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| --- | --- | --- | --- | --- | --- | --- |
| **Joint** | **Sagittal Plane (ML axis)** | | **Frontal Plane (AP axis)** | | **Transverse Plane (long axis)** | |
| **Spine** | Lumbar Flexion   * ~~psoas major~~ * ~~rectus abdominis~~ * ~~external oblique~~ * ~~internal oblique~~ * ~~transversus abdominis~~ | Lumbar Extension   * ~~latissimus dorsi~~ * ~~erector spinae~~ * ~~transversospinalis~~ * ~~interspinales~~ * ~~quadratus lumborum~~ * ~~multifidus~~ | Lumbar Lateral Flexion (L)   * ~~erector spinae~~ * ~~rectus abd left side (weak)~~ * ~~left ext/int oblique~~ * ~~left quadratus lumborum~~ | Lumbar Lateral Flexion (R)   * ~~rectus abd right side (weak)~~ * ~~right ext/int oblique~~ | Ipsilateral Lumbar Rotation   * ~~internal oblique (R to R, L to L)~~ | Contralateral Lumbar Rotation   * ~~ext oblique (R to L, L to R)~~ * ~~quadratus lumborum~~ |
| **Ankle** | Dorsiflexion   * **~~tibialis anterior~~** * ~~peroneus tertius~~ * ~~ext hallucis longus~~ * ~~ext digitorium longus~~ | Plantar Flexion (ext)   * **~~gastrocnemius~~** * **~~soleus~~** * ~~flx hallucis longus~~ * ~~flx digitorum longus~~ * ~~peroneus longus~~ * ~~peroneus brevis~~ * ~~tibialis posterior~~ * ~~plantaris~~ | Inversion (Add)   * **~~tibialis anterior~~** * ~~tibialis posterior~~ * ~~soleus~~ * ~~gastrocnemius~~ * ~~extensor hallucis longus~~ * ~~flexor digitorum longus~~ * ~~flexor hallucis longus~~ | Eversion (Abd)   * **~~peroneus longus~~** * **~~peroneus brevis~~** * ~~peroneus tertius~~ * ~~extensor digitorum longus~~ |  |  |
| **Knee** | Flexion   * **~~biceps femoris~~** * **~~semitendinosus~~** * **~~semimembranosus~~** * ~~gastrocnemius~~ * ~~gracilis~~ * ~~sartorius~~ * ~~popliteus~~ * ~~tensor fascia latae~~ (past 15° flexion) | Extension   * **~~rectus femoris~~** * **~~vastus medialis~~** * **~~vastus intermedius~~** * **~~vastus lateralis~~** * ~~tensor fascia latae~~ (0-15° flexion) |  |  | Internal Rotation   * **~~gracilis~~** * **~~sartorius~~** * ~~semimem~~ * ~~semitend~~ * ~~popliteus~~ | External Rotation   * ~~biceps femoris~~ (as knee reaches full ext) |

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| **Joint** | **Sagittal Plane (ML axis)** | | **Frontal Plane (AP axis)** | | **Transverse Plane (long axis)** | |
| **Hip** | Flexion   * **~~rectus femoris~~** * **~~iliacus~~** * **~~psoas major~~** * ~~sartorius~~ * ~~tensor fascia latae~~ * ~~adductor longus~~ * ~~pectineus~~ * ~~gracilis~~ | Extension   * **~~semimembranosus~~** * **~~semitendinosus~~** * **~~biceps femoris~~** * **~~gluteus maximus~~** * ~~adductor magnus~~ | Adduction   * **~~adductor longus~~** * **~~adductor brevis~~** * **~~adductor magnus~~** * ~~gracilis~~ * ~~gluteus maximus~~ (inf) * ~~pectineus~~ | Abduction   * **~~tensor fasciae latae~~** * **~~gluteus medius~~** * **~~gluteus minimus~~** ~~sartorius~~ * ~~gluteus maximus~~ (sup) * ~~rectus femoris~~ (weak) | Internal Rotation   * **~~gracilis~~** * **~~gluteus medius~~ (ant)** * **~~gluteus minimus~~** * ~~adductor magnus~~ * ~~pectineus~~ * ~~semimembranosus~~ * ~~semitendinosus~~ * ~~tensor fascia latae~~ | External Rotation   * **~~piriformis~~** * **~~gemellus superior~~** * **~~gemellus inferior~~** * **~~obturator externus~~** * **~~obturator internus~~** * **~~quadratus femoris~~** * ~~sartorius~~ * ~~gluteus maximus~~ * ~~gluteus medius~~ (post) * ~~biceps femoris~~ * ~~adductor brevis~~ * ~~adductor magnus~~ |
| **Pelvis** | Anterior Tilt   * **~~iliacus/psoas major~~** * **~~rectus femoris~~** * ~~tensor fascia latae~~ * ~~gracilis~~ * ~~sartorius~~ * ~~gluteus minimus~~ * ~~adductor longus~~/~~brevis~~ * ~~adductor magnus~~ (ant) * ~~pectineus~~ * ~~erector spinae~~ | Posterior Tilt   * **~~semimembranosus~~** * **~~semitendinosus~~** * **~~biceps femoris~~** * **~~gluteus maximus~~** * ~~adductor magnus~~ (post) * ~~rectus abdominus~~ | Ipsilateral Tilt   * ~~tensor fascia latae~~ * ~~sartorius~~ * ~~gluteus maximus~~ (sup) * ~~gluteus medius~~ * ~~gluteus minimus~~ | Contralateral Tilt   * ~~gracilis~~ * ~~gluteus maximus~~ (inf) * adductors ? * ~~pectineus~~ | Ipsilateral Rotation   * ~~gracilis~~ * ~~gluteus minimus~~ * ~~gluteus medius~~ (ant) * ~~pectineus~~ | Contralateral Rotation   * ~~sartorius~~ * ~~gluteus maximus~~ * ~~gluteus medius~~ (post) |
| **Elbow** | Flexion   * **~~biceps brachii~~** * **~~brachialis~~** * **~~brachioradialis~~** * supinator * pronator teres | Extension   * triceps brachii (all heads) * anconeus |  |  | Supination (RU)   * ~~biceps brachii~~ * ~~brachioradialis~~ * supinator | Pronation (RU)   * **pronator teres** * **pronator quadratus** * ~~brachioradialis~~ |

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| **Shoulder (GH)** | Flexion   * **pectoralis major (clavicular fibers)** * **anterior deltoid** * coracobrachialis | Extension   * **latissimus dorsi** * **posterior deltoid** * **teres major** * **pectoralis major (sternal fibers)** * subscapularis | Adduction   * **pectoralis major (sternal fibers)** * **latissimus dorsi** * **teres major** * coracobrachialis * teres minor * subscapularis * infraspinatus (lower fibers) | Abduction   * **pectoralis major (clavicular fibers – > 90)** * **deltoid** * **supraspinatus** * infraspinatus (upper fibers) | Internal Rotation   * **pectoralis major** * **subscapularis** * **latissimus dorsi** * **teres major** * anterior deltoid   Horizontal Adduction   * pectoralis major * coracobrachialis * anterior deltoid | External Rotation   * **infraspinatus** * **teres minor** * posterior deltoid   Horizontal Abduction   * **deltoid (mid, post)** * **infraspinatus** * **teres minor** * latissimus dorsi |
| **Shoulder Girdle (Scapula)** | Protraction (abd)   * serratus anterior * pec minor | Retraction (add)   * **rhomboids** * **trapezius (mid, lower)** * levatator scapulae | Elevation   * rhomboids * trapezius * levatator scapulae * serratus ant | Depression   * trapezius (lower) * pec minor | Upward Rotation   * trapezius (mid, low) * serratus ant | Downward Rotation   * **rhomboids** * **pec minor** * levatator scapulae * trapezius (upper) |