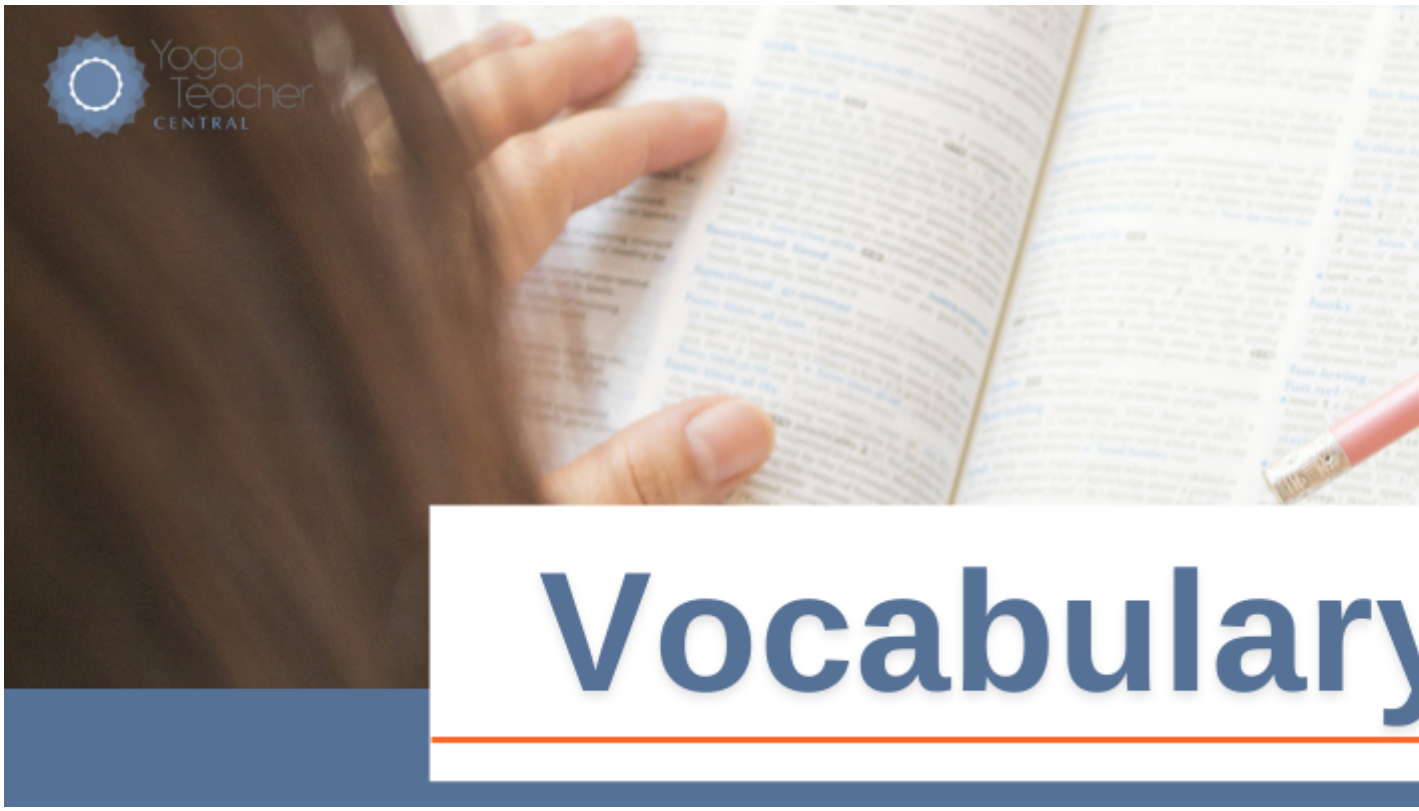
Joint Movements & ROM

Description

Vocabulary

active ROM (AROM), passive ROM (PROM), range of motion (ROM), ROM standards or norms



1. **ACTIVE ROM (AROM)** â?? A jointâ??s range of movement determined by â??voluntary movementâ?• (without any external aid)
2. **PASSIVE ROM (PROM)** â?? A jointâ??s range of movement that occurs from an external force helping to move the body

3. **RANGE OF MOTION (ROM)** â?? The degree of movement that occurs at a joint, measured in degrees of a circle
4. **ROM** â?? Abbreviation for range of motion
5. **ROM STANDARDS OR NORMS** â?? Ideal range of movement for joints as defined by specialists in orthopedics, physical therapy and related fields

ROM & ROM Standards

ROM Defined

The degree of movement that occurs at each joint is called its range of motion (ROM).

- ROM is measured in degrees of a circle.
- Active Range of Motion (AROM) is determined without any external aid.
- Passive Range of Motion (PROM) occurs from an external force helping to move the body.

Factors Contributing to ROM

There are [ROM] barriers built in physically and by your nervous system to help [joints] function optimally and safely. â?? Garrett Neill

Joints move because muscles contract and move them. Range of motion is impacted by:

- Muscles
- Connective tissue
- Nervous system
- Bone shape and angle
- Injuries and swelling

Flexibility refers to the ability to move (without pain or restriction) through a jointâ??s ROM. See much more details on the limits to flexibility in The Anatomy & Physiology of Flexibility & Stretching.

SOME FACTORS CAN BE AFFECTED BY YOGA & SOME CANâ??T

Our available range of motion is created from a combination of connective tissue tension, nervous system stimulation, and the bone shape and angle that create our joints. There are some parts of this combination that we can affect and change with yoga, like the amount and type of tension in our connective tissue and possibly our nervous system stimulation. The aspect of range of motion that we canâ??t change is the shape of our bones and the angle at which they meet to create our joints. Our range of motion can also be affected by things like injuries to the joint or swelling of tissues around the joint. â?? David Keil

What are ROM Standards?

Specialists in orthopedics, physical therapy and related fields often utilize standards that define normal range of motion. The â??standardsâ?• differ somewhat according to source.

The intention is to define an ideal range in which movement maintains the flow of synovial fluid (which lubricates the joints) and promotes strength and flexibility of the related muscles.

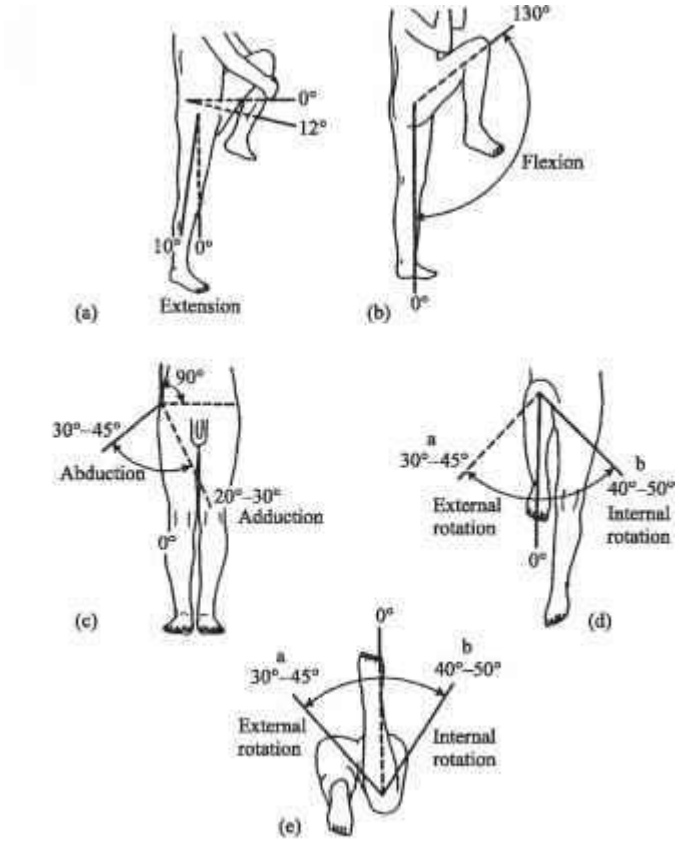
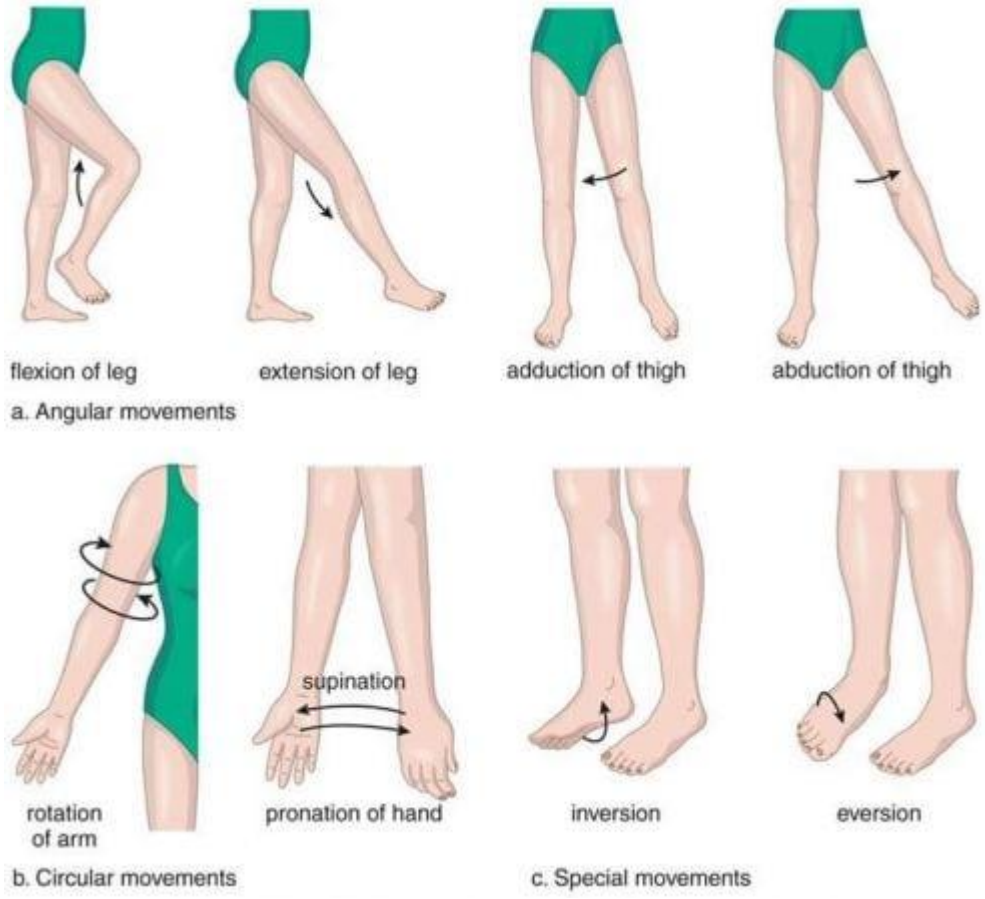


Figure 8.66 Normal range of motion of the hip joint.

Joint Movements



Ankles

1. Plantarflexion â?? pointing toes
2. Dorsiflexion â?? drawing toes back toward knee
3. Eversion â?? outer edge of foot draws toward head
4. Inversion â?? inner edge of foot draws toward head
5. Rotation â?? circling of ankles

Knees

1. Flexion â?? bending knee
2. Extension â?? straightening knee
3. Rotation (During Flexion) â?? while sitting in chair with feet under knees, turning foot outward and inward

Hips

1. External Rotation â?? outward rotation of thighbone within hip socket
2. Internal Rotation â?? inward rotation of thigh; comes from glutes
3. Extension â?? from hands and knees, back of leg rises toward sky
4. Flexion â?? from hands and knees, round to take knee to nose
5. Adduction â?? draw leg across centerline of body

6. Abduction â?? take leg out away from midline of body

Spine

1. Forward bend
2. Backbend
3. Side bend to the left
4. Side bend to the right
5. Twist to the left
6. Twist to the right

See Spinal Movements

Wrists

1. Flexion â?? take palm toward body
2. Extension â?? make the stop motion with hand
3. Radial deviation â?? from straight wrist, palm up, turn thumb side toward torso
4. Ulnar deviation â?? from straight wrist, palm up, turn pinky side toward torso
5. Rotation â?? circle wrists

Elbows

1. Extension â?? straighten arms
2. Flexion â?? bend arms

Shoulders

1. Abduction â?? lift arms out to side
2. Adduction â?? hands to shoulders, draw elbows toward one another
3. External Rotation â?? â??goal postâ?• arms, palms facing forward
4. Internal Rotation â?? â??goal postâ?• arms, rotate palms down to face back
5. Flexion â?? raise arms upward
6. Extension â?? draw arms back behind body

Scapula

1. Adduction â?? squeeze shoulder blades
2. Abduction â?? round thoracic spine

Neck

1. Extension â?? drop head back
2. Flexion â?? take chin to chest
3. Lateral flexion both directions â?? draw ear toward shoulder
4. Lateral rotation both directions â?? turn chin toward shoulder

For images and key muscles, see Biomechanics: Key Muscles Pairsin Movement

Range of Motion Norms

The following range of motion norms are from Structural Yoga Therapy.

Ankles

- Ankle Dorsiflexion 20Â° â?? Plantarflexion 50Â°
- Ankle Eversion 20Â° â?? Ankle Inversion 45Â°
- Ankle Rotation â?? combines previous motions

Knees

- Knee Extension 180Â° â?? Knee Flexion 150Â°

Hips

- Hip External Rotation 45-60Â° â?? Hip Internal Rotation 35Â°
- Hip Extension 30Â° â?? Hip Flexion 135Â°
- Hip Adduction 30-40Â° â?? Hip Abduction 45Â°

Spine

- Spine Extension â?? No standard; â??from a yogic point of view, we look for symmetry and fullness in backbending and for a lengthening of the spinal columnâ?•
- Spine Flexion â?? No standard; â??A yogic view is that, if the tone of the spine flexors is balanced to the opposing muscles, the erector spinae, the spine arcs evenly, creating a symmetrical semicircle.â?•
- Spine Lateral Flexion not established (â??though it appears to be 45Â°â?•)
- Spine Rotation not established (â??shoulder girdle 45Â°â?•)

Wrists

- Wrist Flexion 90Â° â?? Wrist Extension 80Â°
- Radial Deviation 20Â° â?? Ulnar Deviation 30Â°
- Wrist Rotation â?? combination of four preceding motions

Elbows

- Elbow Extension 0Â° (straight line) â?? Elbow Flexion 145Â°

Shoulders

- Shoulder Abduction 40Â° â?? Shoulder adduction 130Â°
- Shoulder External Rotation 90Â° â?? Shoulder internal rotation 80Â°
- Shoulder Flexion 180Â° â?? Shoulder Extension 50Â°
- Scapula Adduction not established â?? Scapula Abduction not established

Neck

- Neck Extension 55Â° â?? Neck Flexion 45Â°
- Neck Lateral Flexion 45Â° â?? Neck Lateral Rotation 70Â°

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