BSMS MODULE: **102, FOUNDATIONS OF HEALTH AND DISEASE**

THEME: **THE HUMAN BODY**

DR SESSION: **3. APPLIED ANATOMY AND REVISION**

Welcome back to your third session

In the first two dissection sessions you examined the pectoral muscles and the muscles of the thoracic cage. This session will be different as there is no dissection to complete. You will work rotating through each task with 10 minutes each. You will then spend the rest of the session revising the material from the dissection sessions. As with all practical sessions in the dissecting room make sure you work through this hand out.

LEARNING OUTCOMES

By the end of the practical session students should be able to:

1. Apply your knowledge of material covered in anatomy lectures including: muscular, nervous, skeletal and lymphatic systems
2. Relate your anatomical knowledge to a pathological case.
3. Completed revision of the last two sessions and prepared for the formative viva and summative Knowledge Test.
4. Apply your knowledge using an imaging modality e.g. CT, X-ray.

Task 1
Skeletal System

Examine the knee joint. Identify the femur and the tibia. The knee joint is a hinge joint. Move the specimen to examine the plane of movement. Identify the cartilaginous menisci that sit between the femur and the tibia. Examine the surface of the bones and identify the connective tissue covering it, the periosteum.

Use the disarticulated bones to identify the following features

- Greater trochanter of the femur
- Spine of the scapula
- Occipital condyles
- Facet on a vertebra
- Foramen in the skull

What conditions might affect the anatomy of the knee joint?

Task 2 Muscular System

A 25 year old male professional rugby player has been performing well all season. He is keen to be selected for a different squad and is training hard. During a training session he is doing pushups and feels pain over his right chest. The next day at the GPs the doctor takes his history and his blood pressure and pulse rate. The doctor examines his range of movement in his upper limbs. The

doctor gives him the all clear for the cardiac tests but thinks he may have ruptured the pectoralis major tendon.

Pain in the chest may relate to cardiac problems or muscular injuries. Examine the 3 specimens demonstrating the three different types of muscle. Identify the cardiac muscle in the ventricles of the heart. Identify the muscle fibers in the skeletal muscle and determine the type of muscle shown (parallel/pennate etc.) Identify the circular smooth muscle located in the gastrointestinal system. If the patient has ruptured his pectoralis major tendon what might be the treatment?

Task 3 Lymphatic System

The main lymphatic channel in the body is the thoracic duct it ascends in the posterior mediastinum between azygos vein and the oesophagus. It looks like a white tube that sometimes has a slightly beaded appearance. Identify this in the prosection. Lymph nodes are oval bodies located along lymphatic channels. They appear as cream coloured. Identify a lymph node on the prosection. The spleen is the largest lymphatic organ. The spleen is located in the abdomen, identify the spleen on the prosection. What is the role of the spleen?

Task 4 Nervous System

Using the spinal cord prosection identify the different regions: cervical, thoracic**,** lumbar and sacral. Identify the dorsal roots which are carrying afferent (sensory) information. The dorsal and ventral roots merge to form a spinal nerve carrying mixed information. Identify a spinal nerve. The spinal nerve course is very short and the spinal nerve divides into dorsal and ventral rami. What areas of the body are supplied by the dorsal and ventral rami?

Task 5 Vascular System

Using the lower limb as an example locate the following muscular arteries: Femoral and popliteal. The femoral artery is found as a continuation of the external iliac artery as it passes through the femoral canal in the groin region. The popliteal artery is located in the popliteal fossa on the posterior aspect of the knee. Locate some smaller unnamed arteries as they supply the muscles. Identify the great saphenous vein which contains valves that are palpable by gently running your fingers over the vein. What might occur if this vein became blocked?

Task 6 Imaging

Using the chest x-ray identify the landmarks labelled. Compare the landmarks to the skeleton. Are there any abnormalities on this x-ray?

Task 7 Pathology

Examine the potted specimen ED37. This is a specimen with Paget's disease, named after James Paget in 1877. It is a disease where the normal

process of making and renewing bone happens at a faster rate. This makes the bones larger but also more brittle and more susceptible to injury
What might be two possible symptoms of Paget's disease?
What might occur if Paget's disease affects the skull?

Task 8 Revision

Using the handouts of the previous two dissection sessions ensure you can complete the following table. You can break down your anatomy understanding into three levels; Identify, Function and Application (IFA). These represent an increasing level of difficulty and you should start with the Identify first, which means you being able to recognize this structure on the cadaver and in diagrams. For Function you should be able to say what it does e.g. the action of the muscle or the muscle a nerve innervates. For application this is how you might be using your anatomical knowledge. At this stage in your first module you are not expected to know an application for each part so we have completed this for you with some examples, but try to think of others.

Identify	Function	Application
Clavicle		Fracture
Thoracic Vertebrae		Slipped disc
Scapula: Acromion process, coracoid process		
Sternum: Manubrium, Body and Xiphoid process		
Pectoralis Major		Tendon rupture
Pectoralis Minor		
Investing Fascia		
Costal Cartilages		
Ribs		
Intercostal muscles		
Intercostal neurovascular bundle		Injury via trauma
Serratus Anterior		
Internal thoracic artery		Internal bleeding

Task 9 Mock Viva

You will have a formative (marks are NOT recorded) viva towards the end of 102. There is NO pass or fail. If it is felt that you have not reached an appropriate standard you will receive a letter from the Head of Anatomy and you should take this as feedback that you need to improve your performance. A viva is an oral examination and forms an important part of your training to become a doctor. You will be asked questions in your groups by a member of the Anatomy Team. You will be expected to verbalize your answers and use the specimens provided. You will be assessed on your knowledge and your ability to communicate. The viva will provide you with good feedback on how you are doing ready for revision for the Knowledge Tests. It will also provide you will an opportunity to practice some core skills which will be valuable in clinical settings and in clinical OSCE exams in later years.

For now take turns to ask a question to the group based on the revision table above and take turns to reply For example ‘Please can you show me pectoralis minor and describe its attachment points.’ Ensure that you give your colleagues praise and constructive feedback where you can.