

# Chapter 13

## Integrative Physiology I: Control of Body Movement

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# HUMAN PHYSIOLOGY

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# About This Chapter

- Neural reflexes
- Autonomic reflexes
- Skeletal muscle reflexes
- The integrated control of body movement
- Control of movement in visceral muscles

## Classification of Neural Reflexes

Table  
13.1

### Neural Reflexes Can Be Classified by:

1. **Efferent division that controls the effector**
  - a. Somatic motor neurons control skeletal muscles.
  - b. Autonomic neurons control smooth and cardiac muscle, glands, and adipose tissue.
2. **Integrating region within the central nervous system**
  - a. Spinal reflexes do not require input from the brain.
  - b. Cranial reflexes are integrated within the brain.
3. **Time at which the reflex develops**
  - a. Innate (inborn) reflexes are genetically determined.
  - b. Learned (conditioned) reflexes are acquired through experience.
4. **The number of neurons in the reflex pathway**
  - a. Monosynaptic reflexes have only two neurons: one afferent (sensory) and one efferent. Only somatic motor reflexes can be monosynaptic.
  - b. Polysynaptic reflexes include one or more interneurons between the afferent and efferent neurons. All autonomic reflexes are polysynaptic because they have three neurons: one afferent and two efferent.