talus, however, when comparing the arthroscopic and open procedure, they are almost about the same. There clearly are a lot of advancements with OCD lesions of the talus and it does not matter what operation you perform, you will need to do some rehabilitation after surgery that will strengthen the peroneal muscles. This will allow for proprioception training and stability of the ankle joint.

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Dr. Ebraheim, Amanda Critton, Julie Anderson and Ellen Finch do not have any relationships with industry to disclose.

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