

Weeks 3 & 4: Bones and Joints

Learning Outcomes

After producing the presentation on your topic, attending and taking notes at the other presentations, and revising these notes before the examination you should be able to:

1. Describe the applied functional anatomy of the knee joint.
2. Describe the applied functional anatomy of the hip joint.
3. Describe some of the basic forensic osteology techniques.
4. Describe the applied functional anatomy of the upper limb.
5. Describe the classification of synovial joints.

This practical is not assessed directly but the material covered in this practical will form part of the examination.

Problem 1.

Your group has been approached by a manufacturer of support bandages to produce an analysis of the knee joint to help in product design. The manufacturer wants you to produce a presentation for senior management that covers the basic anatomy of the joint; the range of movement available; the anatomical structures that control the mobility of the joint; and common injuries that occur.

Problem 2.

Your group has been asked to prepare a brief for a team of lawyers involved in a personal injury case. Their client dislocated their hip joint in a road traffic accident and you have been asked to produce a presentation covering the anatomy of the joint. They are especially interested in the mechanisms that would normally prevent dislocation and the structures that might be damaged by such an occurrence.

Problem 3.

A partial skeleton has been unearthed beneath the 1st 15 rugby pitch and your job is to help find out who it might have been. You have been given the pelvis and asked to identify the sex of the individual; you have a femur and have been asked to work out how tall the individual was; and you have a mandible and have been asked how old the individual was when they died. You need to prepare a presentation as an expert witness in a court case.

Problem 4.

Your group has been working with an occupational therapist on a project looking at the effects of rheumatoid arthritis on the mobility of the upper limb. You have been asked to prepare a presentation for a large company to catalogue the effect of disease at specific joints so they can evaluate its impact on the use of computer keyboards at work.

Problem 5.

A company designing humanoid robots has asked you to produce a short presentation for their engineering division listing the types of movements available at joints throughout the human body. They are interested in the types of movements and the bony shapes that are associated with these movements to help in their design process.