

Muscle Spindles

- Detects muscle length and how stretched a muscle is

↳ The Stretch Reflex

- Muscles stretch to accommodate a sudden/unexpected increase in load
- Spindles fire to create a feedback loop

Isci Tendon Organs

- Detects tension and stretch in tendons to prevent them separating from the bone.
- If too much tension is put on the tendon, the muscle will forcibly relax to prevent damage.

↳ Weightlifting

- Competitive weightlifter can inactivate the reflex to lift heavier but the risk of injury is high.

Withdrawal Reflex

- Involuntary and automatic
- Occurs only at the spinal cord level; response does not involve the brain which is why we generally only realise we have reacted shortly afterwards.

Damage to the Spinal Cord

- Damage can cause paralysis (voluntary action is lost) but reflexes may remain.

Area damage determines the extent of paralysis; Damage to cervical region - full body paralysis

Damage to thoracic region - paralysis below arms

Damage to lumbar region - lower body paraplegic

Damage to sacral region - lower body paraplegic

Primary Motor Cortex

Area of convergence for outputs from many other areas

- Stimulation of certain bits cause bodily movement

↳ Motor Homunculus

- Body areas are represented on primary motor cortex

The more sensitive the area of the body, the larger the area of primary motor cortex dedicated to it e.g. fingers and face are almost over-represented due to large size (indicates a highly sensitive area).