

	Motion	Position	Stabilization	Axis of Rotation	Stationary Arm	Movable Arm	Normal Values
L a b 1	Shoulder Flexion/Extension	Supine	note. Pronate hand during Shoulder Extension to line up with Lateral Epicondyl (supination/pronation will not affect extension)	Head of Humerus	Bisect Rib Cage	Bisect Humerus toward Lateral Epicondyl	0-180
	Shoulder Abduction	Supine		Acromium	Bisect Sternal Notch	Bisect Humerus & Antecubital Fossa	0-180
	Shoulder Internal/External Rotation	Supine	Need a towel; Palm Down	Olecranon Process	Perpendicular to Floor/Ceiling	Bisect Ulna toward Ulnar Styloid	0-70
	Elbow Flexion/Hyperextension	Supine	note. No Overpressure on Extension; towel under distal humerus; palm up	Lateral Epicondyle	Mid Humerus to Acromium	Radiostyloid	0-140
	Forearm Supination/Pronation	Seated	Elbow flexed 90 & Supported	Lateral to Ulnar Styloid	IN LINE/parrallel to Humerus	Rests on Dorsal Surface of Forearm, Proximal to Styloid Process	0-80
L a b 2	Wrist Flexion/Extension	Seated	Elbow flexed 90 & Supported; During Flexion keep fingers straight & Extension bent	Triquetrum = lateral bump on wrist (proximal to 5th metacarpal)	Lateral Border of Ulna; Ulnar Styloid and Olecranon	Lateral Border of 5th Metacarpal	0-75
	Wrist Radial/Ulnar Deviation	Seated	Neutral Wrist to Start; Overpressure = grap hand and go through motion only in that plane (no flex/ext)	Capitate = divot off 3rd metacarpal	Dorsal Midline of Forearm	Midline of 3rd Metacarpal	0-35
	MCP Joint 2-5 Flexion	Seated		Through MCP Joint	Metacarpal	Proximal Phalanx	0-90
	MCP Joint 2- 5 Extension	Seated		Through MCP Joint	Metacarpal	?	
	MCP Joint 2-5 Abduction	Seated	note. Middle Finger = Center, but do not actually use this during measurement	Through MCP Joint	Metacarpal	Proximal Phalanx	0-20
	PIP Joint Flexion	Seated	Stabilize Proximal Phalanx; Do not usually do extension.	Through PIP Joint	Proximal Phalanx	Middle Phalanx	0-100
	DIP Flexion	Seated	Stabalize at Middle Phalanx	Through DIP Joint	Middle Phalanx	Distal Phalanx	0-90
	DIP Extension	Seated	Easier on Palmer Side				0 = only have hyperextension

	Motion	Position	Stabilization	Axis of Rotation	Stationary Arm	Movable Arm	Normal Values
L a b 3	1st CMC Flexion*	Seated	Seated Elbow Flexed, Palm Up, Wrist & Elbow Supported; Requires MATH = measure beginning angle & measure when they stop & subtract - - stops when you have to abduct to go further	CMC Joint	Through Radius	1st Metacarpal	0-15
	1st CMC Extension*	Seated	Seated Elbow Flexed, Palm Up, Wrist & Elbow Supported; Requires MATH = measure beginning angle & measure when they stop & subtract	CMC Joint	Through Radius	1st Metacarpal	0-20
	1st CMC Abduction	Seated	Seated with Wrist in Neutral	RadioStyloid for Thumb	2nd Metacarpal	1st Metacarpal	0-70
	Opposition	Seated	Finger Tips - to - Finger Tips; Pads - to - Pads				
	1st MCP Joint Flexion	Seated	Stabilize Metacarpal	MCP	?	?	0-50
	1st IP Flexion	Seated		IP Joint	Proximal Phalanx	Distal Phalanx	0-80
	TMJ Opening	Short Sitting with Good Posture	Stabilize back of neck to prevent patient from extending neck				Screen Test: Fit 3 Knuckles in Mouth - - 35-50mm
	TMJ Protrusion	Short Sitting with Good Posture	Ruler flat, starting at top teeth				6-9 mm
	TMJ Lateral Deviation	Short Sitting with Good Posture	Right deviation = mandible moving to the R (and vice versa); account for starting position of teeth				10-12 mm

L a b 6	C-Spine Flexion	Sitting, with T&L spine supported on back of chair	Stabilize to prevent flexion of T&L spine	External auditory meatus	Perpendicular to the floor	Align with base of the nose.	0-50 (can apply overpressure)
	C-spine Extension	Sitting, with T&L spine supported on back of chair	Stabilize to prevent flexion of T&L spine NO OVERPRESSURE --> for flex/ext can use a tape measure from chin to sternal notch	External auditory meatus	Perpendicular or parallel to the floor	Align with base of the nose.	0-70
	C-spine Sidebending	Sitting, with T&L spine supported on back of chair	Stabilize to prevent flexion of T&L spine. Bring patient's head laterally toward the shoulder. Measure BOTH sides --> measure from mastoid process to acromion	Over the spinous process of the c7 vertebrae	With the spinous processes of the thoracic spine, so it is perpendicular to the ground	Bisecting the Back of the Head	Right & Left 0-45 (can apply overpressure)
	C-spine Rotation	Sitting, with T&L spine supported on back of chair	Stabilize to prevent flexion of T&L spine. Take pt's chin and rotate toward a shoulder (In horizontal plane). Measure BOTH sides --> measure from chin to acromion	Over the center of the cranial aspect of the head	Parallel to an imaginary line between the two acromial processes	Align with the tip of the nose	0-70 (can apply overpressure)

	Motion	Position	Stabilization	Axis of Rotation	Stationary Arm	Movable Arm	Normal Values
L a b 8	Trunk Flexion	Standing, with PT's foot inside patient's feet - - NO Shoes	Patient bends to touch floor. Stop bending when patient starts to anterior tilt.	Measure distance from tip of patient's middle digit to the ground - Block pelvic tilt			N/A
	Trunk Sidebending	Standing, with PT's foot inside patient's feet. Keep arms relaxed -- NO Shoes	Stop the test when pelvis begins to laterally tilt or when heel comes off floor.	Patient should bend as far to one side as possible. Measure distance from tip of patient's middle digit to the ground - Do NOT let hand slide down thigh			N/A
	Trunk Rotation	Seated with feet on floor. No back support -- NO Shoes	Stabilize pelvis to prevent rotation. Patient's arms crossed on chest.	Over the center of the cranial aspect of the head	Parallel to an imaginary line between the two prominent tubercles on ASIS. Need to palpate!	With an imaginary line between the two acromial processes.	0-60
	Schober technique (Flexion/Extension)	Standing, with PT's foot inside patient's feet	Mark a spot directly inbetween PSIS. Mark another spot 15 cm above 1st mark	Patient bends forward without Ant. Tilt. Measure the distance between the points.	For flexion- keep tape measure directly on skin. For extension, just measure the distance, not necessary on the skin.		Flexion: Males = 6.7 cm Females = 5.8 cm Extension: 1.6 cm
	<i>Forward Bending</i>	Standing (PT foot between pt)					N/A
	C7-S1 Distance (Flexion/Extension)	Standing, with spine in neutral position	Stabilize the pelvis to prevent anterior tilting	*Use a pencil to mark C7 and S1. Align a tape measure between the two processes and note the distance	Have patient bend forward (Flexion ROM). Record the second distance.	The difference between the two distances is the amount of flexion that is present.	N/A
	Lumbar Distance						N/A
	Thoracic Distance						**there should be significantly less thoracic motion

<i>Backward Bending</i>						15cm -x = # Male & Female 1.6 cm
C7-S1 Distance						
Lumbar Distance	Standing: Cervical - Thoracic - Lumbar Spine in 0-deg of lateral flex & rotation	Stabilize the pelvis to prevent posterior tilting (the end ROM occurs when the pelvis beings to tilt post.) - use tape measure	Instructions: 1. Place a mark on the Right and Left PSIS - use a ruler to locate and mark a midline point on the sacrum at the level of the PSIS & make a mark 15cm above the mark on the sacrum.	2. Align the tape measure between the superior and inferior marks on the spine - ask pt to bend backward as far as they can.	3. At the end ROM, note the distance between the superior and inferior marks. The ROM is the difference between 15cm and the length measure at the end of the motion.	N/A
Thoracic Distance						N/A

	Motion	Position	Stabilization	Axis of Rotation	Stationary Arm	Movable Arm	Normal Values
L a b 9	Hip Flexion	Supine; knees extended and hips in 0-deg ABD, ADD, and rot.	Stabilize pelvis with one hand to prevent posterior tilting or rotation; contralateral LE flat on table in neutral to provide additional stabilization	Lateral aspect of the hip joint - Greater Trochanter of the Femur	Lateral Midline of the Pelvis	Lateral Midline of the Femur - use lateral epicondyle as a reference	0-120
	Hip Extension	Prone; knees extended and hip in 0-deg ABD, ADD, and rot.	Stabilize pelvis with one hand to prevent anterior tilt; contralateral LE flat on table in neutral to provide additional stabilization	Lateral aspect of the hip joint - Greater Trochanter of the Femur	Lateral Midline of the Pelvis	Lateral Midline of the Femur - use lateral epicondyle as a reference	0-20
	Hip ABD	Supine; knees extended and hips in 0-deg ABD, ADD, and rot.	Keep a hand on the pelvis to prevent lateral tilting and rotation. CAUTION: watch trunk for lateral trunk flexion	ASIS	Align with an imaginary horizontal line extending from one ASIS to the other	Anterior midline of the femur - use midline of patella as a reference	0-45
	Hip ADD	supine	Pelvis to prevent lateral tilting	ASIS	Horizontal line across both ASIS's	Anterior midline of femur, using midline of patella for reference	0-30
	Hip IR	Sitting with knees hanging off edge	Distal end of femur to prevent motion	Anterior aspect of patella	Perpendicular to floor	Anterior midline of lower leg, using crest of tibia and a point bw malleoli	0-40
	Hip ER	Sitting with knees flexed to 90 and supporting	Distal end of femur to prevent abduction or further flexion of the hip	Anterior aspect of patella	Perpendicular to floor	Anterior midline of lower leg and a point between malleoli	0-50

L a b 1 0	Knee Flexion	Supine	Femur to prevent rotation, abduction and adduction of hip	Lateral epicondyle of femur	Proximal arm with lateral midline of femur, in line with greater trochanter	Lateral midline of fibula, using lateral malleolus and fibular head as reference	0-150
	Knee Hyperextension						
	Ankle Dorsiflex with Knee Flexed	Sitting with knee flexed to 90 and neutral foot	Stabilize the tibia and fibula to prevent knee motion and hip rotation	Lateral aspect of lateral malleolus	Lateral midline of fibula	Parallel to lateral aspect of 5 th metatarsal	0-12
	Ankle Dorsiflex with Knee Extended						
	Ankle Plantarflexion	Sitting with knee flexed to 90	Tibia and fibula to prevent knee flexion and hip rotation	Lateral aspect of lateral malleolus	Lateral midline of fibula	Lateral aspect of 5 th metatarsal	0-50
	Tarsal Joint Inversion 2nd Metatarsal	Sitting with knee flexed to 90 and leg supported	Tibia and fibula to prevent medial rotation and extension of knee	Anterior aspect of ankle between malleoli	Anterior midline of lower leg, using tibial tuberosity for reference	Anterior midline of 2 nd metatarsal	0-
	Tarsal Joint Inversion Metatarsal Head Plane	Sitting with knee flexed to 90 and leg supported	Stabilize the heel to prevent dorsiflexion of ankle/inversion of subtalar joint	Lateral aspect of 5 th metatarsal head	parallel to anterior midline of lower leg	Plantar aspect of 1-5 metatarsal heads	0-37

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	Tarsal Joint Eversion 2nd Metatarsal	Sitting with knee flexed to 90 and leg supported	Tibia and fibula to prevent lateral rotation and adduction of hip	Anterior aspect of ankle midway between malleoli	Anterior midline of lower leg, using tibial tuberosity for reference	Anterior midline of 2 nd metatarsal	0-
	Tarsal Joint Eversion Metatarsal Head Plane	Sitting with knee flexed to 90 and leg supported	Calcaneus and Talus to prevent plantarflexion and eversion of subtalar joint	Medial aspect of 1st metatarsal head	Parallel to the anterior midline of the lower leg	Plantar aspect from the 1st to 5th metatarsal heads	0-15
	Subtalar Eversion	Prone, foot hanging off the end of the table	Tibia and fibula	Posterior aspect of ankle midway between malleoli	Posterior midline of the lower leg	Posterior midline of the calcaneus	0-5
	Subtalar Inversion	Prone, foot hanging off the end of the table	Tibia and fibula	Posterior aspect of ankle midway between malleoli	Posterior midline of the lower leg	Posterior midline of the calcaneus	0-5
L a b 1 1	1st MTP Joint Flexion	Supine or sitting with knee flexed to 90	metatarsals	Dorsal aspect of the MTP joint	Dorsal midline of the metatarsal	Dorsal midline of the proximal phalanx	0-30
	1st MTP Joint Extension	Supine or sitting with knee flexed to 90	metatarsals	Dorsal aspect of the MTP joint	Dorsal midline of the metatarsal	Dorsal midline of the proximal phalanx	0-50
	Hallux Valgus						
	Leg Length						