Exercise #3 SPINAL EXTENSION FROM PRONE POSITION

Purpose: To strengthen the postural muscles of the spine

Common uses for emphasized muscles in daily activity: Keeping the spine in a tall and lengthened position

Muscular Emphasis: Transverse abdominis to compress abdomen and stabilize lumbo-pelvic region; erector spinae and hip extensors move from neutral to thoracic extension of the spine

Primary Muscle Mover(s): Spinal Extensors (erector spinae, multifidus and semispinalis)

Secondary Muscle Mover(s): Shoulder girdle stabilizers (to move scapulae into neutral from protracted position)

Muscle Stabilizers: Abdominals to prevent overextension of lumbar spine, scapular stabilizers throughout

Postural Landmarks:

- Engage abdominals throughout spinal extension to prevent overextension of lumbar spine
- Maintain scapulae in neutral position throughout, avoiding protraction or retraction
- Ensure extension occurs bilaterally at the same tempo
- Do not go into hyperextension (higher than the body's ability to stabilize with abdominal and scapulae stability)
- Do not hyperextend the cervical vertebrae

Anatomy:

Erector Spinae

Erector Spinae has attachments throughout the spinal column running the full length of the posterior ribs and spine. http://www.exrx.net/Muscles/ErectorSpinae.html

Semispinalis

Semispinalis lie underneath the erector spinae muscles. They exist on the posterior spine throughout the cervical and thoracic vertebrae. They originate on the outside (transverse processes) of the cervical and thoracic vertebrae and insert throughout the thoracic and cervical vertebrae as well as the occipital bone (skull) 3 to 6 levels above their origin.

Multifidus

Multifidi lie underneath the semispinalis. They run the length of the spine, from the cervical vertebrae to the sacrum. They basically originate on the outside (transverse processes) of all vertebrae and insert on the vertebral body 2 to 4 above their origin.