

Movement Assessment Solutions Table

CHECKPOINT	VIEW	MOVEMENT IMPAIRMENT	POTENTIAL CONTRIBUTORS	SUGGESTED MOBILITY ASSESSMENTS*
Foot and Ankle	Anterior	Feet turn out	Overactive/shortened <ul style="list-style-type: none"> Biceps femoris (short head) Gastrocnemius (lateral) Soleus Underactive/lengthened <ul style="list-style-type: none"> Anterior tibialis Gastrocnemius (medial) Gluteus maximus Gluteus medius Hamstrings complex (medial) Posterior tibialis 	<ul style="list-style-type: none"> Active knee extension Ankle dorsiflexion Hip abduction and external rotation Modified Thomas test Seated hip internal and external rotation
	Lateral	Heel rise	Overactive/shortened <ul style="list-style-type: none"> Quadriceps complex Soleus Underactive/lengthened <ul style="list-style-type: none"> Anterior tibialis Gluteus maximus 	<ul style="list-style-type: none"> Active knee flexion Ankle dorsiflexion
	Posterior	Excessive pronation	Overactive/shortened <ul style="list-style-type: none"> Fibularis (peroneal) complex Gastrocnemius (lateral) TFL Underactive/lengthened <ul style="list-style-type: none"> Anterior tibialis Gastrocnemius (medial) Gluteus maximus Gluteus medius Intrinsic foot muscles Posterior tibialis 	<ul style="list-style-type: none"> Ankle dorsiflexion Modified Thomas test Seated hip internal and external rotation
Knee	Anterior	Valgus (inward)	Overactive/shortened <ul style="list-style-type: none"> Adductor complex Biceps femoris (short head) Gastrocnemius Soleus TFL Vastus lateralis Underactive/lengthened <ul style="list-style-type: none"> Anterior tibialis Gluteus maximus Gluteus medius Hamstrings complex (medial) Posterior tibialis Vastus medialis oblique (VMO) 	<ul style="list-style-type: none"> Active knee extension Ankle dorsiflexion Hip abduction and external rotation Modified Thomas test Seated hip internal and external rotation

Knee (continued)		Varus (outward)	Overactive/shortened <ul style="list-style-type: none"> Adductor magnus (posterior fibers) Anterior tibialis Biceps femoris (long head) Piriformis Posterior tibialis TFL Underactive/lengthened <ul style="list-style-type: none"> Adductor complex Gluteus maximus Hamstrings complex (medial) 	<ul style="list-style-type: none"> Active knee extension Lumbar flexion Modified Thomas test Passive hip internal rotation Seated hip internal and external rotation
	Lateral	Knee dominance	Overactive/shortened^ <ul style="list-style-type: none"> Adductor magnus Piriformis Quadriceps complex Soleus Underactive/lengthened <ul style="list-style-type: none"> Core stabilizers Gluteus maximus 	<ul style="list-style-type: none"> Active knee flexion Ankle dorsiflexion Hip abduction and external rotation Modified Thomas test Passive hip internal rotation
LPHC	Anterior or Posterior	Asymmetric weight shift	Overactive/shortened <ul style="list-style-type: none"> Same side as shift <ul style="list-style-type: none"> Adductor complex TFL Opposite side of shift <ul style="list-style-type: none"> Biceps femoris Gastrocnemius/soleus Piriformis Underactive/lengthened <ul style="list-style-type: none"> Core stabilizers Same side as shift <ul style="list-style-type: none"> Gluteus medius Opposite side of shift <ul style="list-style-type: none"> Adductor complex 	<ul style="list-style-type: none"> Active knee extension Ankle dorsiflexion Hip abduction and external rotation Modified Thomas test Seated hip internal and external rotation
		Excessive trunk movement during testing (Davies test)	Overactive/shortened: <ul style="list-style-type: none"> N/A Underactive/lengthened: <ul style="list-style-type: none"> Local core stabilizers 	N/A

LPHC (continued)	Lateral	Excessive anterior pelvic tilt (increased lumbar extension)	Overactive/shortened <ul style="list-style-type: none"> Adductor complex (anterior fibers) Latissimus dorsi Psoas Rectus femoris Spinal extensor complex (erector spinae, quadratus lumborum) TFL Underactive/lengthened <ul style="list-style-type: none"> External obliques Gluteus maximus Hamstrings complex Local core stabilizers Rectus abdominis 	<ul style="list-style-type: none"> Active knee flexion Hip abduction and external rotation Lumbar flexion and extension Modified Thomas test Shoulder flexion
		Excessive posterior pelvic tilt (increased lumbar flexion)	Overactive/shortened <ul style="list-style-type: none"> Adductor magnus External obliques Hamstrings complex Piriformis Rectus abdominis Underactive/lengthened <ul style="list-style-type: none"> Gluteus maximus Latissimus dorsi Local core stabilizers Psoas Rectus femoris Spinal extensor complex (erector spinae, quadratus lumborum) TFL 	<ul style="list-style-type: none"> Active knee extension Hip abduction and external rotation Lumbar flexion and extension Seated hip internal and external rotation
	Lateral	Excessive forward trunk lean	Overactive/shortened <ul style="list-style-type: none"> Adductor complex (anterior fibers) External obliques (if observed w/ lumbar flexion) Gastrocnemius Psoas Rectus abdominis (if observed w/ lumbar flexion) Rectus femoris Soleus TFL 	<ul style="list-style-type: none"> Active knee flexion Ankle dorsiflexion Modified Thomas test

LPHC (continued)	Lateral (continued)		Underactive/lengthened <ul style="list-style-type: none"> • Anterior tibialis • Gluteus maximus • Hamstrings complex • Local core stabilizers • Spinal extensor complex (erector spinae, quadratus lumborum) 	
	Anterior	Inward trunk rotation (single-leg and split squat)	Overactive/shortened <ul style="list-style-type: none"> • Adductor complex • TFL Underactive/lengthened <ul style="list-style-type: none"> • Gluteus maximus • Gluteus medius • Local core stabilizers 	<ul style="list-style-type: none"> • Hip abduction and external rotation • Modified Thomas test • Seated hip internal and external rotation
		Outward trunk rotation (single-leg and split squat)	Overactive/shortened <ul style="list-style-type: none"> • Adductor magnus (posterior fibers) • Hamstrings complex (lateral) • Piriformis Underactive/lengthened <ul style="list-style-type: none"> • Adductor complex (anterior fibers) • Gluteus maximus • Gluteus medius • Local core stabilizers 	<ul style="list-style-type: none"> • Hip abduction and external rotation • Modified Thomas test • Seated hip internal and external rotation
	Anterior or Posterior	Scapular elevation	Overactive/shortened <ul style="list-style-type: none"> • Levator scapulae • Pectoralis minor • Upper trapezius Underactive/lengthened <ul style="list-style-type: none"> • Lower trapezius • Serratus anterior 	<ul style="list-style-type: none"> • Cervical flexion and extension • Cervical lateral flexion • Cervical rotation • Seated thoracic rotation • Shoulder retraction • Thoracic extension
Shoulders and Thoracic Spine	Lateral	Scapular winging (Davies test and push assessment)	Overactive/shortened <ul style="list-style-type: none"> • Latissimus dorsi • Pectoralis minor • Upper trapezius Underactive/lengthened <ul style="list-style-type: none"> • Lower trapezius • Middle trapezius • Serratus anterior 	<ul style="list-style-type: none"> • Seated thoracic rotation • Shoulder flexion • Shoulder retraction • Thoracic extension

Shoulders and Thoracic Spine (continued)		Arms fall forward	<p>Overactive/shortened</p> <ul style="list-style-type: none"> • Latissimus dorsi • Pectoralis major • Pectoralis minor • Teres major <p>Underactive/lengthened</p> <ul style="list-style-type: none"> • Infraspinatus • Lower trapezius • Middle trapezius • Posterior deltoids • Rhomboids • Teres minor 	<ul style="list-style-type: none"> • Cervical flexion and extension • Cervical rotation • Cervical lateral flexion • Shoulder extension • Shoulder flexion • Shoulder internal and external rotation • Shoulder retraction • Seated thoracic rotation • Thoracic extension
Head and Cervical Spine	Lateral	Excessive cervical extension (forward head)	<p>Overactive/shortened</p> <ul style="list-style-type: none"> • Cervical extensors (suboccipital) • Levator scapulae • Sternocleidomastoid • Upper trapezius <p>Underactive/lengthened</p> <ul style="list-style-type: none"> • Deep cervical flexors • Lower trapezius • Middle trapezius • Rhomboids 	<ul style="list-style-type: none"> • Cervical flexion and extension • Cervical lateral flexion • Cervical rotation

***It is not necessary to perform all of the listed mobility assessments associated with each movement impairment. The mobility assessments provided are a starting point that is narrowed down based on the results of the OHSA, Modified OHSA, and other movement assessments. It is likely that only a few mobility assessments will be needed.**

^Movement competency, pain avoidance, or balance strategies should be ruled out prior to assuming over- and underactive muscles as contributing factors to knee dominance.