

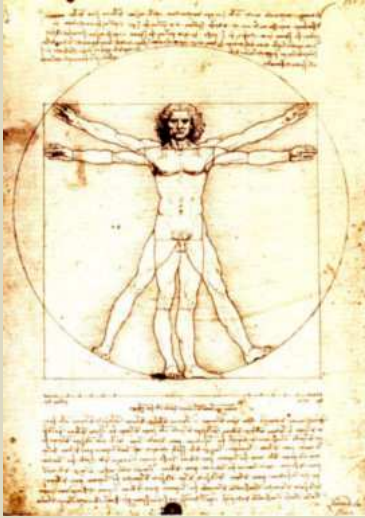
DİŞ HEKİMLİĞİ
ANATOMY SLAYTLARI
2020-2021

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Introduction to Anatomy



1

Overview of Anatomy

- Anatomical terminology from ancient Greek and Latin
- Branches of anatomy
 - Gross anatomy
 - Microscopic anatomy
 - Cytology
 - Histology
 - Developmental anatomy
 - Embryology
 - Comparative anatomy
- Hierarchy of structural organization from simplest to most complex

2

Structural organization from simplest to most complex

- Chemical
- Cellular
- Tissue – group of cells similar in structure and function
- Organ – 2 or more tissue types performing specific function
- Organ system – group of organs acting together to perform specific function
- Human organism

3

Organ systems

- ⊙ Integumentary
- ⊙ Skeletal
- ⊙ Muscular
- ⊙ Nervous
- ⊙ Endocrine
- ⊙ Cardiovascular
- ⊙ Lymphatic/immune
- ⊙ Respiratory
- ⊙ Digestive
- ⊙ Urinary
- ⊙ Reproductive

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Anatomical Terms Worksheet

Anatomical Terms

Study Guide

ANATOMICAL POSITION

Anatomical position is defined as standing erect, with the palms and feet facing forward. This position is the standard reference point in which all positions, movements, and planes are described.

ANATOMICAL PLANES

Fixed lines of reference along which the body is often divided or sectioned to facilitate viewing of its structure. Studying the body from different views allows one to obtain a three-dimensional perspective.

1. **Sagittal / Midsagittal Plane** 1. The plane dividing the body into right and left portions. (Mid = Equal)
2. **Frontal / Coronal Plane** 2. The plane dividing the body into front and back portions.
3. **Transverse / Horizontal Plane** 3. The plane dividing the body into upper and lower portions.

ANATOMICAL DIRECTIONS

Terms of position and direction describe the position of one body part relative to another, usually along one of the three major body planes.

- | | |
|-----------------------|--|
| 1. Superior | 1. Refers to a structure being closer to the head or higher than another structure in the body. |
| 2. Inferior | 2. Refers to a structure being closer to the feet or lower than another structure in the body. |
| 3. Anterior | 3. Refers to a structure being more in front than another structure in the body. |
| 4. Posterior | 4. Refers to a structure being more in back than another structure in the body. |
| 5. Medial | 5. Refers to a structure being closer to the midline or median plane of the body than another structure of the body. |
| 6. Lateral | 6. Refers to a structure being farther away from the midline than another structure of the body. |
| 7. Distal | 7. With reference to the extremities only, refers to a structure being further away from the root of the limb than another structure in that limb. |
| 8. Proximal | 8. With reference to the extremities only, refers to a structure being closer to the root of the limb than another structure in that limb. |
| 9. Superficial | 9. Refers to a structure being closer to the surface of the body than another structure. |
| 10. Deep | 10. Refers to a structure being closer to the core of the body than another structure. |
| 11. Ventral | 11. Toward the front/belly. |
| 12. Dorsal | 12. Toward the back. |
| 13. Prone | 13. Lying face down. |
| 14. Supine | 14. Lying face up. |
| 15. Unilateral | 15. Pertaining to one side of the body. |
| 16. Bilateral | 16. Pertaining to both sides of the body. |

ANATOMICAL MOVEMENTS

- | | |
|------------------------------|--|
| 1. Flexion | 1. Bending at a joint or decreasing the angle between two bones. |
| 2. Extension | 2. Straightening a joint or increasing the angle between two bones. |
| 3. Hyperextension | 3. Extending a joint beyond its normal range of motion. |
| 4. Adduction | 4. Moving a body part toward the midline of the body. |
| 5. Abduction | 5. Moving a body part away from the midline of the body. |
| 6. Pronation | 6. Turning the arm or foot downward (palm or sole of the foot - down). |
| 7. Supination | 7. Turning the arm or foot upward (palm or sole of the foot - up). |
| 8. Retraction | 8. Moving a part backward. |
| 9. Protraction | 9. Moving a part forward. |
| 10. Elevation | 10. Raising a part. |
| 11. Depression | 11. Lowering a part. |
| 12. Rotation | 12. Turning on a single axis. |
| 13. Circumduction | 13. Tri-planar, circular motion at the hip or shoulder. |
| 14. External Rotation | 14. Rotation of the hip or shoulder away from the midline. |
| 15. Internal Rotation | 15. Rotation of the hip or shoulder toward the midline. |
| 16. Lateral Flexion | 16. Side-bending left or right. |
| 17. Inversion | 17. Turning the sole of the foot inward. |
| 18. Eversion | 18. Turning the sole of the foot outward. |
| 19. Dorsiflexion | 19. Ankle movement bringing the foot toward the shin. |
| 20. Plantarflexion | 20. Ankle movement pointing the foot downward. |
| 21. Radial Deviation | 21. Movement of the wrist towards the radius or lateral side. |
| 22. Ulnar Deviation | 22. Movement of the wrist towards the ulna or medial side. |
| 23. Opposition | 23. Movement of the Thumb across the palm of the hand. |

NOTES:

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Anatomical Position

- Standing erect, with palms and feet facing forward
- Is the standard reference point in which all positions, movements, and planes are described



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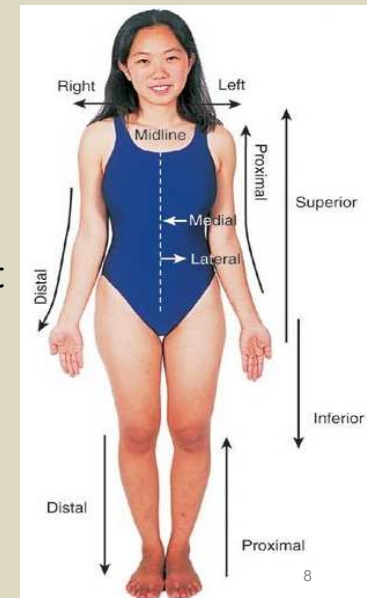
Anatomical Planes and Axis of Rotation

- a **PLANE** is an imaginary, flat surface passing through the body or organ

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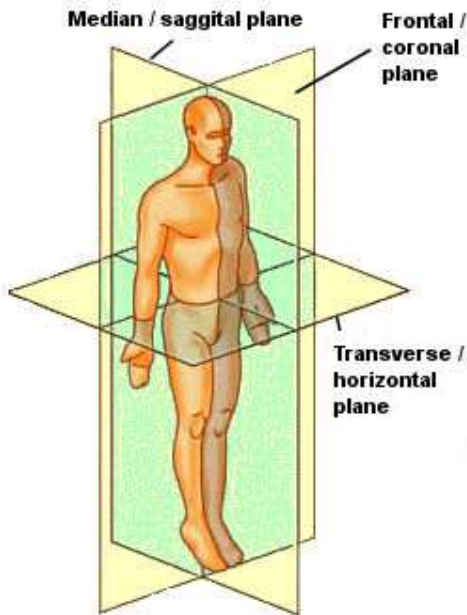
Positions and Directions

Terms of position and direction describe the position of one body part relative to another, usually along one of the three major body planes



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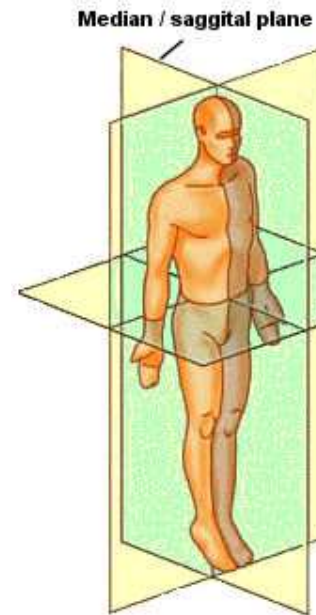
Anatomical Planes



- Fixed lines of reference along which the body is often divided or sectioned to facilitate viewing of its structures
- Allow one to obtain a three-dimensional perspective by studying the body from different views

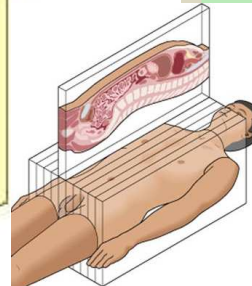
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Anatomical Planes



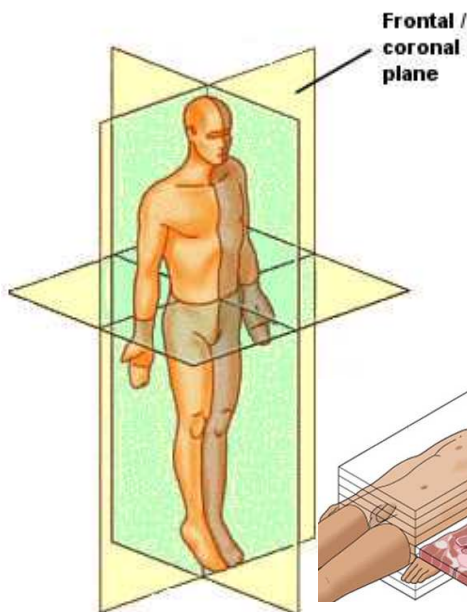
Sagittal plane

- The plane dividing the body into right and left portions
- Midsagittal or median are names for the plane dividing the body into equal right and left halves



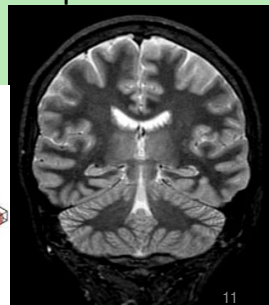
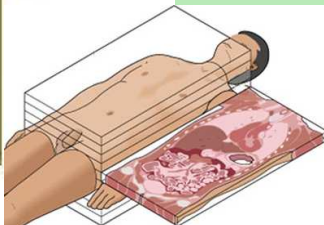
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Anatomical Planes



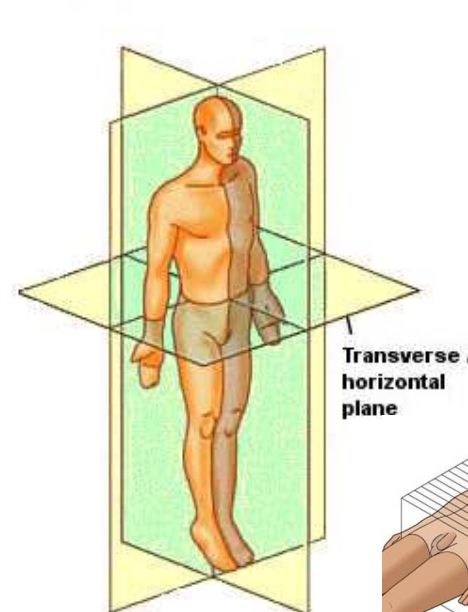
Frontal plane

- The plane dividing the body into front and back portions
- Also called the Coronal plane



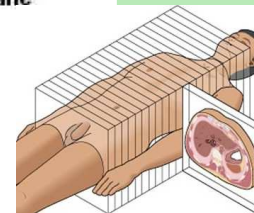
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Anatomical Planes



Transverse plane

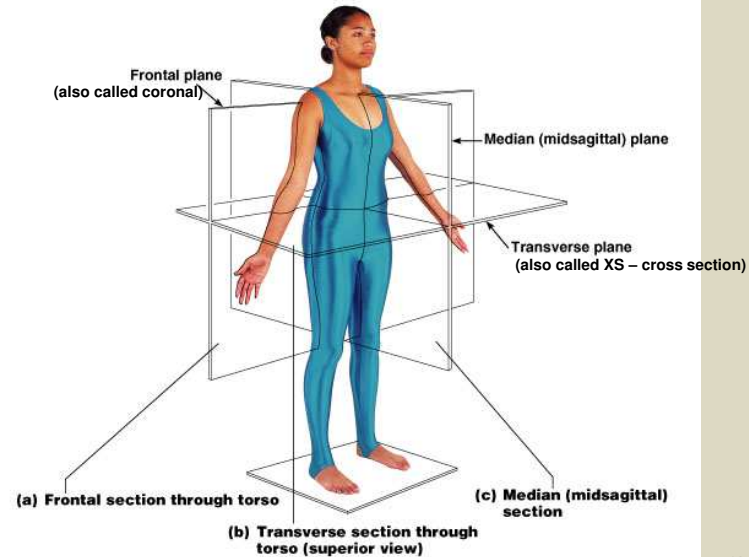
- The horizontal plane dividing the body into upper and lower portions
- Also called the Horizontal plane



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Body planes and sections

- cut into sections along a flat surface called a plane



13

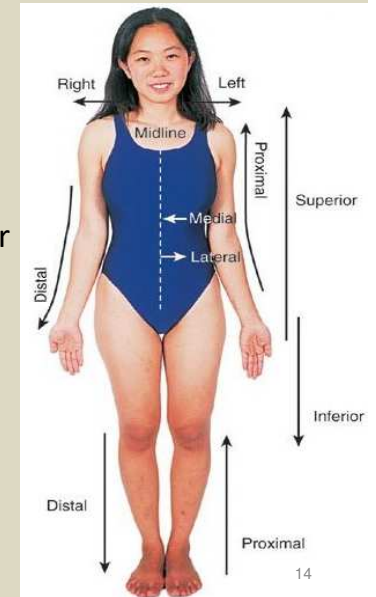
Positions and Directions

Superior

- Refers to a structure being closer to the head or higher than another structure in the body

Inferior

- Refers to a structure being closer to the feet or lower than another structure in the body



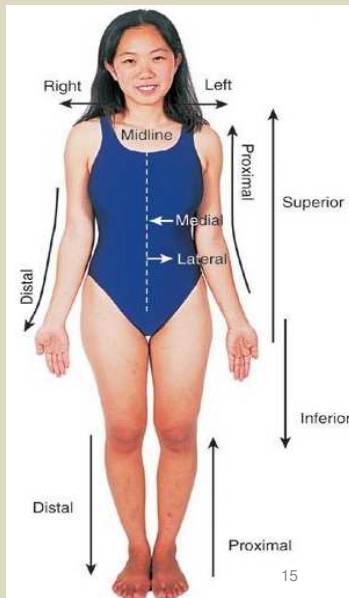
Positions and Directions

Cranial

- Refers to a structure being closer to the head

Caudal

- Refers to a structure being closer to the feet



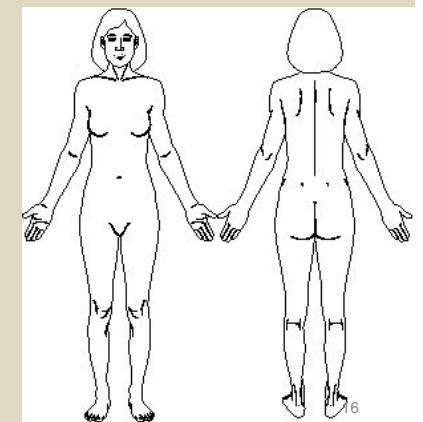
Positions and Directions

Anterior

- Refers to a structure being more in front than another structure in the body

Posterior

- Refers to a structure being more in back than another structure in the body



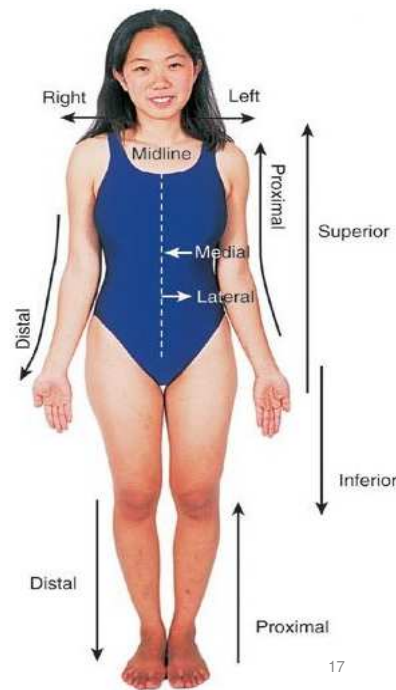
Positions and Directions

Medial

- Refers to a structure being closer to the midline or median plane of the body than another structure of the body

Lateral

- Refers to a structure being farther away from the midline than another structure of the body



Positions and Directions

Distal

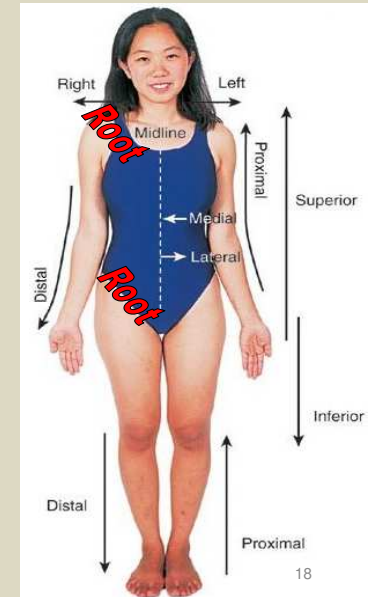
(Reference to the extremities only)

- Refers to a structure being further away from the root of the limb than another structure in the limb

Proximal

(Reference to the extremities only)

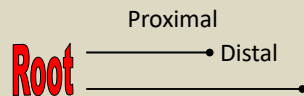
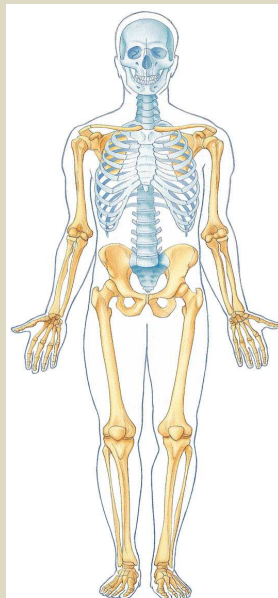
- Refers to a structure being closer to the root of the limb than another structure in that limb



Distal / Proximal

Cont.

- When you divide the skeleton into **Axial** (Blue) and **Appendicular** (Yellow) you can better understand the extremities and their roots.



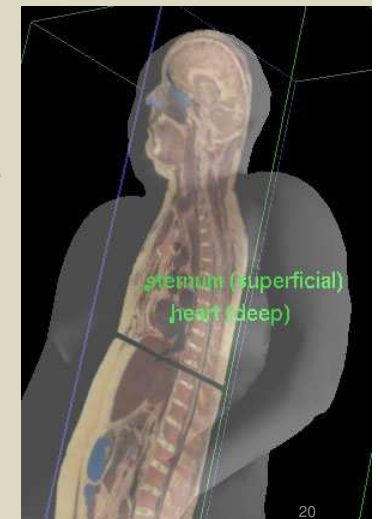
Positions and Directions

Superficial

- Refers to a structure being closer to the surface of the body than another structure

Deep

- Refers to a structure being closer to the core of the body than another structure



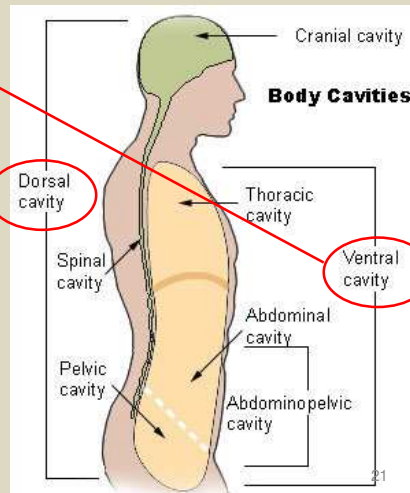
Positions and Directions

Ventral

- Towards the front or belly

Dorsal

- Towards the back



Positions and Directions

Prone

- Lying face down



Supine

- Lying face up

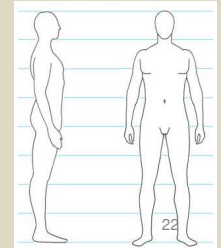


Unilateral

- Pertaining to one side of the body

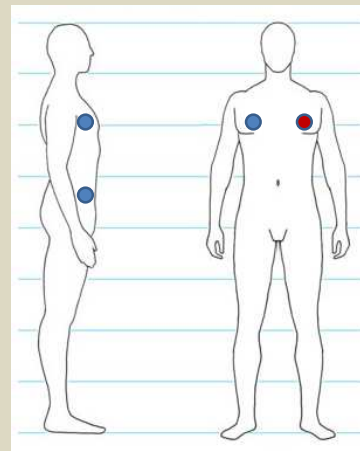
Bilateral

- Pertaining to both sides of the body



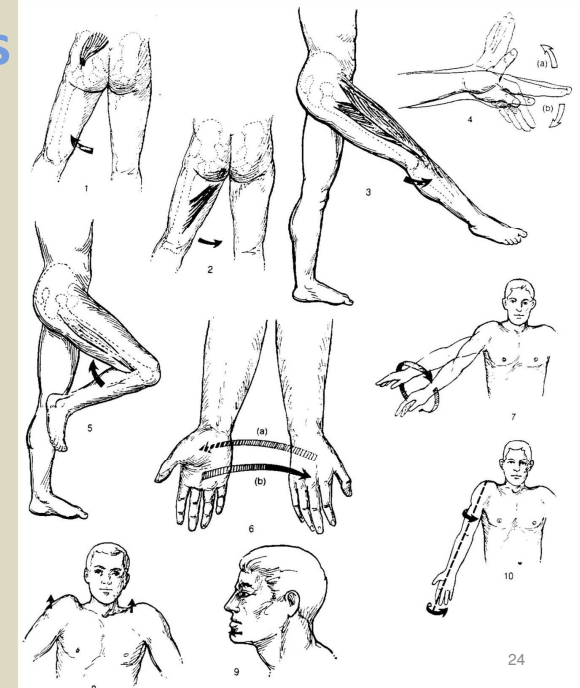
Positions and Directions

- Ipsilateral: the same side
- Contralateral : Refers to the opposite side



Movements

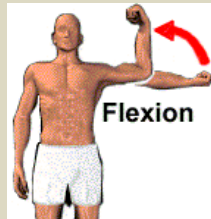
- > Flexion
- > Extension
- > Hyperextension
- > Adduction
- > Abduction
- > Pronation
- > Supination
- > Retraction
- > Protraction
- > Elevation
- > Depression
- > Rotation
- > Circumduction
- > External Rotation
- > Internal Rotation
- > Inversion
- > Eversion
- > Dorsiflexion
- > Plantarflexion
- > Radial Deviation
- > Ulnar Deviation
- > Opposition



Movements

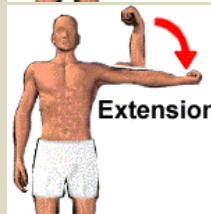
Flexion

- Bending a joint or decreasing the angle between two bones



Extension

- Straightening a joint or increasing the angle between two bones

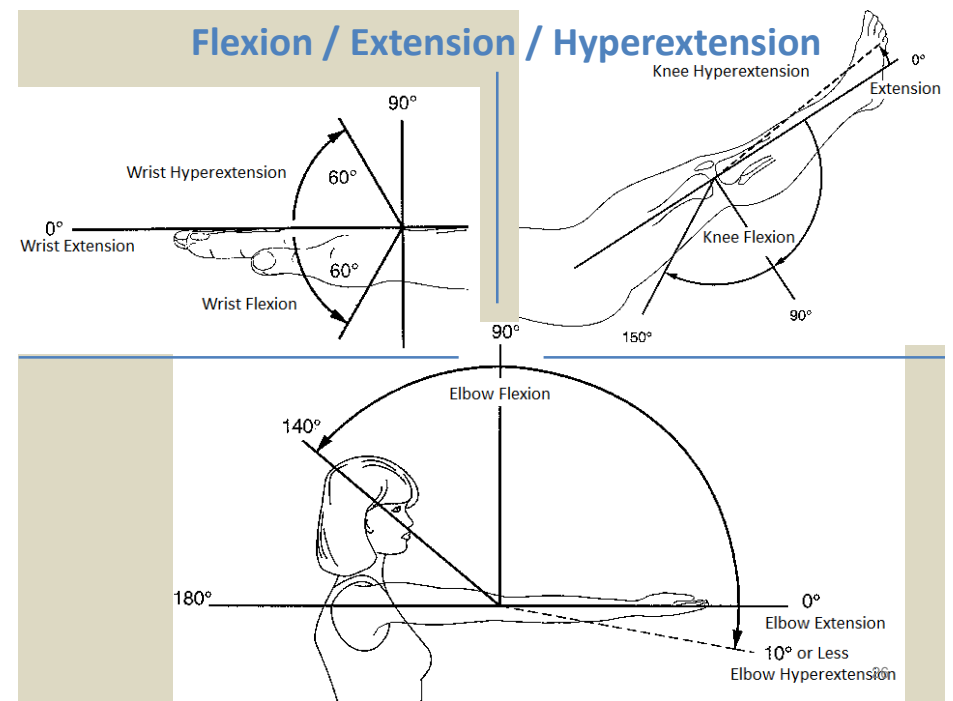


Hyperextension

- Excessive extension of the parts at a joint beyond anatomical position.

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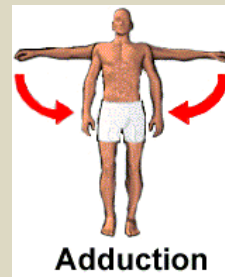
Flexion / Extension / Hyperextension



Movements

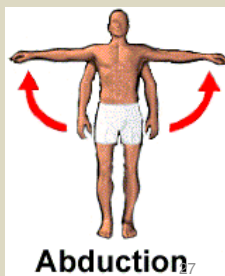
Adduction

- Moving a body part towards the midline of the body



Abduction

- Moving a body part away from the midline of the body



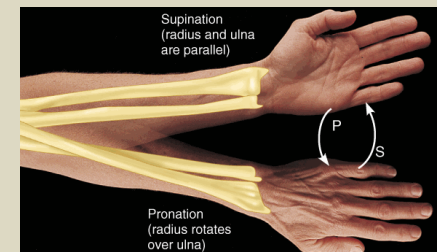
Movements

Pronation

- Turning the arm or foot downward
- (palm or sole of the foot - down)

Supination

- Turning the arm or foot upward
- (palm or sole of the foot - up)



Movements

Retraction

- ☉ Moving a part backward

Protraction

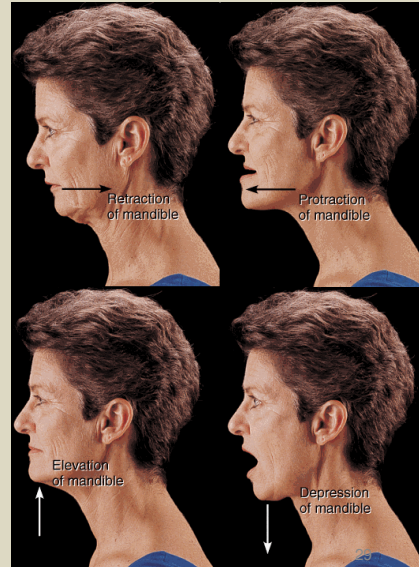
- ☉ Moving a part forward

Elevation

- ☉ Raising a part

Depression

- ☉ Lowering a part



Movements

Rotation

- ☉ Turning on a single axis

Circumduction

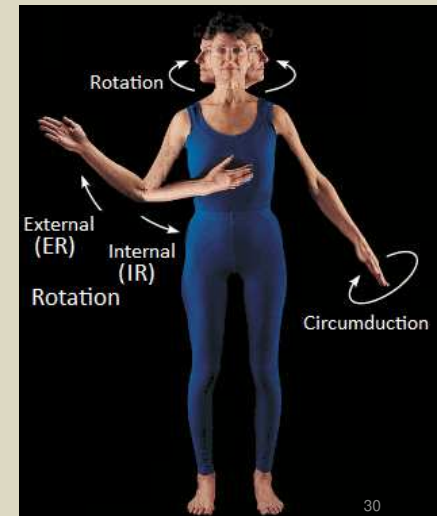
- ☉ Tri-planar, circular motion at the hip or shoulder

Internal rotation

- ☉ Rotation of the hip or shoulder toward the midline

External rotation

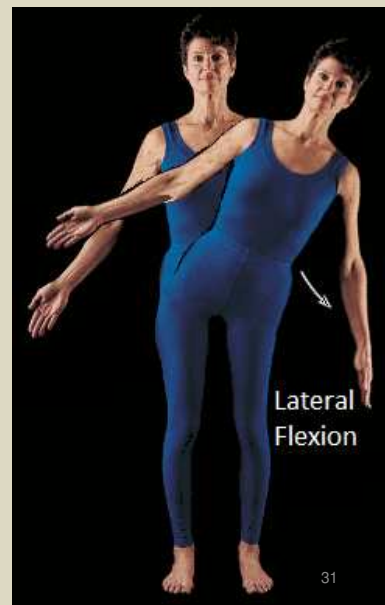
- ☉ Rotation of the hip or shoulder away from the midline



Movements

Lateral Flexion

- Side-bending left or right



Movements of the Foot

Inversion

- ☉ Turning the sole of the foot inward

Eversion

- ☉ Turning the sole of the foot outward

Dorsiflexion

- ☉ Ankle movement bringing the foot towards the shin

Plantarflexion

- ☉ Ankle movement pointing the foot downward



Movements of the Wrist & Thumb

Radial Deviation

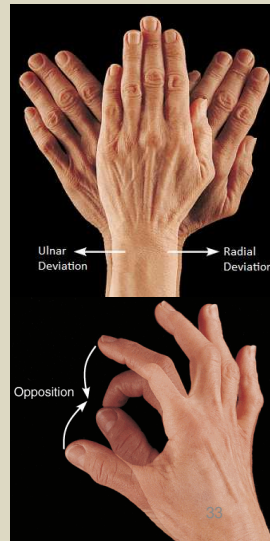
- Movement of the wrist towards the radius or lateral side.

Ulnar Deviation

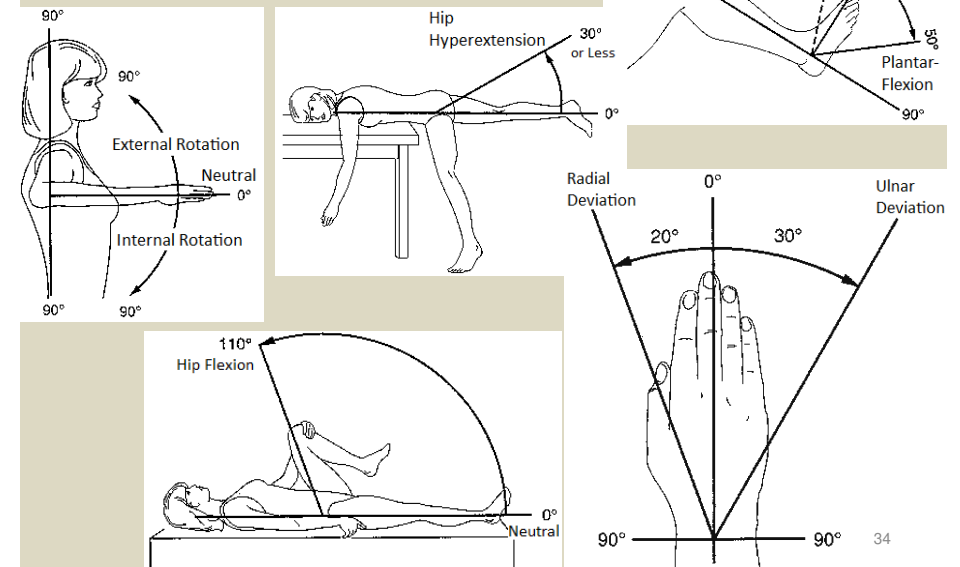
- Movement of the wrist towards the ulna or medial side.

Opposition

- Movement of the thumb across the palm of the hand.



Additional Range of Motion



Terminology

Longus: long
 Brevis: short
 Sinistra: left
 Dextra: right
 Sulcus: groove
 Tubercle: small elevation
 Tuberosity: roughness
 Proccesus: outgrowth

Terminology

Articulation:
 Nervus:
 Vena:
 Arteria:
 Musculus:
 External:
 Internal:
 Facies:

- MOORE, CLINICALLY ORIENTED ANATOMY
- GRAY'S ANATOMY FOR STUDENTS
- SOBOTTA ATLAS OF HUMAN ANATOMY
- NETTER'S ATLAS OF HUMAN ANATOMY