

**Table 14.1** Goniometric Examination of Wrist and Hand Motions

Motion	Location of goniometer	Movement	Normal range
Forearm supination	P: Seated, arm at side and elbow flexed to 90° holding a pencil with a closed fist A: Head of 3rd MC S: Perpendicular to floor M: Parallel with pencil	From neutral (pencil perpendicular to floor), rotate forearm laterally, with palm facing upward.	0 to 90°
Forearm pronation	P: Seated, arm at side and elbow flexed to 90° holding a pencil with a closed fist A: Head of 3rd MC S: Perpendicular to floor M: Parallel with pencil	From neutral (pencil perpendicular to floor), rotate forearm medially, with palm facing downward.	0 to 80-85°
Wrist flexion	P: Seated, forearm pronated, hand extended off table A: Ulnar styloid process S: Long axis of ulna M: Long axis of 5th MC	With fingers extended and relaxed, move palm toward volar aspect of wrist.	0 to 90°
Wrist extension	P: Seated, forearm pronated, hand extended off table A: Ulnar styloid process S: Long axis of ulna M: Long axis of 5th MC	With fingers extended and relaxed, extend wrist by moving dorsum of hand toward dorsal aspect of wrist.	0 to 70°
Radial deviation	P: Seated, forearm pronated and hand resting on table A: Over capitate on dorsal wrist S: Midline of forearm M: Long axis of 3rd MC	From neutral, move hand to radial side, leading with thumb side of hand.	0 to 20°
Ulnar deviation	P: Seated, forearm pronated and hand resting on table A: Over capitate on dorsal wrist S: Midline of forearm M: Long axis of 3rd MC	From neutral, move hand toward ulnar side, leading with 5th finger side of hand.	0 to 30°
MCP flexion*	P: Seated, arm resting on table A: MCP joint S: Long axis of MC M: Long axis of proximal phalanx	With the PIP and DIP joints of the finger relaxed, move finger(s) to palm of hand.	0 to 90°
MCP extension*	P: Seated, arm resting on table A: MCP joint S: Long axis of MC M: Long axis of proximal phalanx	With the PIP and DIP joints of the finger relaxed, move finger(s) toward back of hand.	0 to 30-45°
IP flexion*	P: Seated, arm resting on table A: DIP or PIP joint S: Long axis of most proximal phalanx M: Long axis of immediate distal phalanx	With distal and proximal joints relaxed, move test joint into full flexion.	0 to 100° (PIP) 0 to 90° (DIP)
IP extension*	P: Seated, arm resting on table A: DIP or PIP joint S: Long axis of most proximal phalanx M: Long axis of immediate distal phalanx	With distal and proximal joints relaxed, move test joint into full extension.	0° (PIP) 0-20° (DIP)
Thumb extension	P: Seated, arm and hand resting on table A: Carpometacarpal joint S: Long axis of radius M: Long axis of 1st MC	With wrist and fingers in extension, extend thumb fully.	0° (MCP) 0-20° (IP)
Thumb flexion	P: Seated, arm and hand resting on table A: Carpometacarpal joint S: Long axis of radius M: Long axis of 1st MC	With wrist and fingers in extension, flex thumb by moving it across palm.	0 to 45° (MCP) 0 to 90° (IP)
Thumb abduction	P: Seated, arm and hand resting on table A: Midpoint, base of 1st and 2nd MC S: Long axis 2nd MC M: Long axis 1st MC	With wrist and hand in anatomical position, and thumb in contact with MC of 2nd finger (0° position), move thumb away from palm.	0 to 70°

\*A finger goniometer is preferred for these motions.

P = patient position; A = goniometer axis; S = stationary arm; M = movable arm; MC = metacarpal; PIP = proximal interphalangeal joint; DIP = distal interphalangeal joint; MCP = metacarpophalangeal joint.

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