

Principles and Terminology

Anatomy – is the branch of science that deals with the structural organization of living things – how they are built and what they consist of.

Anatomy

Plant Anatomy

Animal Anatomy

Human
Anatomy

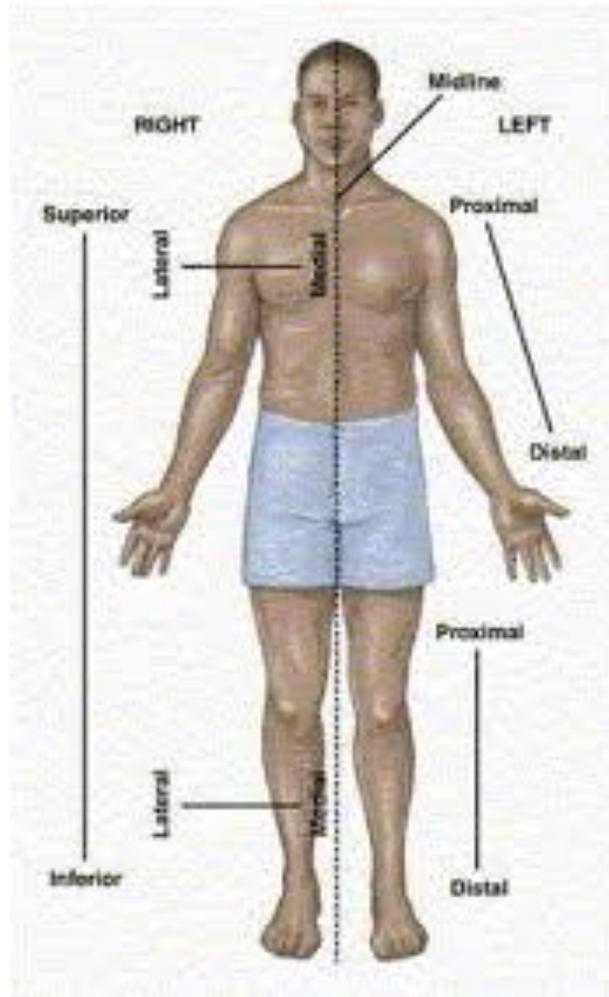
Comparative
Anatomy

Physiology – is concerned with basic processes such as reproduction, growth and metabolism as they occur within the various systems of the body.

Exercise Physiology – is the branch of physiology that concentrates on how the body responds and adapts to the stresses laced on it by exercise.

Anatomical Position

The standardized position of the body used by anatomists and physiologists to look at the body.



Standard position is in an upright standing position, with face and feet pointing forward, arms at side, and palms facing forward,

Directional Terms:

Anterior – toward the front of the body

Posterior – towards the back of the body

Inferior – towards the feet or downwards

Superior – towards the head or upward

Lateral – towards the side of the body

Medial – towards the midline of the body

Proximal – towards the trunk end of a limb

Distal – towards the end of an extremity

Deep – farther away from the surface of the body

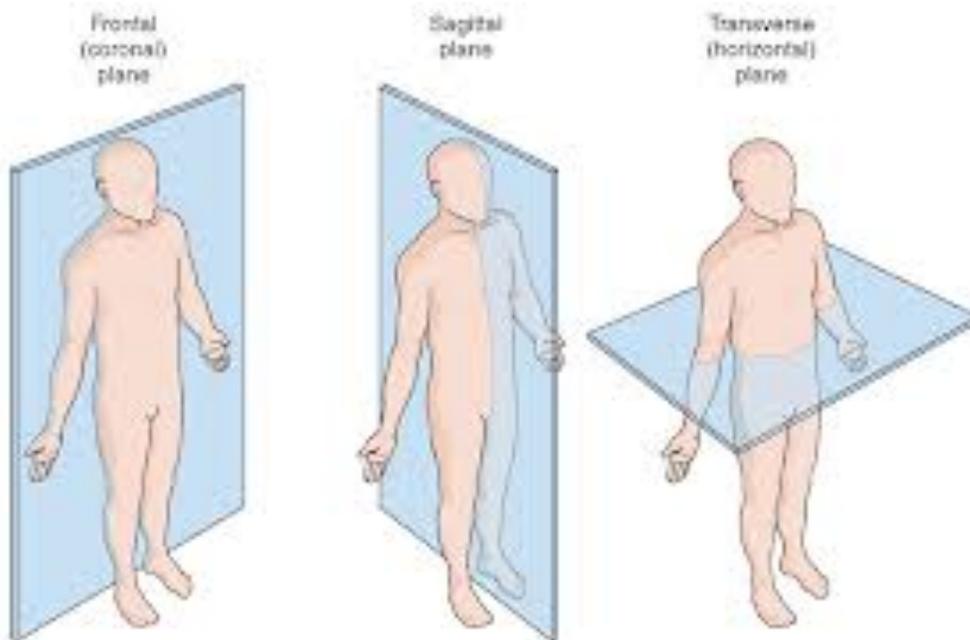
Superficial – closer to the surface of the body

Dorsal surface – top of foot or back of hand

Palmar surface – palm side of hand

Plantar surface – sole of foot

Anatomical Planes and Axes



Anatomical Plane

- an imaginary, flat surface passing through the body
- **3 Anatomical planes**
 1. Frontal (coronal) divides body into front and back sections
 2. Medial (sagittal) divides body into right and left sections. The median plane divides the body into perfect left and right halves.
 3. Transverse (horizontal) divides body into upper and lower sections

Axes of Rotation

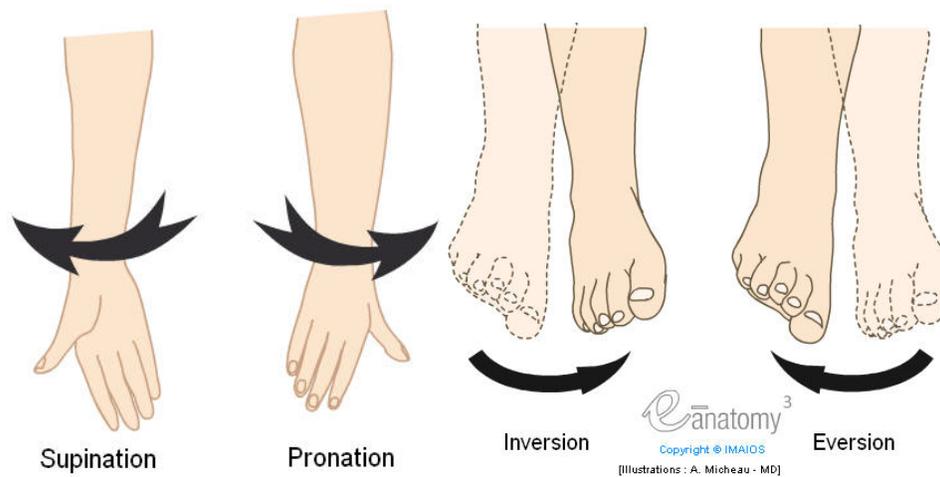
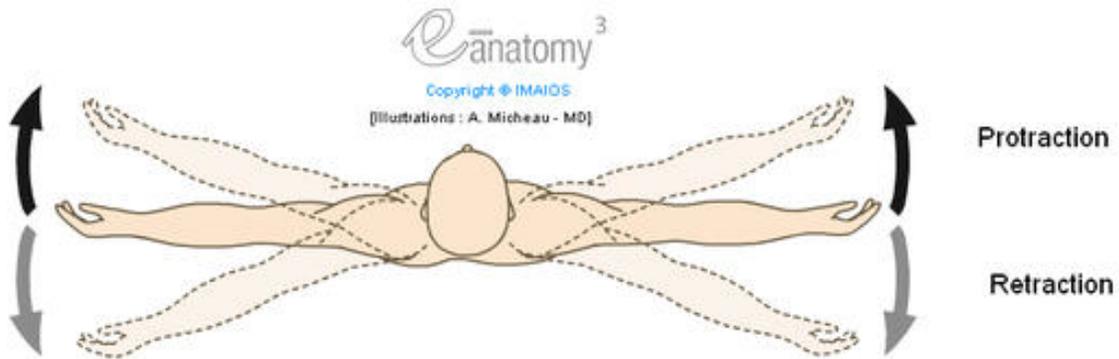
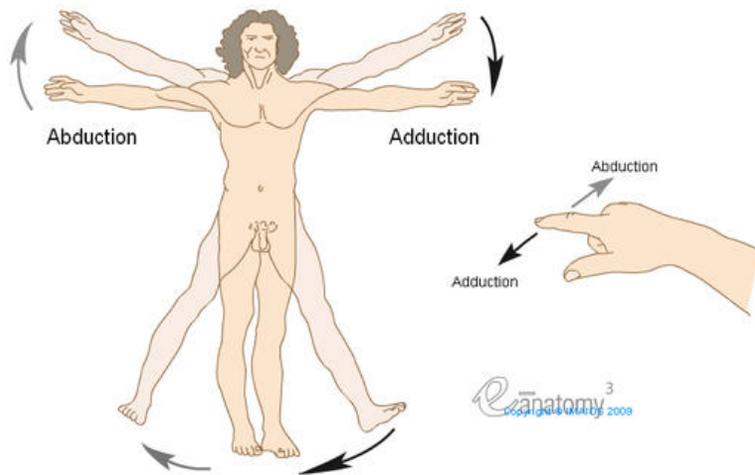
- an imaginary line (point of rotation) that passes through a joint or the body to describe movement
- **3 Anatomical Axes**
 1. Medio-Lateral Axis (Horizontal)
 - runs from side to side
 - perpendicular to sagittal plane
 - typically flexion/extension movements
 2. Antero-Posterior Axis (Sagittal)
 - runs from front to back
 - perpendicular to coronal plane
 - typically abduction/adduction movements
 3. Vertical (Longitudinal)
 - runs straight through top of head down between feet
 - perpendicular to transverse plane
 - typically rotation type movements

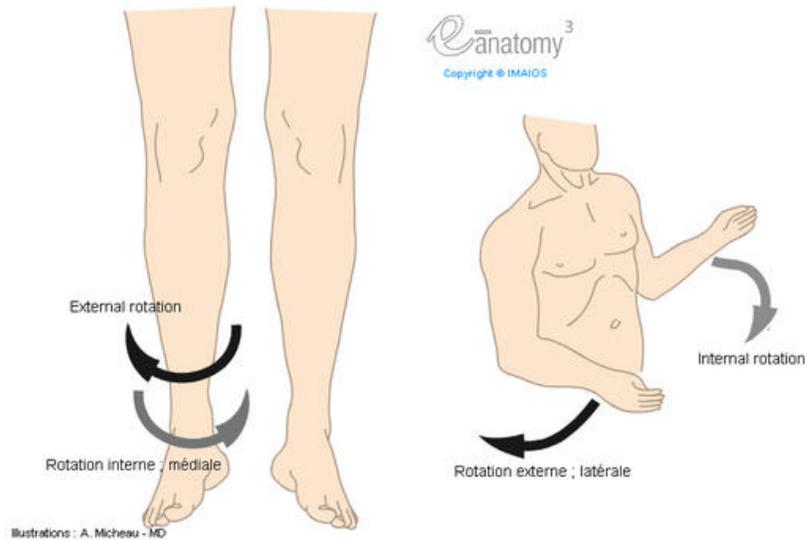
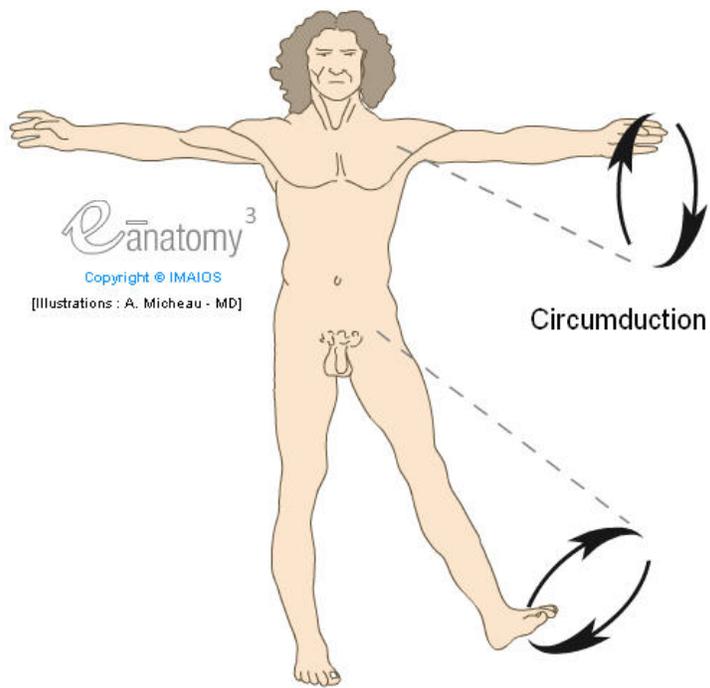
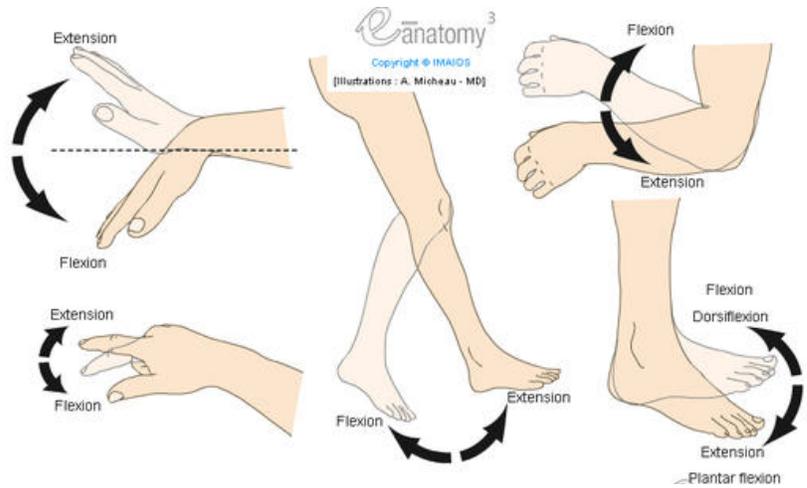
Movement Terms

Flexion	Decreasing the angle of a joint
Extension	Increasing the angle of a joint
Abduction	Movement away from the sagittal plane
Adduction	Movement toward the sagittal plane
Internal (medial) Rotation	Rotation of a body part towards the midline of the body
External (lateral) Rotation	Rotation of a body part away from the midline of the body
Circumduction	A combination of adduction, abduction, flexion and extension. Occurs at hip and shoulder joints.
Supination	Rotation of forearm and hand to turn palm to face forward

Pronation	Rotation of forearm and hand to turn palm to face backwards
Protraction	Movement anterior
Retraction	Movement posterior
Dorsiflexion	Movement of ankle to bring toes towards the chin
Plantar Flexion	Movement of ankle to point toes away from chin
Eversion	Lateral border of foot is raised such that sole faces outward
Inversion	Medial border of foot is raised such that sole faces inward
Elevation	Raising a body part against gravity
Depression	Lowering a body part with gravity
Opposition	Thumb contacts one of the other fingers
Reposition	Thumb returns to anatomical position

Identify the following movements:





Using ANATOMICAL TERMS to describe Sports Skills and Exercises

- describe 2-3 exercises or sports skills where the body performs the following actions
1. Flexion of elbow
 2. Flexion of trunk
 3. Flexion of knee
 4. Extension of elbow
 5. Extension of trunk
 6. Extension of knee
 7. Plantar flexion
 8. Movement in the sagittal plane
 9. Movement in the transverse plane
 10. Abduction of hip
 11. Elevation
 12. Circumduction of shoulder joint
 13. Supination
 14. Pronation