

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)

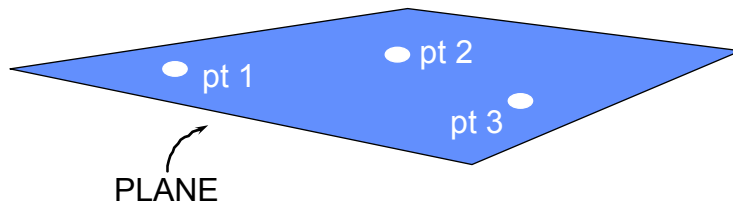
Inferior - farther from head (caudal)

Deep - farther from surface

Dorsal - top of foot

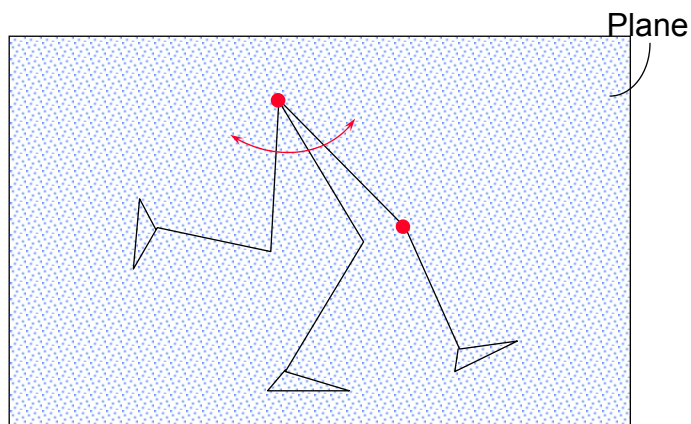
PLANES

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

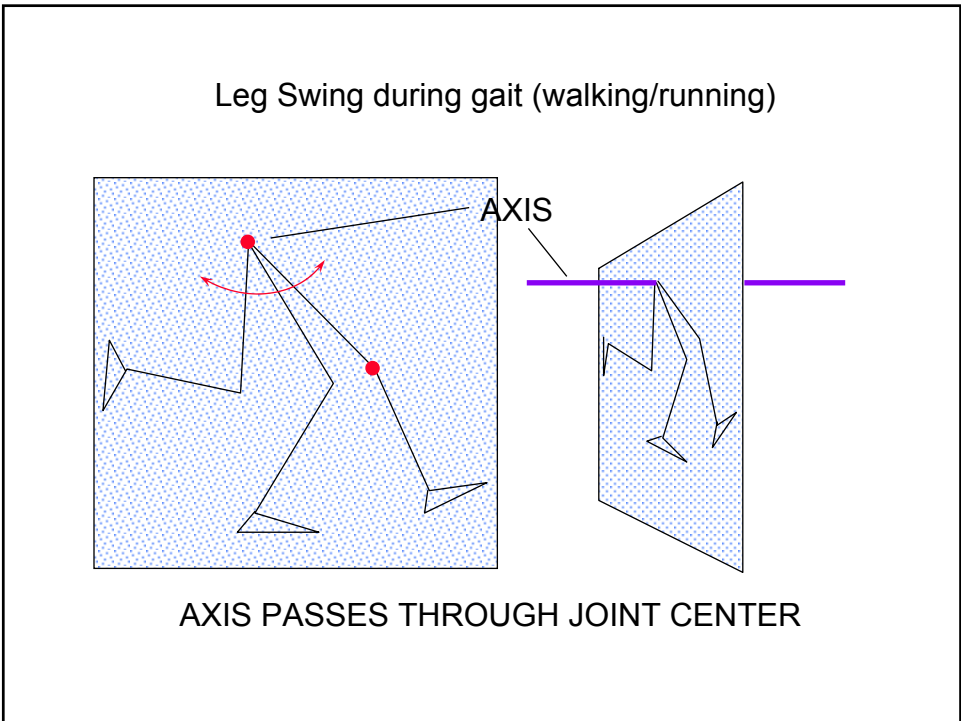
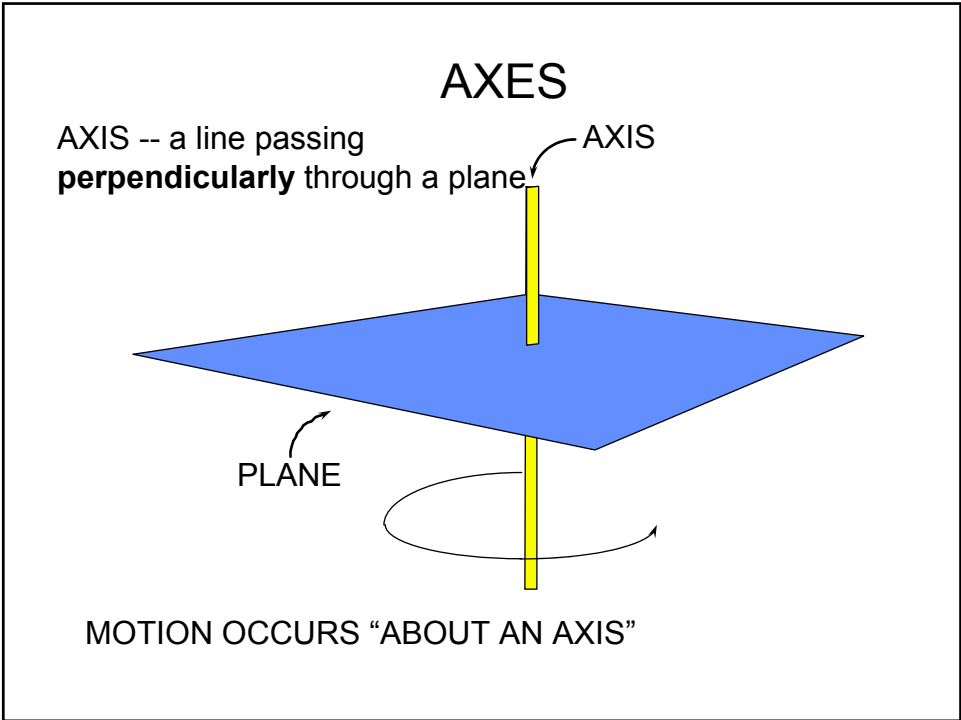


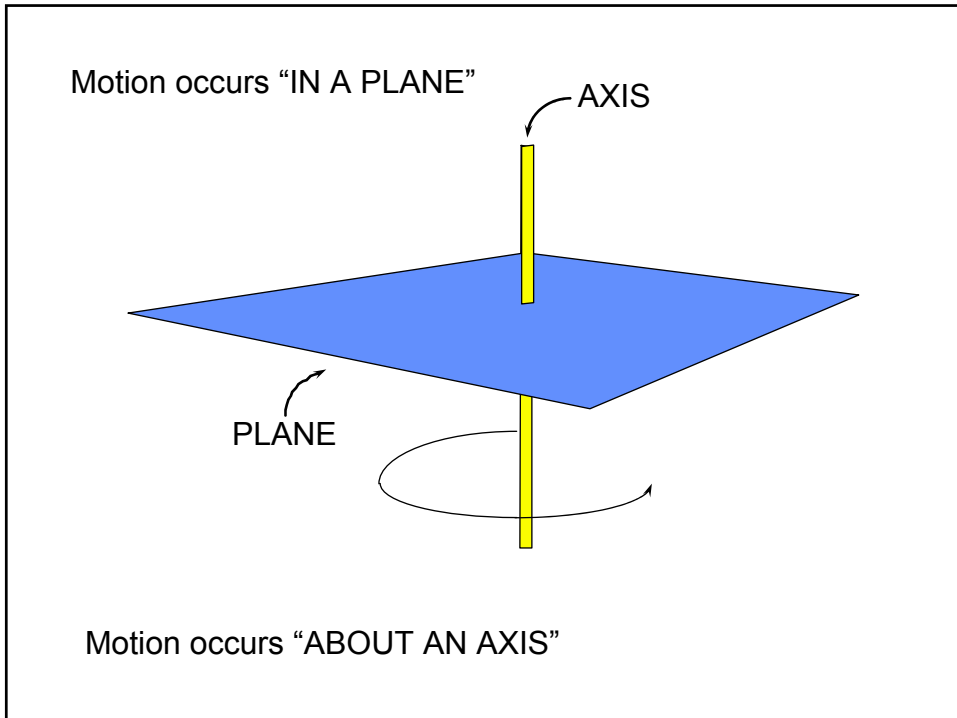
MOTION OCCURS "IN A PLANE"

Leg Swing during gait (walking/running)



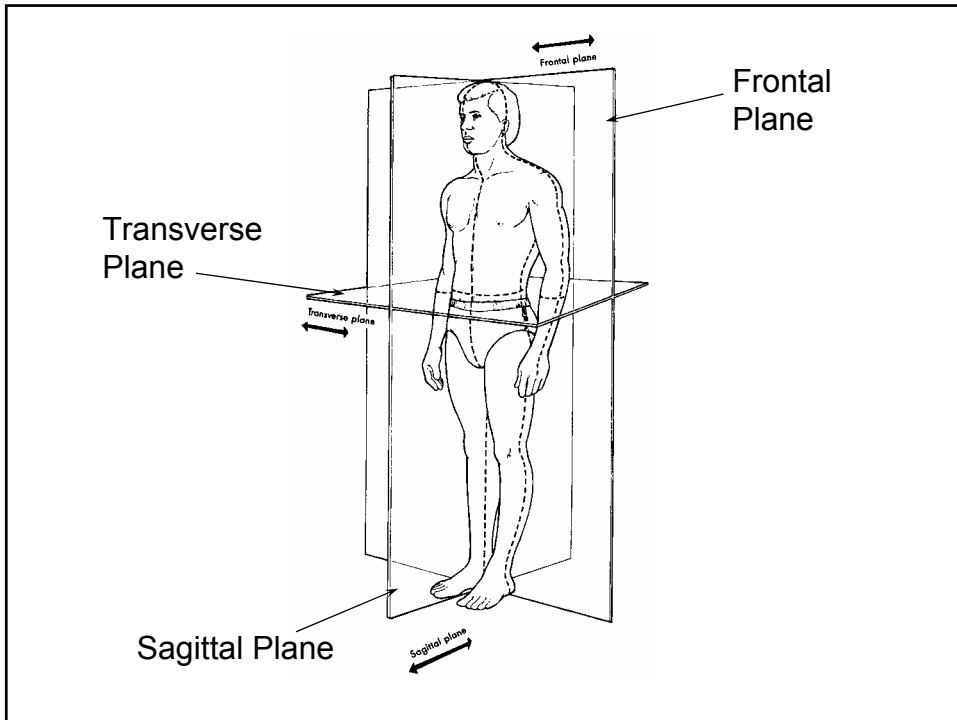
Even though leg has considerable thickness - only consider the joint centers and the lines connecting them; so "thin" segments define the leg which swings "IN THE PLANE"





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

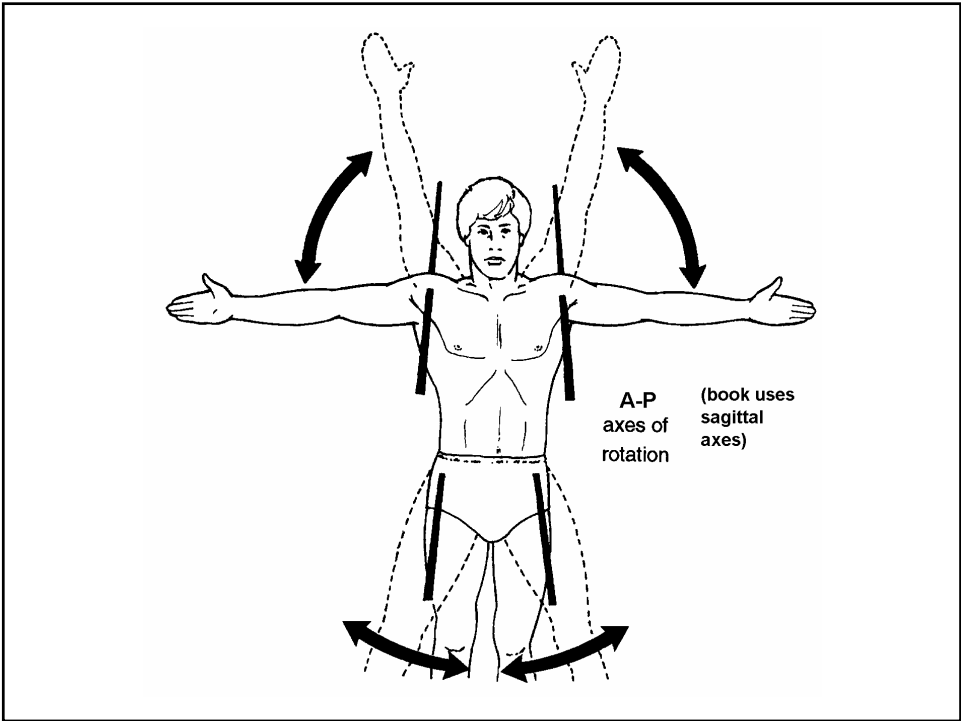
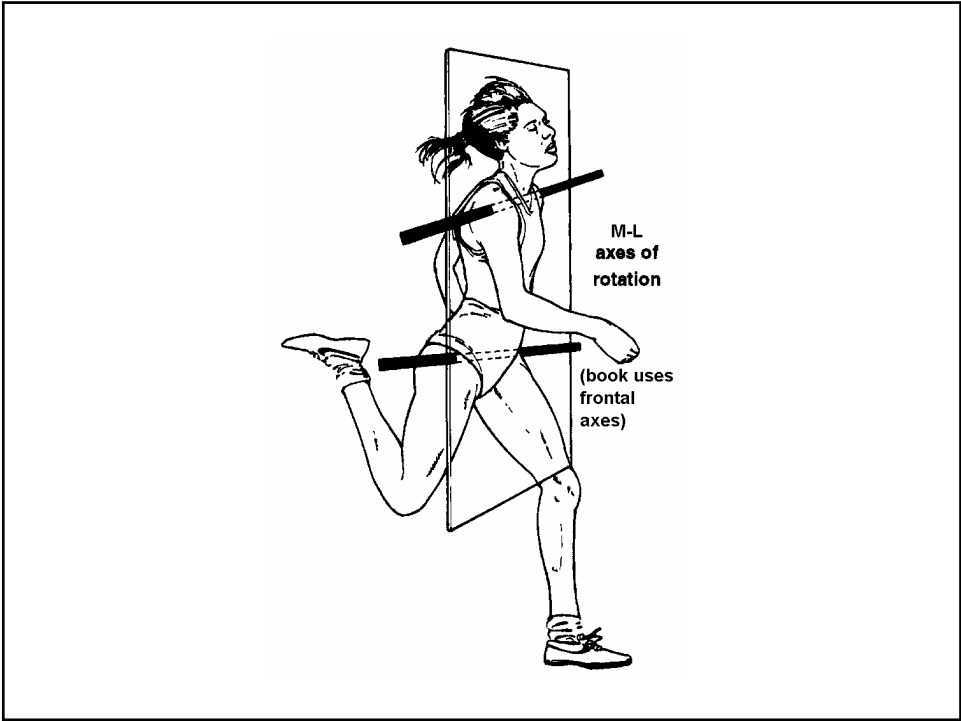


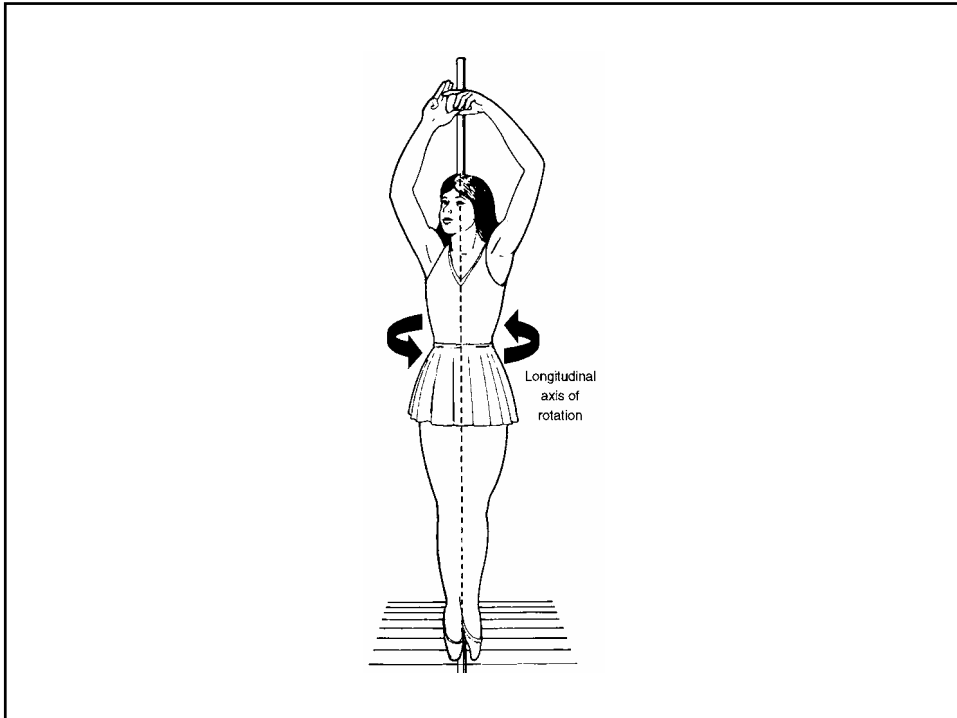
Body Planes & Axes

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





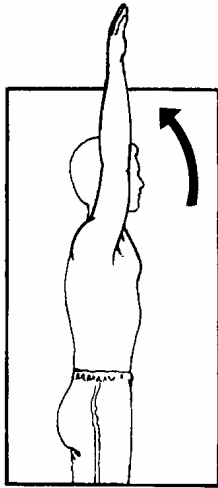
Sagittal Plane Joint Mvmts

flexion = decrease angle between 2 segments

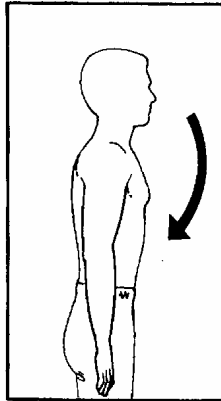
extension = increase angle between 2 segments

dorsiflexion = point toes up (towards shin)

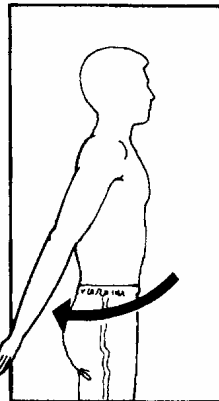
plantar flexion = point toes down



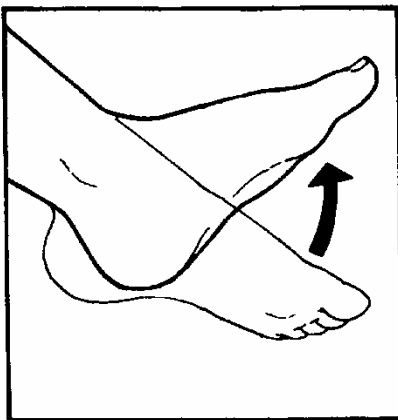
Flexion



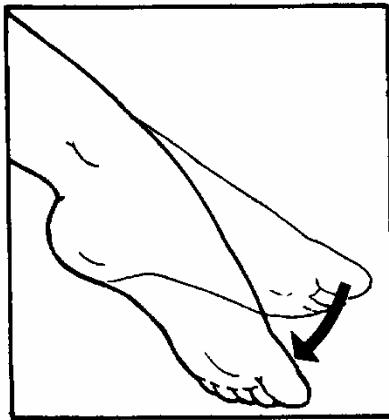
Extension



Hyperextension



Dorsiflexion



Plantar flexion

Frontal Plane Joint Mvmts

abduction = move *away* from midline

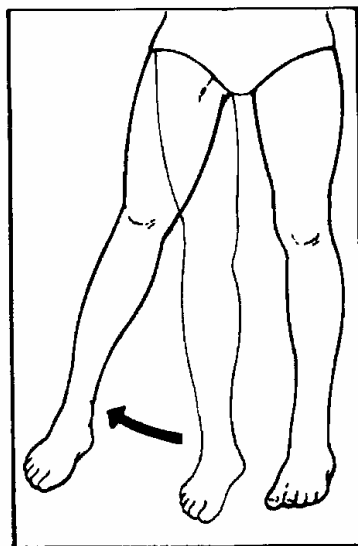
adduction = move *towards* midline

elevation = move shoulder girdle
superiorly

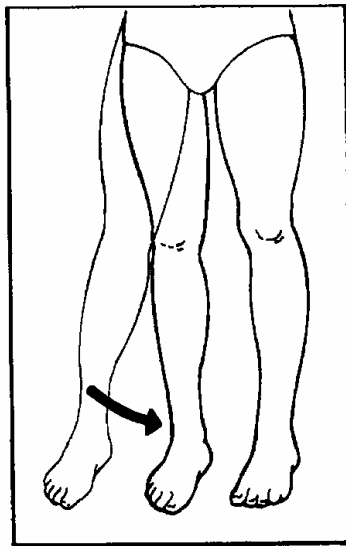
depression = move shoulder girdle
inferiorly

valgus = “knock-kneed”

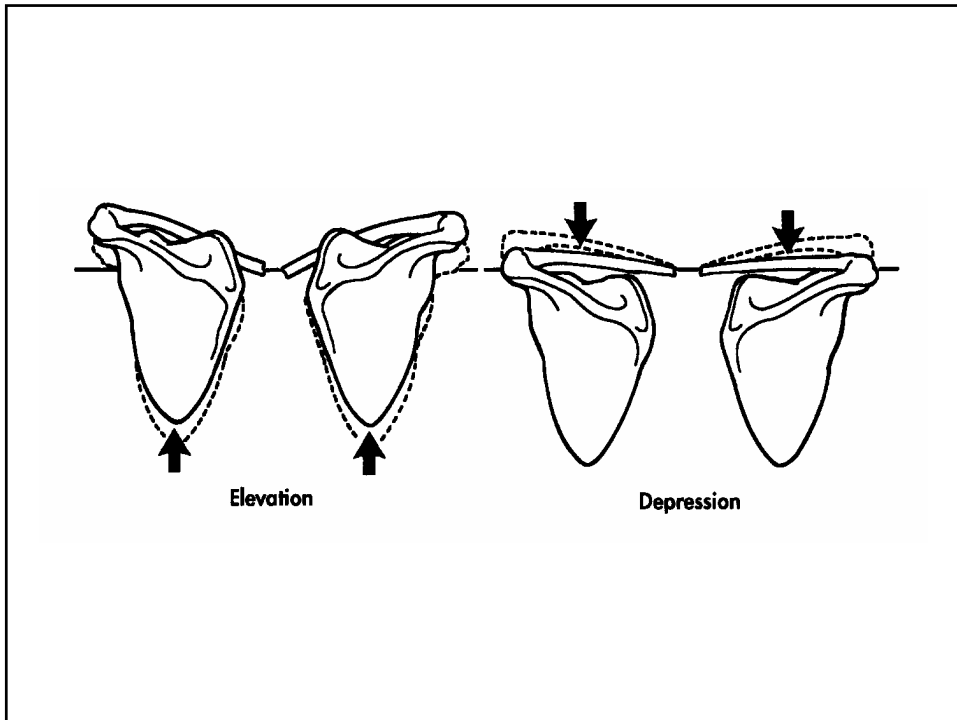
varus = “bow-legged”



Abduction



Adduction



Frontal Plane Joint Mvmts

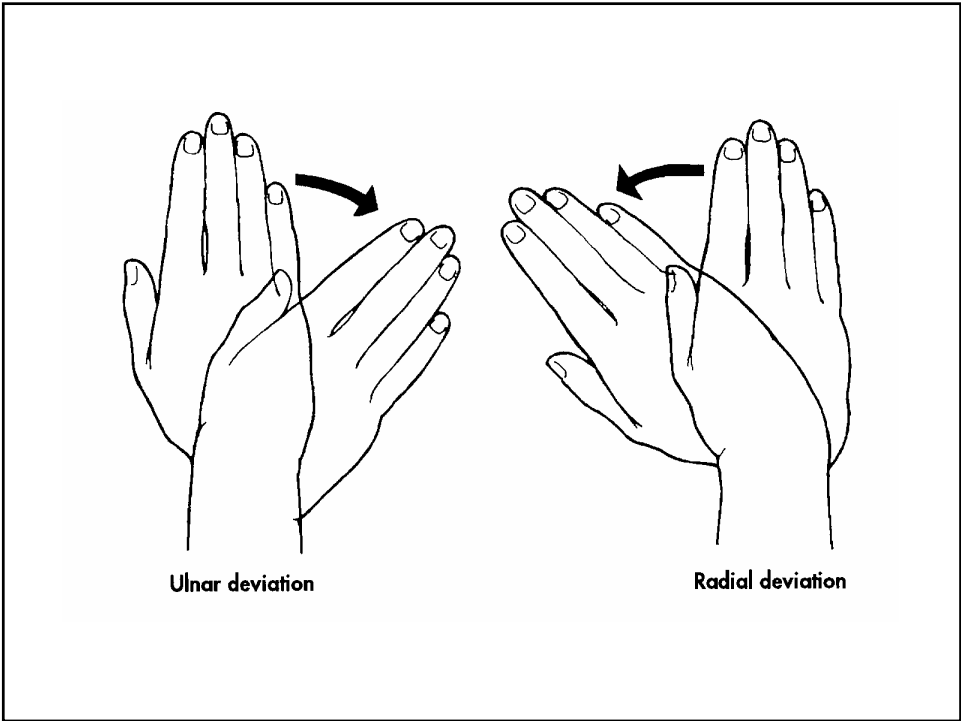
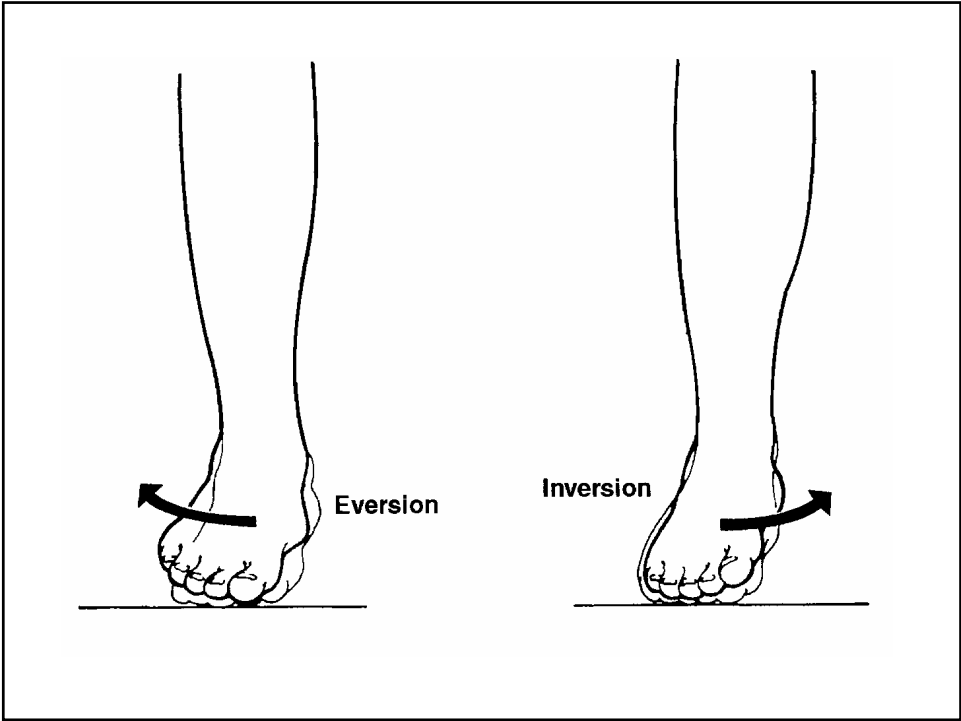
inversion = lift medial border of foot

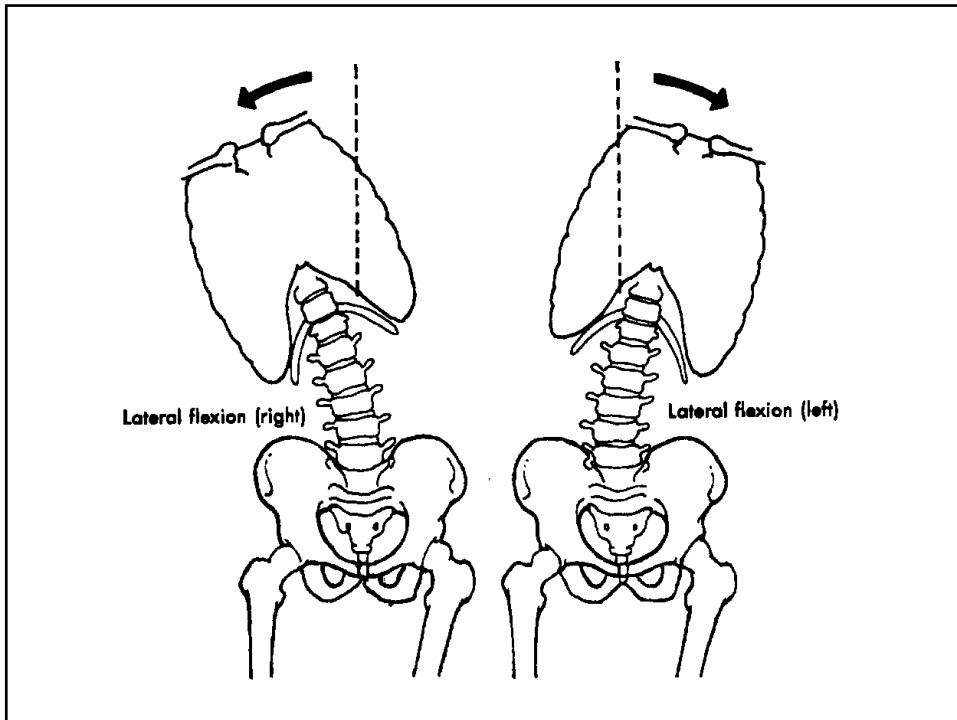
eversion = lift lateral border of foot

radial deviation = move toward radial
styloid

ulnar deviation = move toward ulnar
styloid

L/R lateral flexion = bend trunk to L/R

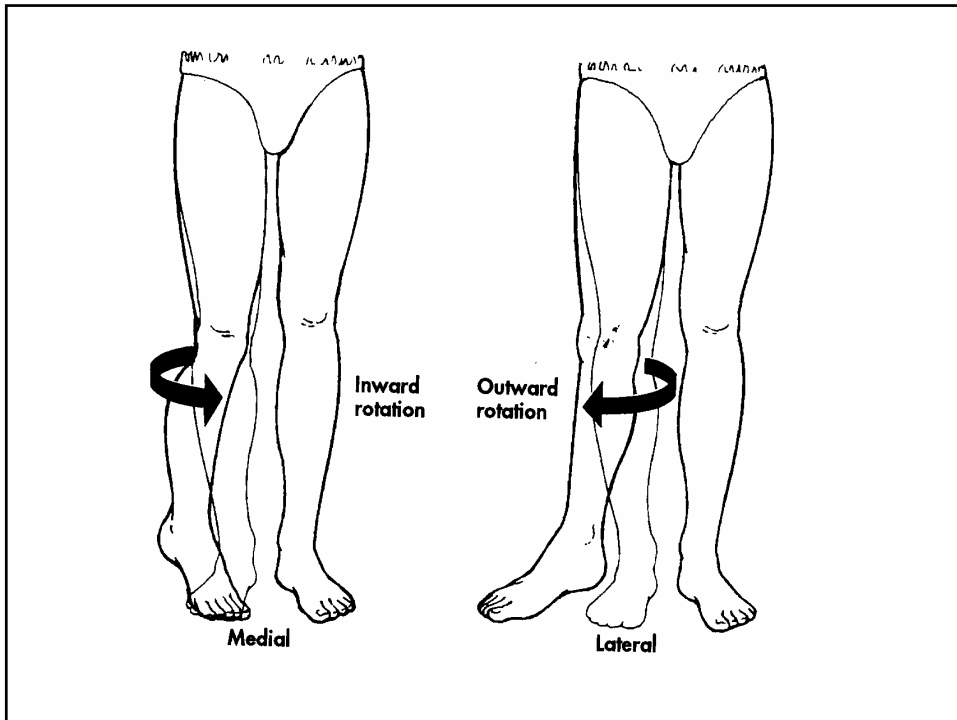




Transverse Plane Joint Mvmts

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

lateral rotation = anterior surface rotates laterally (also called outward or external rotation)



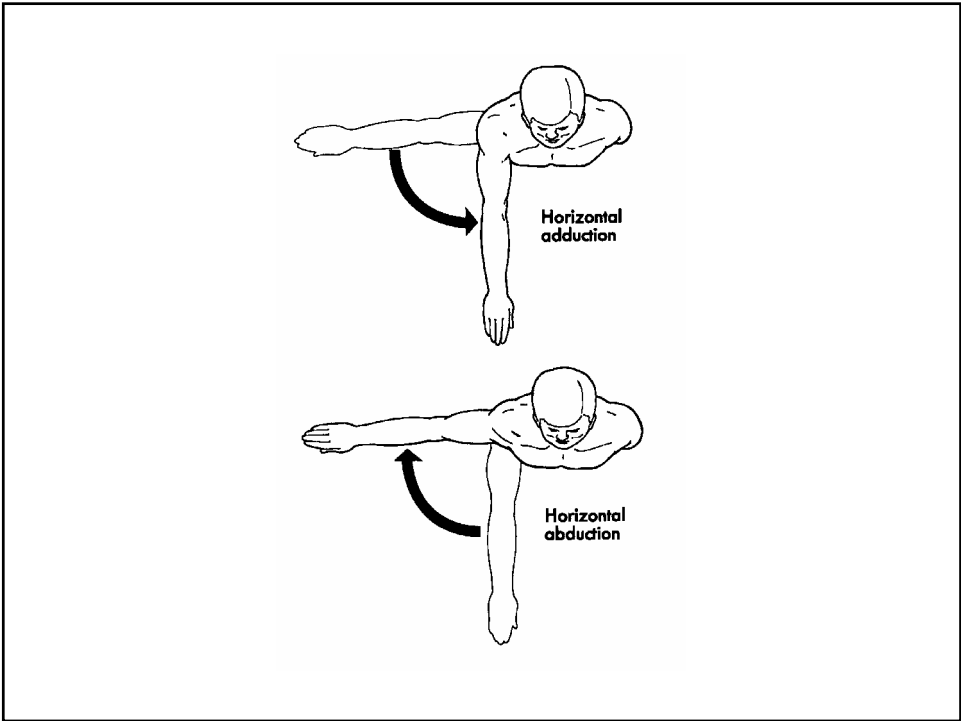
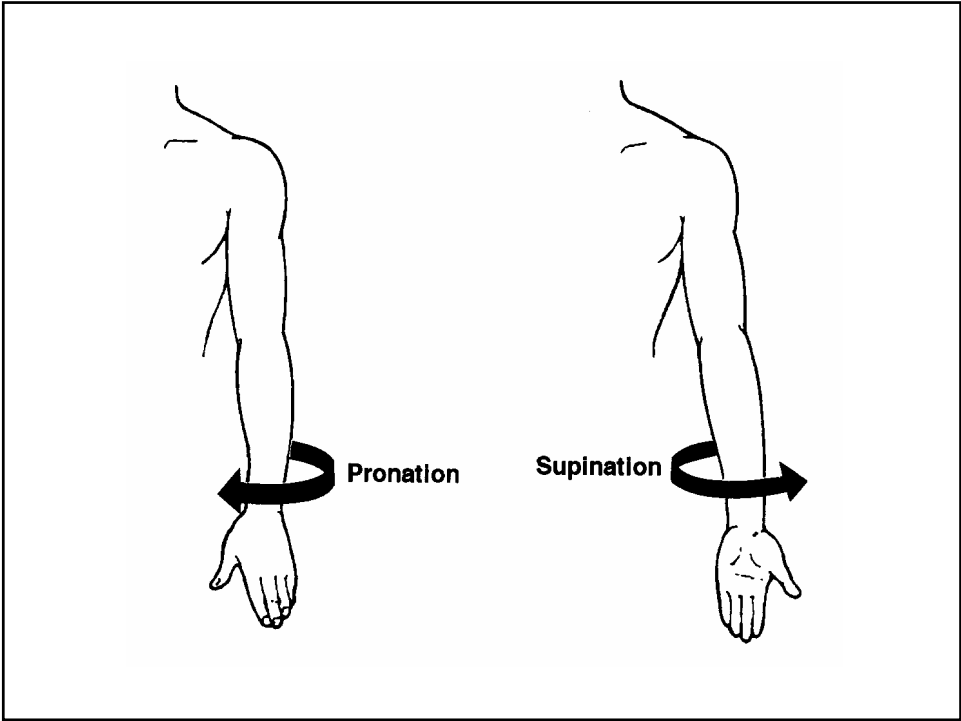
Transverse Plane Joint Mvmts

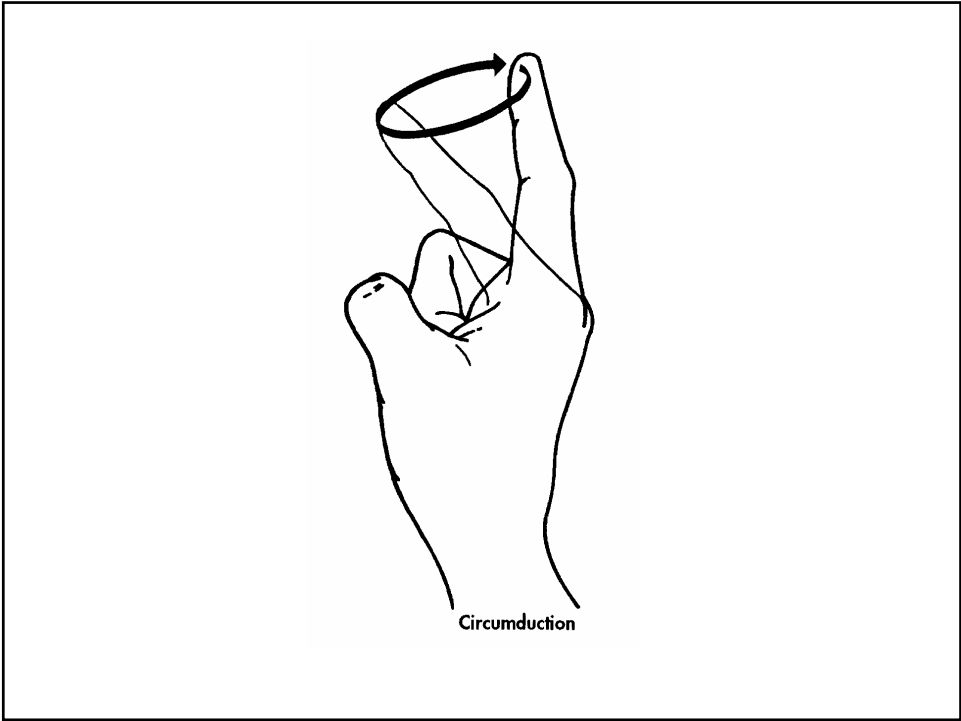
supination = rotate palm up

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)





Circumduction