|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **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) |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **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 * semitendinous * 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** * **semtendinosus** * **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 |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **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) |