



Accelerate Your Journey

EXPLORING THE AUTONOMIC NERVOUS SYSTEM

OBJECTIVE: TO UNDERSTAND HOW THE AUTONOMIC NERVOUS SYSTEM REGULATES HEART RATE UNDER DIFFERENT CONDITIONS.

Sub-topic(s): A.1.1.1—The autonomic nervous system is divided into the sympathetic and the parasympathetic nervous systems.

Materials Needed:

- Heart rate monitors
- Stopwatches
- Exercise equipment (e.g., jump ropes, steps)

PROCEDURE:

1. **Introduction:** Learn about the roles of the sympathetic and parasympathetic nervous systems in regulating heart rate.
2. **Experiment:**
 - Measure your resting heart rate using heart rate monitors.
 - Perform a physical activity (e.g., jumping jacks) for 2 minutes.
 - Measure your heart rate immediately after exercise and at 2-minute intervals during recovery for 10 minutes.
3. **Analysis:**
 - Plot your heart rate vs. time on a graph.
 - Discuss how your heart rate changes due to the activation of the sympathetic nervous system during exercise and the parasympathetic nervous system during recovery.

GUIDING QUESTIONS:

- What changes did you observe in your heart rate during and after exercise?
- How do the sympathetic and parasympathetic nervous systems work together to regulate heart rate?
- Why is it important for the body to quickly adjust heart rate during and after physical activity?

HL OPTION

Analyze the effects of different intensities of exercise on heart rate and recovery.

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