1.4A: Anatomical Position

When an organism is in its standard anatomical position, positional descriptive terms are used to indicate regions and features.

Learning Objectives

• Describe the standard position in human anatomy

Key Points

• In standard anatomical position, the limbs are placed similarly to the supine position imposed on cadavers during autopsy.
• The anatomical position of the skull is the Frankfurt plane. In this position, the lower margins of the orbitals (eye sockets), the lower margin of the orbits, and the upper margins of the ear canals (poria) lie in the same horizontal plane.
• Because animals can change orientation with respect to their environments and appendages can change position with respect to the body, positional descriptive terms refer to the organism only in its standard anatomical position to prevent confusion.

Key Terms

• appendage: A limb of the body.
• supine: Lying on its back, reclined.
• anatomical position: The standard position in which the body is standing with feet together, arms to the side, and
head, eyes, and palms facing forward.

The Need for Standardization

Standard anatomical position is the body orientation used when describing an organism’s anatomy. Standardization is necessary to avoid confusion since most organisms can take on many different positions that may change the relative placement of organs. All descriptions refer to the organism in its standard anatomical position, even when the organism’s appendages are in another position. Thus, the standard anatomical position provides a “gold standard” when comparing the anatomy of different members of the same species.

Relative location in the anatomical position: Many terms are used to describe relative location on the body. Cranial refers to features closer to the head, while caudal refers to features closer to the feet. The front of the body is referred to as anterior or ventral, while the back is referred to as posterior or dorsal. Proximal and distal describe relative position on the limbs. Proximal refers to a feature that is closer to the torso, while distal refers to a feature that is closer to the fingers/toes. Medial and lateral refer to position relative to the midline, which is a vertical line drawn through the center of the forehead, down through the belly button to the floor. Medial indicates a feature is closer to this line, while lateral indicates features further from this line.

Standard Anatomical Position in Humans

The standard anatomical position is agreed upon by the international medical community. In this position, a person is standing upright with the lower limbs together or slightly apart, feet flat on the floor and facing forward, upper limbs at the sides with the palms facing forward and thumbs pointing away from the body, and head and eyes directed straight ahead. In addition, the arms are usually placed slightly apart from the body so that the hands do not touch the sides.
The positions of the limbs, particularly the arms, have important implications for directional terms in those appendages.

The basis for the standard anatomical position in humans comes from the supine position used for examining human cadavers during autopsies. Dissection of cadavers was one of the primary ways humans learned about anatomy throughout history, which has tremendously influenced the ways by which anatomical knowledge has developed into the scientific field of today.

**Standard anatomical position**: The regions of the body in standard anatomical position, in which the body is erect.

In humans, the standard anatomical position of the skull is called the Frankfurt plane. In this position, the orbitales (eye sockets), lower margins of the orbits, and the poria (ear canal upper margins) all lie in the same horizontal plane. This orientation represents the position of the skull if the subject were standing upright and looking straight ahead.

It is important to note that all anatomical descriptions are based on the standard anatomical position unless otherwise stated.