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AROM Assessment and Measurement: Trunk

Movement	Start Position	End Position	Measurement	Recording	Instructions	Comments	
TRUNK FLEXION- THORACOLUMBAR SPINE (TAPE MEASURE) Form 9-50	1. Standing, feet shoulder width apart, knees straight	1. Trunk flexed to limit of motion for thoracolumbar flexion 2. Full AROM achieved	1. Distance measured between C7 and S2 at start position 2. Distance measured between C7 and S2 at end position Distance measured Distance Distan	1. Difference between start and end measures recorded for AROM	1. Verbal (clear/ concise) 2. Demonstration (clear) 3. Substitute movement avoided		
TRUNK EXTENSION- THORACOLUMBAR SPINE (TAPE MEASURE) Form 9-51	1. Standing, feet shoulder width apart, knees straight 2. Hands on iliac crests and small of back	1. Trunk extended to limit of motion for thoracolumbar extension 2. Full AROM achieved	1. Distance measured between C7 and S2 at start position 2. Distance measured between C7 and S2 at end position	1. Difference between start and end measures recorded for AROM	1. Verbal (clear/concise) 2. Demonstration (clear) 3. Substitute movement avoided		
Movement	Start Position	Inclinometer Placement	End Position	Recording	Instructions	Comments	
TRUNK FLEXION – THORACOLUMBAR SPINE (INCLINOMETER) Form 9-52	1. Standing, feet shoulder width apart, knees straight 2. Inclinometers zeroed in start position	1. Superior inclinometer: on spine of C7 2. Inferior inclinometer: on spine of S2	1. Full thoracolumbar spine flexion AROM to limit of motion 2. Measurement recorded from superior inclinometer 3. Measurement recorded from inferior inclinometer	1. Difference between two inclinometer readings recorded for thoracolumbar flexion AROM	1. Verbal (clear/concise) 2. Demonstration (clear) 3. Substitute movement eliminated		







AROM Assessment and Measurement: Trunk (continued)

Movement	Start Position	Inclinometer Placement	End Position	Recording	Instructions	Comments	
TRUNK EXTENSION – THORACOLUMBAR SPINE (INCLINOMETER) Form 9-53	1. Standing, feet shoulder width apart, knees straight 2. Hands on iliac crests and small of back 3. Inclinometers zeroed in start position	1. Superior inclinometer: on spine of C7 2. Inferior inclinometer: on spine of S2	1. Full thoracolumbar spine extension AROM to limit of motion 2. Measurement recorded from superior inclinometer 3. Measurement recorded from inferior inclinometer	1. Difference between two inclinometer readings recorded for thoracolumbar extension AROM	1. Verbal (clear/concise) 2. Demonstration (clear) 3. Substitute movement eliminated		
Movement	Start Position	Stabilization	End Position	Measurement	Recording	Instructions	Comments
TRUNK EXTENSION- THORACOLUMBAR SPINE (PRONE PRESS-UP) Form 9-54	1. Prone 2. Hands positioned on plinth at shoulder level	1. Strap used to stabilize pelvis □	1. Patient extends elbows to raise trunk and extend thoracolumbar spine to limit of motion 2. Full AROM achieved	1. Perpendicular distance measured between suprasternal notch and plinth	Distance measured recorded for ROM	1. Verbal (clear/concise) 2. Demonstration (clear) 3. Substitute movement eliminated	
TRUNK FLEXION- LUMBAR SPINE (MODIFIED MODIFIED SCHÖBER METHOD) (TAPE MEASURE) Form 9-55	1. Standing, feet shoulder width apart 2. Mark placed over spine 15 cm above spinous process of S2 at start position		1. Trunk flexed to limit of motion for lumbar flexion 2. Full AROM achieved	1. Distance measured between 15 cm mark and S2 at end position	1. Difference between start and end measures recorded for AROM	1. Verbal (clear/ concise) 2. Demonstration (clear) 3. Substitute movement eliminated	



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AROM Assessment and Measurement: Trunk (*continued***)**

Movement	Start Position	Stabilization	End Position	Measurement	Recording	Instructions	Comments
TRUNK EXTENSION- LUMBAR SPINE (TAPE MEASUER) Form 9-56	1. Standing, feet shoulder width apart 2. Hands on iliac crests and small of back 3. Mark placed over spine 15 cm above spinous process of S2 at start position	No liers true	1. Trunk extended to limit of motion for lumbar extension 2. Full AROM achieved	1. Distance measured between 15 cm mark and S2 at end position ☐	1. Difference between start and end measures recorded for AROM	1. Verbal (clear/concise) 2. Demonstration (clear) 3. Substitute movement eliminated	
Movement	Start Position	Inclinometer Placement	End Position	Recording	Instructions	Comments	
TRUNK FLEXION – LUMBAR SPINE (INCLINOMETER) Form 9-57	1. Standing, feet shoulder width apart, knees straight 2. Inclinometers zeroed in start position	1. Superior inclinometer: on a mark 15 cm above the spinous process of S2 2. Inferior inclinometer: on spine of S2	1. Full lumbar spine flexion AROM to limit of motion 2. Measurement recorded from superior inclinometer 3. Measurement recorded from inferior inclinometer Compared to the content of the content	1. Difference between two inclinometer readings recorded for lumbar flexion AROM	Verbal (clear/ concise) □ Demonstration (clear)□ Substitute movement eliminated□		
TRUNK EXTENSION – LUMBAR SPINE (INCLINOMETER) Form 9-58	1. Standing, feet shoulder width apart, knees straight 2. Hands on iliac crests and small of back 3. Inclinometers zeroed in start position	1. Superior inclinometer: on a mark 15 cm above the spinous process of S2 2. Inferior inclinometer: on spine of S2	1. Full lumbar spine extension AROM to limit of motion 2. Measurement recorded from superior inclinometer 3. Measurement recorded from inferior inclinometer	1. Difference between two inclinometer readings recorded for lumbar extension AROM	Verbal (clear/ concise) □ Demonstration (clear)□ Substitute movement eliminated □		



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AROM Assessment and Measurement: Trunk (continued)

Movement	Start Position	End Position	Measurement	Recording	Instructions	Comments	
TRUNK LATERAL FLEXION- THORACOLUMBAR SPINE (FINGERTIP-TO- FLOOR METHOD) (TAPE MEASURE) Form 9-59	1. Standing, feet shoulder width apart, knees straight, feet flat on floor	1. Trunk laterally flexed to limit of motion 2. Full AROM achieved	1. Distance measured between tip of third digit and floor	1. Distance measured recorded	1. Verbal (clear/concise) 2. Demonstration (clear) 3. Substitute movement eliminated		
TRUNK LATERAL FLEXION- THORACOLUMBAR SPINE (THIGH MEASURE- MENT METHOD) (TAPE MEASURE) Form 9-60	1. Standing, feet shoulder width apart, knees straight, feet flat on floor 2. Arms at sides, mark on thigh at level of tip of middle finger	1. Trunk laterally flexed to limit of motion 2. Full AROM achieved 3. Mark on thigh at level of tip of middle finger	1. Distance measured between marks placed on thigh at start and end positions	Distance measured recorded	1. Verbal (clear/concise) 2. Demonstration (clear) 3. Substitute movement eliminated		
Movement	Start Position	Inclinometer Placement	End Position	Recording	Instructions	Comments	
TRUNK LATERAL FLEXION (INCLINOMETER) Form 9-61	1. Standing, feet shoulder width apart, knees straight, feet flat on floor 2. Inclinometers zeroed in start position	1. Superior inclinometer: on spine of T1 2. Inferior inclinometer: on spine of S2	1. Full thoracolumbar spine lateral flexion AROM to limit of motion 2. Measurement recorded from superior inclinometer 3. Measurement recorded from inferior inclinometer	1. Difference between two inclinometer readings recorded	1. Verbal (clear/concise) 2. Demonstration (clear) 3. Substitute movement eliminated		

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AROM Assessment and Measurement: Trunk (*continued***)**

Movement	Start Position	Axis	Stationary Arm	End Position	Movable Arm	Recording	Instructions
TRUNK LATERAL FLEXION (UNIVERSAL GONIOMETER) Form 9-62	1. Standing, feet shoulder width apart, knees straight, feet flat on floor	1. In midline at level of the PSIS (i.e. over S2 spinous process)	1. Perpendicular to floor 2. Position maintained for start position 3. Position maintained for end position	1. Full trunk lateral flexion AROM □	1. Points toward spine of C7 2. Position maintained for start position 3. Position maintained for end position	Full trunk lateral flexion AROM recorded □	1. Verbal (clear/ concise) 2. Demonstration (clear) 3. Substitute movement eliminated Comments:
Movement	Start Position	Stabilization	End Position	Measurement	Recording	Instructions	Comments
TRUNK ROTATION - THORACOLUMBAR SPINE (TAPE MEASURE) Form 9-63	1. Sitting feet supported 2. Arms crossed in front of chest 3. Patient holds end of tape measure on lateral aspect of acromion process 4. Therapist holds other end of tape measure on contralateral iliac crest at midaxillary line or on upper border of greater trochanter	1. Pelvis stabilized	1. Trunk rotated to limit of motion 2. Full AROM achieved 3. Pelvis stabilized	1. Distance measured between acromion process and iliac crest or greater trochanter at start position 2. Distance measured between acromion process and iliac crest or greater trochanter at end position Distance Distance	1. Difference between start and end measures recorded 2. Surface landmarks used to measure AROM recorded The property of	movement eliminated	





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AROM Assessment and Measurement: Trunk (continued)

Movement	Start Position	Inclinometer Placement	End Position	Recording	Instructions	Comments	
TRUNK ROTATION - THORACIC SPINE (INCLINOMETER) Form 9-64	1. Standing, forward flexed with head and trunk parallel to floor, with arms crossed in front of chest 2. Inclinometers zeroed in start position	1. Superior inclinometer: on spine of T1 2. Inferior inclinometer: on spine of T12	1. Full thoracic spine rotation AROM to limit of motion 2. Measurement recorded from superior inclinometer 3. Measurement recorded from inferior inclinometer Output	1. Difference between two inclinometer readings recorded for thoracic rotation AROM	1. Verbal (clear/ concise) 2. Demonstration (clear) 3. Subsitute movement eliminated		
Movement	Start Position	End Position	Measurement	Recording	Instructions	Comments	
CHEST EXPANSION (TAPE MEASURE) Form 9-65	1. Sitting 2. Tape measure position around chest at level of xiphisternum 3. Full expiration made	1. Full inspiration made	1. Chest circumference at full expiration 2. Chest circumference at full inspiration	1. Difference between two measures of circumference recorded	1. Verbal (clear/ concise) 2. Demonstration (clear) 3. Substitute movement eliminated		





Muscle Length Assessment and Measurement: Trunk and Hamstrings Measurement of

Muscle	Start Position	End Position	Measurement of Joint Position Using Tape Measure	Recording	Instructions	Comments	
TRUNK EXTENSORS- AND HAMSTRINGS (TOE-TOUCH TEST) Form 9-66	1. Standing, knees straight □	1. Trunk and hips flexed as patient reaches toward toes to limit of motion 2. Full AROM achieved 3. Knees maintained in extension	Distance measured between most distant point reached by both hands and floor	1. Distance measured recorded	1. Verbal (clear/concise) 2. Demonstration (clear) 3. Substitute movement eliminated		

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Muscle Testing: Trunk

Muscle	Screen Position (Grade 3): AG Start Posi- tion	AG End Position	Grades 3, 4 & 5	Grades <3	Instruction	Handling/ Comments	
RECTUS ABDOMINIS Form 9-67	Supine with arms held outstretched Feet not stabilized □	1. Posterior pelvic tilt 2. Cervical spine flexed, thoracic spine flexed to perform half curl-up 3. Curl-up performed slowly 4. Rectus abdominis palpated lateral to midline on the anterior abdominal wall, midway between sternum and pubis	Inferior angles of scapulae off plinth with: 1. Grade 3: arms outstretched 2. Grade 4: arms across chest 3. Grade 5: hands beside ears 4. Grade (3, 4, or 5) recorded correctly	1. Grade 0: no movement or palpable contraction 2. Grade 1: no movement, palpable flicker of contraction (may elicit with cough) 3. Grade 2: head and C spine off plinth with arms outstretched 4. Grade (i.e. 0, 1, or 2) recorded correctly	1. Verbal (clear/ concise) 2. Demonstration (clear)	1. Patient comfortable 2. Patient draped appropriately 3. Therapist uses safe body mechanics 4. Substitute movement eliminated Comments:	
EXTERNAL ABDOMINAL OBLIQUE, INTER- NAL ABDOMINAL OBLIQUE Form 9-68	1. Supine with arms held outstretched □ 2. Feet not stabilized □	1. Posterior pelvic tilt	Inferior angles of scapulae off plinth with: 1. Grade 3: arms outstretched 2. Grade 4: arms across chest 3. Grade 5: hands beside ears 4. Grade (3, 4, or 5) recorded correctly	1. Sitting, feet supported, hands off plinth 2. Trunk rotated with slight flexion 3. External abdominal oblique palpated 4. Internal abdominal oblique palpated 5. Grade (i.e. 0, 1, or 2) recorded correctly	1. Verbal (clear/ concise) 2. Demonstration (clear)	1. Patient comfortable 2. Patient draped appropriately 3. Therapist uses safe body mechanics 4. Substitute movement eliminated Comments:	



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Ç	Screen Position (Grade 3): AG						
Muscle	Start Position	AG End Position	Grades ≥ 3	Instruction	Handling	Comments	
DOUBLE STRAIGHT LEG LOWERING (EXTERNAL ABDOMINAL OBLIQUE, INTER- NAL ABDOMINAL OBLIQUE, REC- TUS ABDOMINIS) Form 9-69	1. Supine with legs raised by therapist to 90° hip flexed position 2. Pelvis posteriorly tilted, L spine flexed, back flat on plinth 3. Hip flexor length previously assessed by therapist	1. Therapist palpates pelvis to ensure posterior pelvic tilt maintained 2. Legs lowered toward plinth 3. Angle between legs and plinth noted and therapist supports legs when pelvis begins to rotate anteriorly	Hip flexion angles: 1. Grade 3: 90° to 75°	1. Verbal (clear/concise) 2. Demonstration (clear)	1. Patient comfortable 2. Patient draped appropriately 3. Therapist uses safe body mechanics 4. Substitute movement eliminated		
Muscle	Screen Position (Grade 3): AG Start Position	AG End Position	Grades 3, 4 & 5	Grades <3	Instruction	Handling	Comments
ERECTOR SPINAE Form 9-70	1. Prone with feet off end of plinth, pillow under abdomen 2. Pelvis and legs stabilized 3. Hands held behind low back 4. Neck and hip extensor strength previously tested by therapist	1. Trunk extension 2. Erector spinae palpated paravertebral to L or T spines 3. Pelvis and legs stabilized	Trunk extended through: 1. Grade 3: partial ROM with hands held behind low back	1. Grade 0: no movement or palpable contraction 2. Grade 1: no movement, palpable flicker of contraction as attempts to lift head 3. Grade 2: head and upper sternum off plinth with arms held at sides 4. Grade (i.e. 0, 1, or 2) recorded correctly	1. Verbal (clear/ concise) 2. Demonstration (clear)	1. Patient comfortable 2. Patient draped appropriately 3. Therapist uses safe body mechanics 4. Substitute movement eliminated	









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Muscle Testing: Trunk (continued)

Muscle	Screen Position (Grade 3): AG Start Position	AG End Position	Grades 3, 4 & 5	Grades <3	Instruction	Handling/ Comments	
QUADRATUS LUMBORUM Form 9-71	1. Prone with feet off end of plinth, patient holds edges of plinth 2. Hip in abduction and slight extension 3. Trunk stabilized	1. Pelvic elevation 2. Quadratus lumborum palpated above iliac crest lateral to paravertebral muscles 3. Trunk stabilized	Iliac crest elevated through full ROM: 1. Grade 3: against resistance equal to weight of lower extremity 2. Grade 4: against resistance equal to weight of lower extremity and moderate resistance 3. Grade 5: against resistance equal to weight of lower extremity and moderate resistance equal to weight of lower extremity and moderate resistance 4. Resistance applied to distal end of femur or posterolateral aspect iliac crest 5. Resistance applied in direction to resist pelvic elevation 6. Grade (3, 4, or 5) recorded correctly	1. Grade 0: no movement or palpable contraction 2. Grade 1: no movement, palpable flicker of contraction as attempts to elevate pelvis 3. Grade 2: pelvis elevated through full ROM 4. Grade (i.e. 0, 1, or 2) recorded correctly	1. Verbal (clear/ concise) 2. Demonstration (clear)	1. Patient comfortable	

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