

Q4E Case Study 20 – Anatomical Movements

Proposed Subject Usage:

Physical Education (A/AS level)

Introduction

In order to perform a practical analysis of human movement a sound understanding of anatomical movements is necessary. Anatomical movements can be defined as the act or instance of moving the bodily structures or as the change of position in one or more of the joints of the body. Joint actions are described in relation to the anatomical position which is the universal starting position for describing movement. A subject is considered to be in the anatomical position when they are standing in an upright posture, facing straight ahead, with their feet close together and parallel and the palms of their hands facing straight ahead. This position is demonstrated in figure 1 below.

When studying the various joints of the body and analyzing their movements it is helpful to characterize them according to specific planes of motion and their axes. A plane of motion may be defined as an imaginary two-dimensional surface through which a limb or body segment is moved. In the human body there are three planes of motion (Figure 1) in which the various joint movements can be classified. Similar to the planes of motion the axes of rotation may be considered as a series of imaginary lines that run through the body; there are also three axes of rotation (Figure 2) where movement can occur.

- Sagittal (anteroposterior) plane – This plane is vertical and bisects the body from front to back. Dividing it into right and left symmetrical halves. For movement to occur in the sagittal plane rotation about the horizontal axis (transverse axis) must take place.
- Frontal (coronal) plane – This plane bisects the body laterally from side to side, dividing the body into front and back halves. Movement in the frontal plane takes place about the anteroposterior axis (frontal axis) must take place.
- Transverse (horizontal) plane – This plane divides the body horizontally into superior and inferior halves. Movement in this plane takes place about the longitudinal axis (vertical axis).

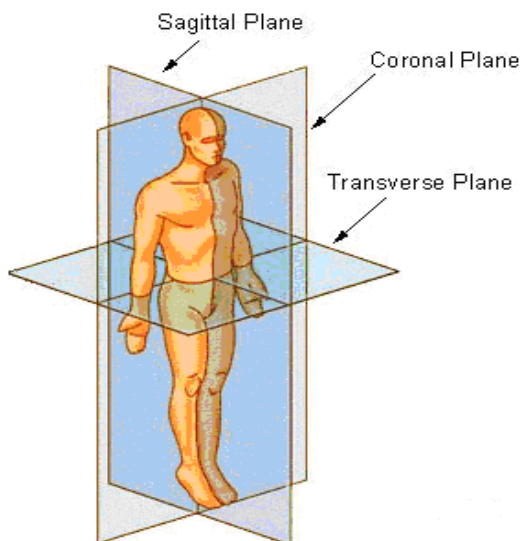


Figure 1 – Subject in anatomical position with planes of motion

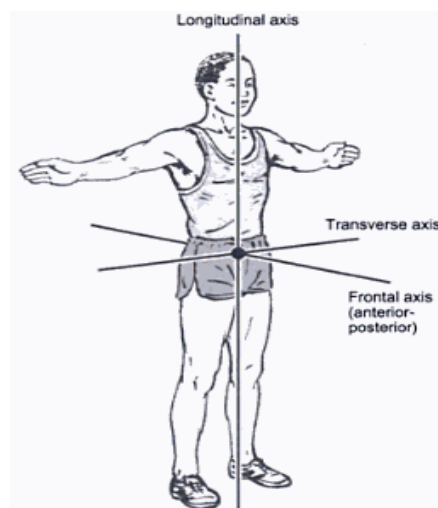


Figure 2 – Axes of Rotation

