

Practical

Changes in Heart Rate and Blood Pressure During Activity

Introduction:

The cardiovascular and respiratory systems ensure that the body's tissues receive, among other things, a supply of oxygen that is necessary for energy metabolism. As we change position from lying down to standing, and/or change activity from sitting still to cycling the demand for energy increases, therefore, so does the demand for oxygen. This means the body has to adapt, these adaptations include changes in blood pressure and heart rate that enable an increase in oxygen usage (known as oxygen uptake or VO_2) and an increase in the removal of metabolic by-products including carbon dioxide (VCO_2).

Aim:

To examine changes in heart rate (HR) and blood pressure (BP) with changes in position and activity level.

Learning Outcomes:

1. Describe changes in the cardiovascular system at the onset of exercise.
2. Identify key mechanisms of control of the cardiovascular system during rest and exercise.
3. Perform basic data interpretation

Methods:

Working in groups, you will collect data on one member of your group:

1. Weigh Subject (minimal clothing) and record height
2. Set seat height and handle bar position on the cycle ergometer for subject
3. Attach heart rate monitor and check reading
4. Subject lies on mat for 10 min at the end of which record HR and BP
5. Subject stands for 10 min at the end of which record HR and BP
6. Subject cycleS at 60 W for 10 min at the end of which record HR and BP
7. Record results

Subject 1

Subject ID	Age (years)		
Body Mass (kg)	Height (cm)		
	HR (bpm)	Systolic	Blood Pressure Diastolic
Lying			
Standing			
Cycling			

Subject 2

Subject ID	Age (years)		
Body Mass (kg)	Height (cm)		
	HR (bpm)	Systolic	Blood Pressure Diastolic
Lying			
Standing			
Cycling			