



THE UNIVERSITY OF TOLEDO
MEDICAL CENTER

APPROVED FOR AMA PRA CATEGORY 1 CREDIT; SEE INSERT FOR DETAILS

THE UNIVERSITY OF TOLEDO MEDICAL CENTER

ORTHOPAEDIC MONTHLY

VOLUME 5, ISSUE 6 JUNE 2015

Preparing to Take a Test

Dr. Ebraheim thanks all of you for watching his videos and subscribing to the Orthopaedic Monthly newsletter. In this issue, Miranda Ebraheim shares the steps to take in preparing for an exam. "Recently," says Miranda, "My Dad took the American Board of Orthopaedic Surgery certification exam and he scored in the 100th percentile, while ten years ago he scored in the 99th percentile. I want to share with you some of the study tips he used to score in the 99-100 percentile."

To prepare you for an exam, we need to touch upon these three items:

- I. Preparation
- II. Management of your time
- III. Making a schedule

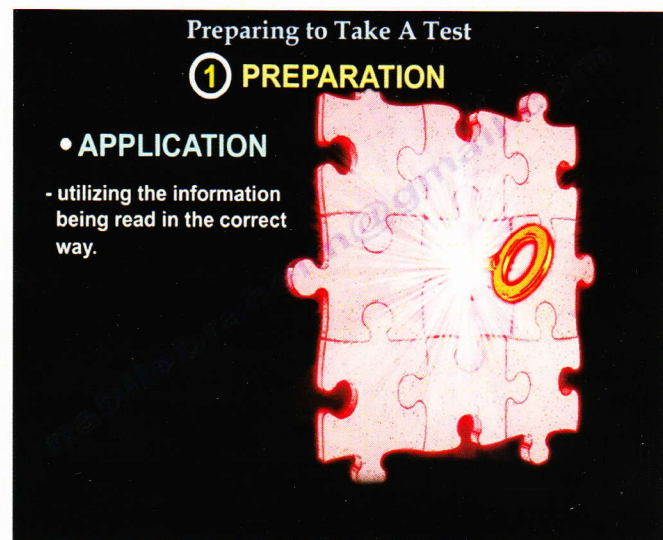
Everybody gets nervous when it is time to take a test. Perhaps just thinking about taking the test makes people more nervous than the test itself.

I. **PREPARATION** for the exam: You should study past exams, know your strengths and weaknesses, know the test format, key concepts, and study on a regular basis.

STUDY PAST EXAMS: When you study PAST exams, you should give yourself adequate time to prepare. You may want to repeat studying past exams.

Practice, Practice, Practice! Practice relevant questions. You should also prepare and practice the test under timed conditions, adverse conditions and stressful conditions. Try to simulate the worst possible condition that you could be involved in on the test day. This will help you build confidence and mental stamina. You should recreate the test environment as closely as possible. Practice past exams and quizzes. Quiz yourself and use multiple sources.

There are five levels of cognitive domain: **RECOGNITION:** identifying important information. **COMPREHENSION:** having excellent understanding of the concepts. **APPLICATION:** utilizing the information being read in the correct way. **ANALYSIS:** breaking down the concepts in order to gain a better understanding. The concept is being studied but not immediately understood. **SYNTHESIS:** the use of intellect and looking at the concepts from another way. Information is then understood. Practice will take the



five levels down to only three: Recognition, Comprehension, and Application.

You need to have different keys to open different doors! Be confident and tell yourself things like "I have seen this door before and I know which key will open it." Practice speed! Check your initial speed when answering exam questions and strive to cut that time in half. Anticipate, anticipate, and APPLY!

Discover your weaknesses and strengths. Stay above the mean in all topics! This is how you achieve a good percentile on the exam. The number of questions that are answered correctly above the mean will guarantee a good percentile on the exam. If one category is below the mean, this will wipe out some of the positive scores of other categories.

You should understand the test **FORMAT**. Ask yourself, what is the format of the test? Familiarize yourself with the test format so that there will be no surprises! Standardized tests are performance tests. You will need to develop your own personal strategy for these tests. You need to be familiar with the structure and directions ahead of time. You need to be familiar with the sections, types of questions and time. This will make you focus on the questions themselves. It is important to understand the key

Continued on page 2



Preparing to Take a Test continued

knowledge concepts that are commonly tested. Concepts usually describe important events, features, or tie related ideas and observations together. These are the items that usually appear on multiple choice examinations. Compile them and study the concepts frequently! The CONCEPTS are the basic information. Put the main ideas, information, diagrams and figures onto a sheet and review this information many times. Create your own flash cards or files using index cards or printing material to study from. No matter how the concepts are presented, they always remain the same!

Topics that have many concepts, such as Slipped Capital Femoral Epiphysis (SCFE), will become 'hot' topics. You will face multiple questions on this topic!

Study on a regular basis: You should study something every day, even if only for about 10 minutes. You need to have dedication, commitment and discipline.

II. MANAGE YOUR TIME: How much time do I need? When do I begin? Do I need a structured plan? Do I need six months or maybe twelve months? Multiple question exams require a long time devoted to studying. This is not a short term thing. Avoid cramming to decrease your stress level. Multiple exam questions focus on details. You cannot retain many details effectively in short term memory. You learn a little bit every day and allow plenty of time for repeated review that will build very reliable long term memory. Start now and do not delay. It can be very hard to begin studying. Have a written and structured plan for studying. Balance competing factors

such as work, personal time, family time, weekends, holidays or vacations.

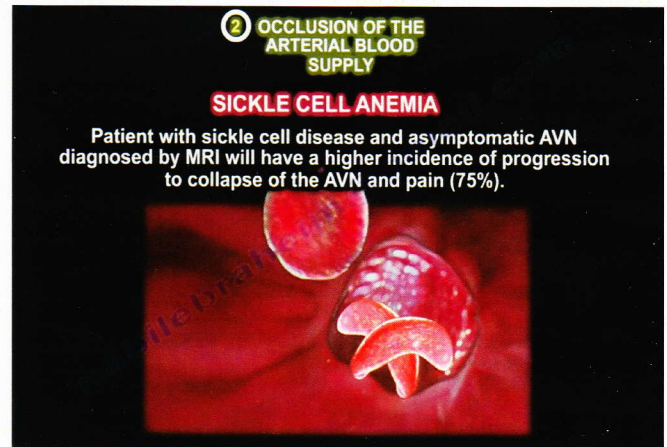
III. MAKE A SCHEDULE: Stay with the schedule! Try to finish ahead of the schedule! Use the "salami technique." A thin slice every day so you can enjoy it. If you focus on the important concepts and study at least a little every day then you will be complete! When it comes time to taking the actual test, try to have a test day strategy and memorization plan for things you could forget; such as charts, diagrams and numbers. During the test, be aware of double and triple jumps. Be aware of complex questions! Read the last sentence first (the actual question portion)! Read the body or the stem of the question next. The body contains the important information. Next, look at the images, videos or diagrams associated with the question. Now is the time to predict the answer. Taking the actual test: if you cannot select the answer right away, then eliminate the incorrect options, and select the answer using your best guess. If you are guessing and not sure of the answer, choose the numerical answer at the middle of the range and flag it to come back to it later. If you practice with old exams, you will have plenty of time to go over some of the harder questions again.

This instruction presents a general standard recommendation. Every individual needs to tailor their methods of studying to their own situation.

AVN Causes and Risk Factors

Avascular Necrosis (AVN) or Osteonecrosis is death of a segment of bone due to disruption of the blood supply. Causes of avascular necrosis are numerous and there are different ways that could interrupt the blood supply. Here are examples of how TRAUMA associated with DISLOCATION or FRACTURE of the femoral neck may interrupt the blood supply to the hip.

1. Trauma - mechanical disruption of the blood vessels, such as femoral neck fracture.
2. Occlusion of the arterial blood supply: -Avascular necrosis may occur due to occlusion of the arterial blood supply by fat embolism, nitrogen bubbles in the blood stream (caisson disease) or with sickle cell disease. Avascular necrosis may also occur due to fat embolism, where fat emboli enter the bloodstream. - Sickle Cell Anemia: Under low oxygen levels the cells become sickle shaped and unable to pass through the vessels. The result is diminished blood flow leading to AVN. A patient with sickle cell disease and asymptomatic AVN diagnosed by an MRI will have a higher incidence of progression to collapse of the AVN and pain (75%). Deterioration of the AVN will be rapid and can be bilateral. Screen the other hip now and periodically. Also watch the humeral head for AVN.
3. Obstruction of the venous outflow. Increased interosseous pressure limits blood flow.
4. Injury or pressure on the blood vessel wall:



Gaucher's Disease (can be a good test question)

- increased fat cell size may prevent the arterial inflow and lead to ischemia; fatty substances accumulate in cells and certain organs.
- Marrow diseases such as lymphoma and leukemia may also cause AVN.
- Radiation, vasculitis and cytotoxins

Continued on page 3

AVN Causes & Risk Factors continued

AVN may be associated with hypercoagulable states such as decreased anticoagulants, protein S and protein C...increased procoagulant.

MOST COMMON CAUSES: Trauma, Systemic Lupus, Erythematosus (SLE), Steroid use, Renal failure, Alcohol, Organ transplant, Idiopathic (no cause), Hemophilia, Metabolic & genetic factors. All of these conditions may cause loss of vascular supply, marrow necrosis and osteocyte death.

Important conditions related to AVN: Steroid Use and HIV

Steroid Use: high doses for 2-3 weeks or low doses for long durations can cause AVN. There is a direct connection between the dose and duration of steroid use in the development of AVN. Joint injection does not necessarily cause AVN. **HIV:** Avascular necrosis (AVN) of the femoral head is a complication in HIV infected patients. The increased incidence of AVN may be caused by an increased prevalence of predisposing factors for osteonecrosis, including protease inhibitors, hyperlipidemia, corticosteroid use, alcohol and intravenous drug use. Protease inhibitors play a role in the development of osteonecrosis through a tendency to cause hyperlipidemia.

Causes of AVN: 'Mnemonic' Aseptic:

- A lcoholism / AIDS
- S ickle Cell Disease / SLE
- E rlenmyer Flask (Gaucher's)
- P ancreatitis / Pregnancy
- T rauma
- I diopathic/ infection
- C aisson's (the bends)

AVN is a death of a segment of bone. The anterosuperior segment of the femoral head is the area usually affected. Resorption of some of the dead bone is done by the Osteoclasts. Dead trabecular bone is resorbed, ready to be remodeled. Osteoclasts resorb some of the dead bone. Osteoblasts lay down new woven bone.

WEAK STAGE: The process is repeated and the bone becomes weak. At this weakest stage, the AVN will result in collapse. Remodeling is not enough to support the bone! There is progressive collapse due to bone death, resorption, remodeling and micro fracture. AVN ends by final collapse, joint changes and arthritis.

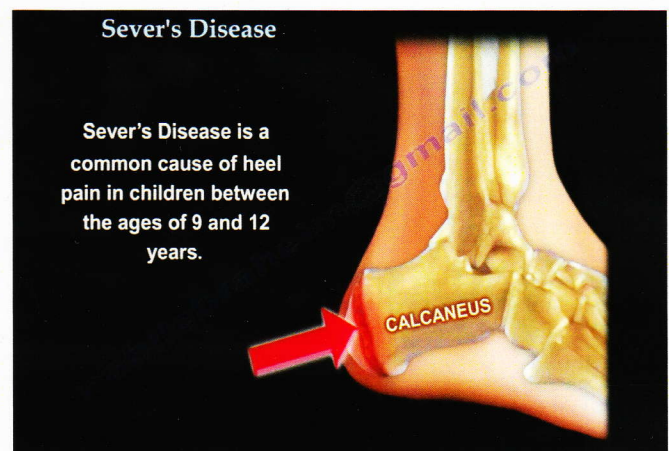
SEVER'S DISEASE

Sever's disease is a common cause of heel pain in children between the ages of 9 and 12 years. The pain is due to calcanea apophysitis occurring due to repetitive and continuous traction on the calcaneus from the Achilles tendon. Sever's disease is similar to Osgood Schlatter disease of the tibial tubercle. It is important to remember that the apophysis is not the epiphysis. The apophysis is not part of a joint and has muscle or tendon attachment. This traction apophysitis may lead to stress fractures, pain and tenderness over the heel.

PRESENTATION: Patients are usually young athletes presenting with heel pain that increases with activities.

EXAMINATION: Upon examination, there could be swelling, tenderness, warmth and/or redness on the back of the heel where the Achilles tendon inserts.

RADIOLOGICAL STUDIES, such as plain lateral X-rays may show sclerosis or fragmentation of the calcanea tuberosity. It is important to remember that sclerosis is not specific for this condition. Fragmentation of the calcanea tuberosity on the other hand, is more common in patients with Sever's disease relative to the general population. Sever's disease is a clinical diagnosis. X-rays may show other causes of pain such as tumors, infection, fractures or cysts. MRIs are not usually used but can help rule out calcaneal stress



fractures or osteomyelitis. Sever's disease is a self-limiting condition that usually resolves within time.

TREATMENT usually consists of: NSAIDs (nonsteroidal anti-inflammatory drugs); Achilles tendon stretching exercises; Activity modifications such as a short leg walking cast if the condition is severe.

Virchow's Triad, DVT, Blood Clots

Guess the Triad! There are 3 factors that are thought to contribute to deep venous thrombosis (DVT): 1. Endothelial Injury (or damage to the inner lining of blood vessels - endothelium). 2. Venous Stasis (a condition of slow blood flow in the veins, usually of the legs). 3.

Hypercoagulability (the hypercoagulable state that makes the blood thick and stick together, similar to sticky chewing gum on a chair bottom). Answer: VIRCHOW'S TRIAD!

Continued on back page



THE UNIVERSITY OF TOLEDO
MEDICAL CENTER

Department of Orthopaedic Surgery
The University of Toledo
3000 Arlington Ave., MS 1094
Toledo, Ohio 43614



Virchow's Triad, DVT, Blood Clots continued

Guess the Triad! 3 factors thought to contribute to DVT: 1. Distended vein of the neck or increased jugular vein distention (JVD); 2. Muffled heart sounds (heart sounds become muffled and distant because of the insulating effects of fluid in the pericardial sac); 3. Hypotension (low blood pressure); These 3 factors are associated with acute cardiac tamponade. Answer: BECK'S TRIAD!

Guess the Triad! 3 factors associated with Osteoporosis/Osteopenia, Amenorrhea and Eating Disorders; 1. Eating disorders or restrictions of diet cause an imbalance of energy and affect the brain's regulation of the ovaries, causing 2. an absence of a menstrual period (amenorrhea); 3. Loss of exposure of estrogen will lead to osteoporosis which will lead to bone fragility and stress fractures. Answer: FEMALE ATHLETE TRIAD!

Guess the Triad! Coronoid Fracture, Elbow Dislocation, or Radial Head Fracture. 1. Elbow Dislocation; 2. Radial Head Fracture or unstable radial head fracture (radius); 3. Coronoid Fracture (Type III coronoid fracture (ulna); 3 associated factors with this triad that commonly occur due to a fall onto an outstretched hand. Answer: TERRIBLE ELBOW TRIAD!

Guess the Triad! 3 associated factors: 1. Recurrent oral ulcers (raised, round lesions in the mouth that quickly turn into painful ulcers); 2. Genital Ulcers (commonly occur on the scrotum or the vulva). 3. Uveitis or eye inflammation; Answer: BEHCET'S TRIAD!

Guess this Triad! 3 injuries: 1. Meniscus Injury (tear of the lateral meniscus); 2. Anterior Cruciate Ligament Injury (ACL tear); 3. Medial Collateral Ligament Injury (MCL tear). This usually occurs in sports, typically with a non-contact pivoting injury. Answer: O'DONOGHUE'S UNHAPPY TRIAD!

Guess the Triad! 1. Mental Status Changes (changes in brain function, such as confusion, amnesia or memory loss); 2. Petechiae (pinpoint, round spots that appear on the skin as a result of bleeding); 3. Dyspnea (difficult, labored breathing or shortness of breath); Answer: BERGMAN'S TRIAD!

THE UNIVERSITY OF TOLEDO MEDICAL CENTER

ORTHOPAEDIC MONTHLY

Editors:

Dr. Nabil Ebraheim, Professor
and Department Chairman of
Orthopaedic Surgery;

Suzanne Payne
Amanda Ferguson

Dr. Ebraheim, Amanda Ferguson and
Suzanne Payne do not have any
relationships with industry to disclose.

**Department of
Orthopaedic Surgery**
The University of Toledo
3000 Arlington Ave., MS 1094
Toledo, Ohio 43614

For appointments, call
419.383.3761