Directional Terms

**Distal** - farther from trunk  
**Lateral** - away from midline  
**Anterior** - front side in anatomical position (ventral)  
**Superior** - closer to head (cranial)  
**Superficial** - closer to surface  
**Plantar** - bottom of foot  

**Proximal** - closer to trunk  
**Medial** - closer to midline  
**Posterior** - back side in anatomical position (dorsal)  
**Inferior** - farther from head (caudal)  
**Deep** - farther from surface  
**Dorsal** - top of foot
PLANES

PLANE -- a two-dimensional surface defined by **3 points**
not on the same line (i.e. not colinear)

MOTION OCCURS “IN A PLANE”

Leg Swing during gait (walking/running)

Even though leg has considerable thickness - only consider the
joint centers and the lines connecting them; so “thin” segments
define the leg which swings “IN THE PLANE”
AXES

AXIS -- a line passing perpendicularly through a plane

PLANE

MOTION OCCURS “ABOUT AN AXIS”

Leg Swing during gait (walking/running)

AXIS

AXIS PASSES THROUGH JOINT CENTER
Body Planes

- **Sagittal** -- vertical plane that divides the body into RIGHT and LEFT parts
- **Frontal** -- vertical plane that divides the body into ANTERIOR and POSTERIOR parts
- **Transverse** -- horizontal planes that divides the body into CRANIAL and CAUDAL parts
Body Planes & Axes

Sagittal plane rotations occur about a medial-lateral (ML) axis

Frontal Plane rotations occur about an anterior-posterior (AP) axis

Transverse plane rotations occur about a longitudinal axis
Sagittal Plane Joint Mvmts

*flexion* = decrease angle between 2 segments
*extension* = increase angle between 2 segments
*dorsiflexion* = point toes up (towards shin)
*plantar flexion* = point toes down
Frontal Plane Joint Mvmts

**abduction** = move *away* from midline

**adduction** = move *towards* midline

**elevation** = move shoulder girdle superiorly

**depression** = move shoulder girdle inferiorly

**valgus** = “knock-kneed”

**varus** = “bow-legged”
Frontal Plane Joint Movements

- **Inversion** = lift medial border of foot
- **Eversion** = lift lateral border of foot
- **Radial Deviation** = move toward radial styloid
- **Ulnar Deviation** = move toward ulnar styloid
- **L/R Lateral Flexion** = bend trunk to L/R
Transverse Plane Joint Movements

medial rotation = anterior surface rotates medially (also called inward or internal rotation)

lateral rotation = anterior surface rotates laterally (also called outward or external rotation)
Transverse Plane Joint Movements

- **Supination** = rotate palm up
- **Pronation** = rotate palm down
- **Horizontal Abduction** = move away from midline in transverse plane (also called horizontal extension)
- **Horizontal Adduction** = move towards midline in transverse plane (also called horizontal flexion)