

BUBBLE INCLINOMETER

Measurement Chart

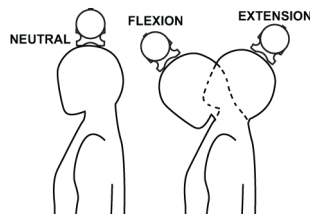
Inclinometers and goniometer are devices used to measure range-of-motion. Range-of-motion can be measured from the neutral position to give a reading of flexion, extension, abduction, adduction, pronation, supination, dorsiflexion, plantar flexion, etc. or it can measure the entire range to yield a total range-of-motion of the joint. The inclinometer is simple to use: place it near the joint to be measured; turn the dial until the scale reads zero; take the joint through its range; read the range-of-motion (in degrees) directly from the dial.

NECK

FLEXION & EXTENSION

- Put head in neutral position
- Place goniometer on top of head, set zero
- Flex or extend neck
- Read result

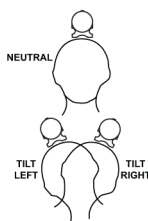
Note: Be careful of the goniometer slipping on hair



LATERAL MOVEMENT

- Put head in neutral position
- Place goniometer on top of head, set zero
- Abduct neck
- Read result

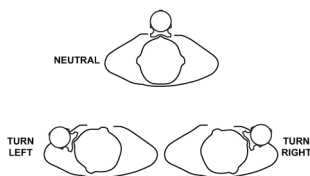
Note: Be careful of the goniometer slipping on hair



ROTATION

- Lay subject supine, with head in neutral position
- Place goniometer on forehead, set zero
- Rotate neck
- Read result

Note: Ensure both shoulders are in contact with the bed

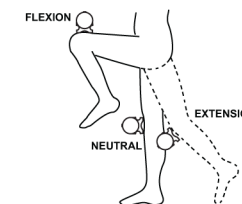


HIP

FLEXION & EXTENSION

- Stand subject upright, preferably supported
- Place goniometer on thigh, set zero
- Flex or extend hip
- Read result

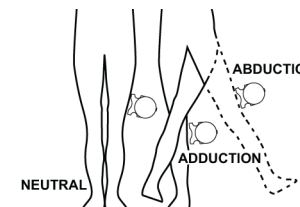
Note: A different result will be obtained with the knee in flexion due to pelvic tilt and lumbar flexion



ABDUCTION & ADDUCTION

- Stand subject upright, feet apart (or lay them on their side)
- Place goniometer on thigh, set zero
- Abduct or adduct hip with the body stabilised
- Read result

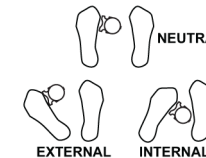
Note: Pelvic tilt may occur



ROTATION

- With the goniometer on its side, set true zero
- Lay subject supine with knee in full extension.
- Neutral position is found by drawing a line from between the big and second toes to the centre of the heel. Using the goniometer rotate hip until zero
- Place goniometer on side of foot, set zero
- Internally or externally rotate hip
- Read result

Note: There is no rotation of the fully extended knee unless severe joint laxity is present

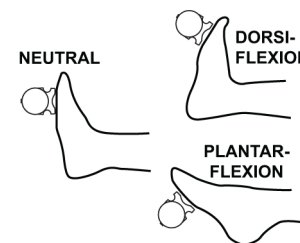


ANKLE

DORSIFLEXION & PLANTAR FLEXION

- Lay subject supine, with foot over edge of bed
- Place goniometer on the sole of foot, set zero
- Plantar flex or dorsiflex the ankle
- Read result

Note: More accurate readings can be obtained when the subject wears flat shoes to reduce the curvature of the foot

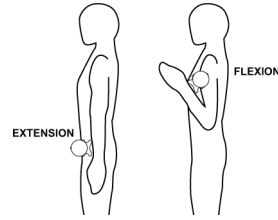


ELBOW

FLEXION & EXTENSION

- Put elbow and shoulder at neutral position at zero degrees of extension
- Place goniometer on forearm, set zero
- Flex elbow
- Read result

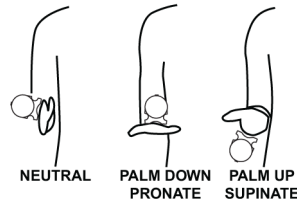
Note: Stabilize shoulder and upper arm to prevent error



ROTATION

- Put shoulder at neutral position, elbow at 90° flexion, thumb uppermost
- Place goniometer on the back of the hand, set zero
- Pronate or supinate elbow
- Read result from inner or outer dial

Note: Twisting of the hand may indicate greater range of motion

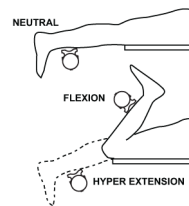


KNEE

FLEXION & EXTENSION

- Lay subject prone, knee over edge of the bed
- Place goniometer on shin, set zero
- Flex or hyper extend knee
- Read result

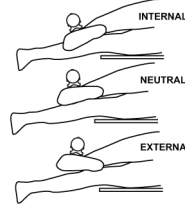
Note: Test can be performed with subject standing and hip stabilized



ROTATION

- Lay subject on side, knee at 90° flexion, rotationally neutral
- Place goniometer on side of foot, set zero
- Internally or externally rotate knee
- Read result

Note: It is very difficult to determine neutral position, so more useful to quote total range of motion

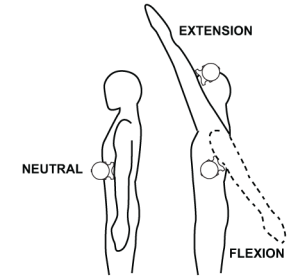


SHOULDER

FLEXION & EXTENSION

- Place goniometer on upper arm, set zero
- Flex or extend shoulder
- Read result

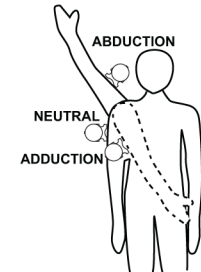
Note: Do not allow the subject to twist



ABDUCTION & ADDUCTION

- Put shoulder into neutral position
- Place goniometer on upper arm, set zero
- Abduct or adduct shoulder
- Read result

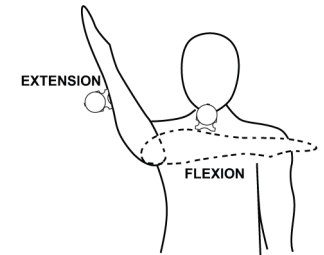
Note: Do not allow the subject's body to twist



ROTATION OF FLEXED SHOULDER

- Put shoulder at 90° flexion, elbow at 90° flexion, forearm and upper arm horizontal
- Place goniometer on forearm, set zero
- Internally or externally rotate shoulder
- Read result from inner or outer dial

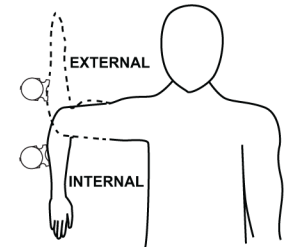
Note: Keep subject's arm horizontal



ROTATION OF ABDUCTED SHOULDER

- Put shoulder at 90° abduction, elbow at 90° flexion, forearm and upper arm horizontal
- Place goniometer on forearm, set zero
- Internally or externally rotate shoulder
- Read result from inner or outer dial

Note: Keep the subject's arm horizontal

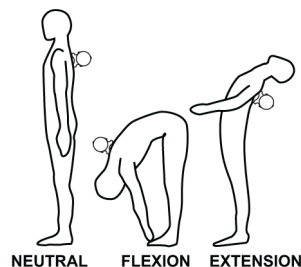


SPINE

FLEXION & EXTENSION

- Stand subject upright
- Place goniometer on region of spine to be tested, set zero
- Flex or extend the spine
- Read result

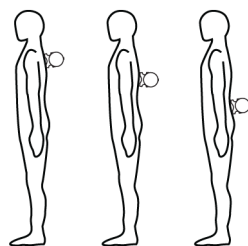
Note: If the subject is clothed, the goniometer may slip during flexion



PLOTTING CURVATURE

- With the goniometer on its side, set true zero
- Stand subject upright
- Place the goniometer at different levels of the spine
- Read result at each level and plot

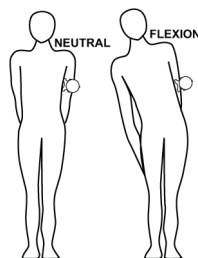
Note: Kyphotic and Lordotic curvatures are shown as positive or negative values



LATERAL MOVEMENT

- Stand subject upright
- Place goniometer on ribs under arm, set zero
- Laterally flex the spine
- Read result

Note: The higher the goniometer is placed the greater will be the measured compound angle

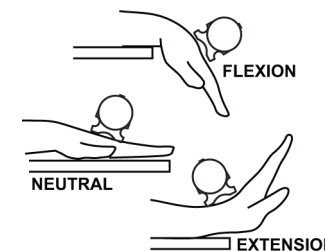


WRIST

FLEXION & EXTENSION

- Put hand and forearm prone on table
- Place goniometer behind MCP joints on back of hand, set zero
- Move hand over edge of table, flex or extend wrist
- Read result from inner or outer dial

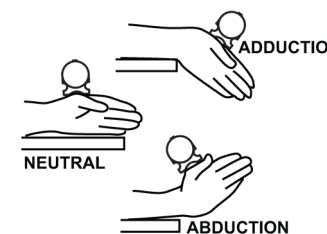
Note: Ensure forearm and elbow are always in contact with the table



ABDUCTION & ADDUCTION

- Place side of hand, forearm and elbow on table
- Place goniometer on side of hand, set zero
- Move hand over edge of table, abduct or adduct wrist
- Read result

Note: Ensure back of the hand is always in vertical plane. To eliminate abduction/adduction of MCP joints put fingers in full flexion

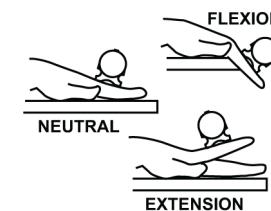


METACARPOPHALANGEAL (MCP) JOINT

FLEXION & EXTENSION

- Put hand prone on table, finger over the edge
- Place goniometer on finger, set zero
- Flex or extend the MCP
- Read result

Note: Maintain full extension of the PIP joint. For small fingers a wooden splint may be taped to the finger



ABDUCTION & ADDUCTION

- Put side of hand, forearm and elbow on table
- Place goniometer on finger, set zero
- Abduct or adduct MCP
- Read result

Note: Ensure the little finger, wrist and elbow are always in contact with the table

