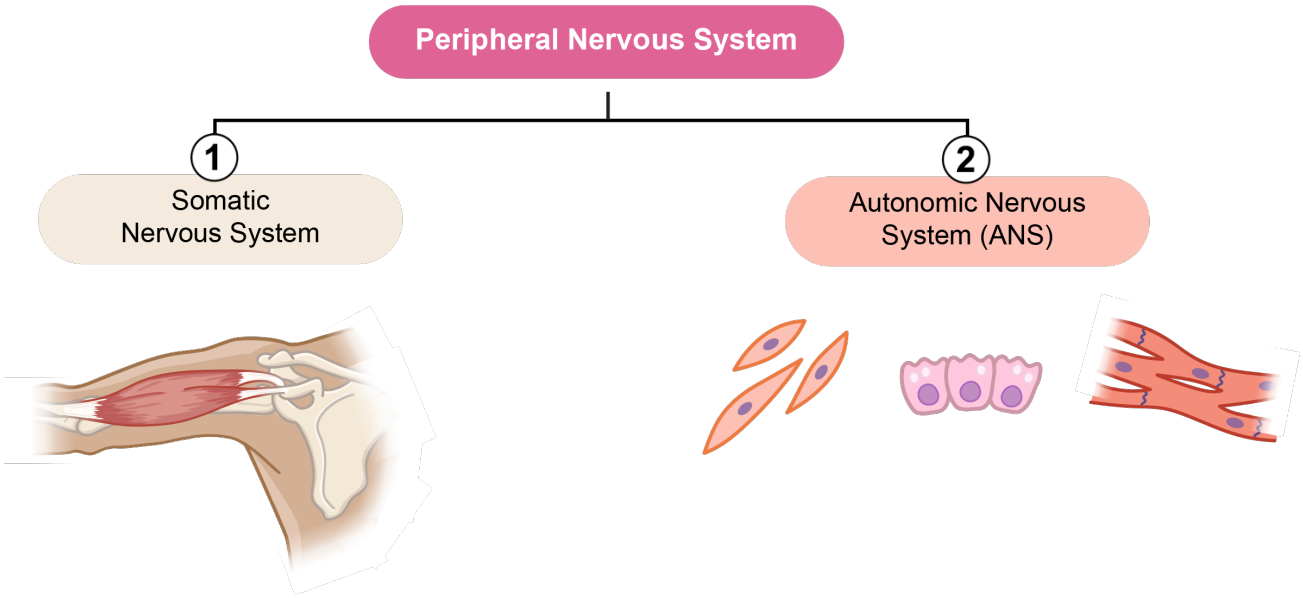
TOPIC: INTRODUCTION TO THE AUTONOMIC NERVOUS SYSTEM (ANS)

Somatic vs. Autonomic Nervous System

- The peripheral nervous system can be divided into ____ major subsystems:

1. **Somatic nervous system:** Innervates _____ muscle.
   - Controls _____ movement.
   - Efferent pathway consists of _____ neuron.
2. **Autonomic nervous system:** Innervates _____ muscle, cardiac muscle, and glands.
   - All autonomic pathways are _____.
   - Efferent pathway consists of _____ neurons.



EXAMPLE: Determine whether the following actions are coordinated by the somatic or autonomic nervous system.

a) Heart rate increasing. _____

b) Pupils dilating. _____

c) Knee jerk reflex. _____

d) Secreting insulin. _____

e) Sudden jump in response to a loud noise. _____

f) Throwing a ball. _____

PRACTICE: Which of the following is the primary functional difference between the somatic nervous system (SNS) and autonomic nervous system (ANS)?

a) The SNS controls glands, the ANS controls muscles.

b) The SNS controls involuntary muscle, the ANS controls voluntary muscle.

c) The SNS controls voluntary muscle, the ANS controls involuntary muscle.

d) The SNS sends signals from the CNS, the ANS sends signals from the PNS.

TOPIC: INTRODUCTION TO THE AUTONOMIC NERVOUS SYSTEM (ANS)

Divisions of the ANS

- The ANS can be organized into _____ divisions:

① Sympathetic Division	② Parasympathetic Division
Activated when we are _____, threatened, or stressed.	Activated when we are relaxed and at _____.
"Fight or Flight"	"Rest and _____"
Helps maintain homeostasis when we are engaged in _____ activity.	Maintains homeostasis when we are at rest.
	

- The sympathetic and parasympathetic divisions usually have _____ effects.
  - If one division stimulates an effector, the other division will usually _____ it.

EXAMPLE: Which of the following is true of the sympathetic and parasympathetic divisions of the ANS?

a) The sympathetic division is responsible for an increase in heart rate.

b) The parasympathetic division is responsible for an increase in heart rate.

c) Both divisions work together to increase heart rate.

d) Neither division is responsible for an increase in heart rate.

PRACTICE: Ruby has just eaten a large meal and is now laying down on the couch to relax. Her _____ nervous system becomes active, allowing her to digest her meal. She decides to watch a horror movie, which causes her _____ nervous system to take over as her heartbeat _____ and sweat glands become active.

a) Parasympathetic, sympathetic, decreases.

b) Parasympathetic, sympathetic, increases.

c) Sympathetic, parasympathetic, decreases.

d) Sympathetic, parasympathetic, increases.