

# Anatomy & Kinesiology Summary of the Joint Freeing Series

JOINT	Action	Muscles Strengthened	ROM
Ankle	Dorsiflexion	Tibialis anterior	20°
Ankle	Plantar Flexion	Gastrocnemius, soleus, peroneus longus/brevis, tibialis posterior	50°
Ankle	Eversion	Peroneus longus, peroneus brevis	20°
Ankle	Inversion	Tibialis anterior and posterior	45°
Knee	Extension	Quadriceps (rectus femoris, vastus medialis/lateralis/intermedius), tensor fascia lata	0°/180°
Knee	Flexion	Hamstrings (semitendinosus, semimembranosus, biceps femoris), gastrocnemius, sartorius, gracilis	135-150°
Hip	External Rotation	Iliopsoas, sartorius, gluteus medius posterior fibers, gluteus maximus, 6 deep external rotators (piriformis, gemellus superior, obturator internus, gemellus inferior, quadratus femoris, obturator externus)	45°- 60°
Hip	Internal Rotation	Gluteus medius anterior fibers, tensor fascia lata, gluteus minimus	35°
Hip	Extension	Hamstrings, gluteus maximus	15°
Hip	Flexion	Iliopsoas, rectus femoris, seven secondary movers including sartorius, tensor fascia lata; 5 adductors – pectineus, adductor longus, adductor brevis, adductor magnus, gracilis	135°- bent knee; 90°- straight
Hip	Adduction	Hip adductors (pectineus, adductor longus, adductor brevis, adductor magnus, gracilis)	30°- 40°
Hip	Abduction	Gluteus medius/minimus, tensor fascia lata, iliopsoas, sartorius	45°
Spine	Extension	Erector spinae assisted by latissimus dorsi during shoulder extension	No Set Standard
Spine	Flexion	Rectus abdominis	NSS
Spine	Lateral Flexion to right	All muscles on right side: external abdominis oblique, internal abdominis oblique, quadratus lumborum, erector spinae, latissimus dorsi assists these muscles during active shoulder extension	Approx. 45°
Spine	Rotation to right	Right side: latissimus dorsi, internal abdominis oblique Left side: external abdominis oblique	NSS
Neck	Extension	Upper trapezius	55°
Neck	Flexion	Sternocleidomastoid	45°
Neck	Lateral Flexion to right	Right side: upper trapezius, sternocleidomastoid	45°
Neck	Rotation to right	Left side: sternocleidomastoid Right side: upper trapezius	70°
Scapula	Adduction	Middle trapezius; rhomboids (with elevation)	NSS
Scapula	Abduction	Serratus anterior	NSS
Scapula	Elevation	Upper trapezius, levator scapulae, rhomboids	NSS
Scapula	Depression	Lower trapezius	NSS
Shoulder	Abduction-Horizontal Extension	Posterior deltoid, infraspinatus, triceps brachii (long head)	40°
Shoulder	Adduction - Horizontal Flexion	Pectoralis major, anterior deltoid, biceps brachii, coracobrachialis	130°
Shoulder	External Rotation	Posterior deltoid, infraspinatus, teres minor	90°
Shoulder	Internal Rotation	Pectoralis major, anterior deltoid, latissimus dorsi, teres major, subscapularis	80°
Shoulder	Flexion	Anterior deltoid, biceps brachii, pectoralis major, coracobrachialis	180°
Shoulder	Extension	Latissimus dorsi, triceps brachii, posterior deltoid, teres major/minor	50°
Elbow	Extension	Triceps brachii	0°
Elbow	Flexion	Biceps brachii, brachioradialis	145°
Wrist	Flexion	Flexor carpi radialis, palmaris longus, flexor carpi ulnaris	90°
Wrist	Extension	Extensor carpi ulnaris, extensor carpi radialis brevis, extensor carpi radialis longus	80°
Wrist	Radial Deviation	Flexor and extensor carpi radialis	20°
Wrist	Ulnar Deviation	Flexor and extensor carpi ulnaris	30°