

Anatomy and Physiology Lab:

How does exercise affect skin temperature?

Background questions:

1. Define “homeostasis” and explain the skin’s role in regulating a stable body temperature.
2. List four ways in which heat can be lost from a warm body. Through which of these means do humans lose most of their body heat?
3. How do the blood vessels in the dermis of the skin respond to increasing body temperature? What is the significance of that response?
4. How do the blood vessels in the dermis of the skin respond to decreasing body temperature? What is the significance of that response?

Materials:

- Skin temperature sensor
- Coban-type elastic tape
- Stopwatch

Procedure

1. Use the elastic tape to secure the temperature sensor probe to the skin on the palmar side of your forearm. The probe should be held in place firmly enough that you can move without disturbing it, but the tip of the probe should not be covered by the tape.
2. Sit in a relaxed position for five minutes, or until the temperature measured by the probe levels out. Record this as your starting temperature.
3. Begin exercising. What type of exercise you do is up to you, but it should be vigorous enough to make your rate and depth of breathing increase.
4. After one minute of exercise, record the temperature of your skin as measured by the probe. Continue to exercise for a total of 10 minutes, recording the skin temperature reading every minute.
5. After the ten (10) minute exercise period, return to your relaxed position. Continue to record the skin temperature measurements every minute for the next ten (10) minutes, or until the temperature levels off.

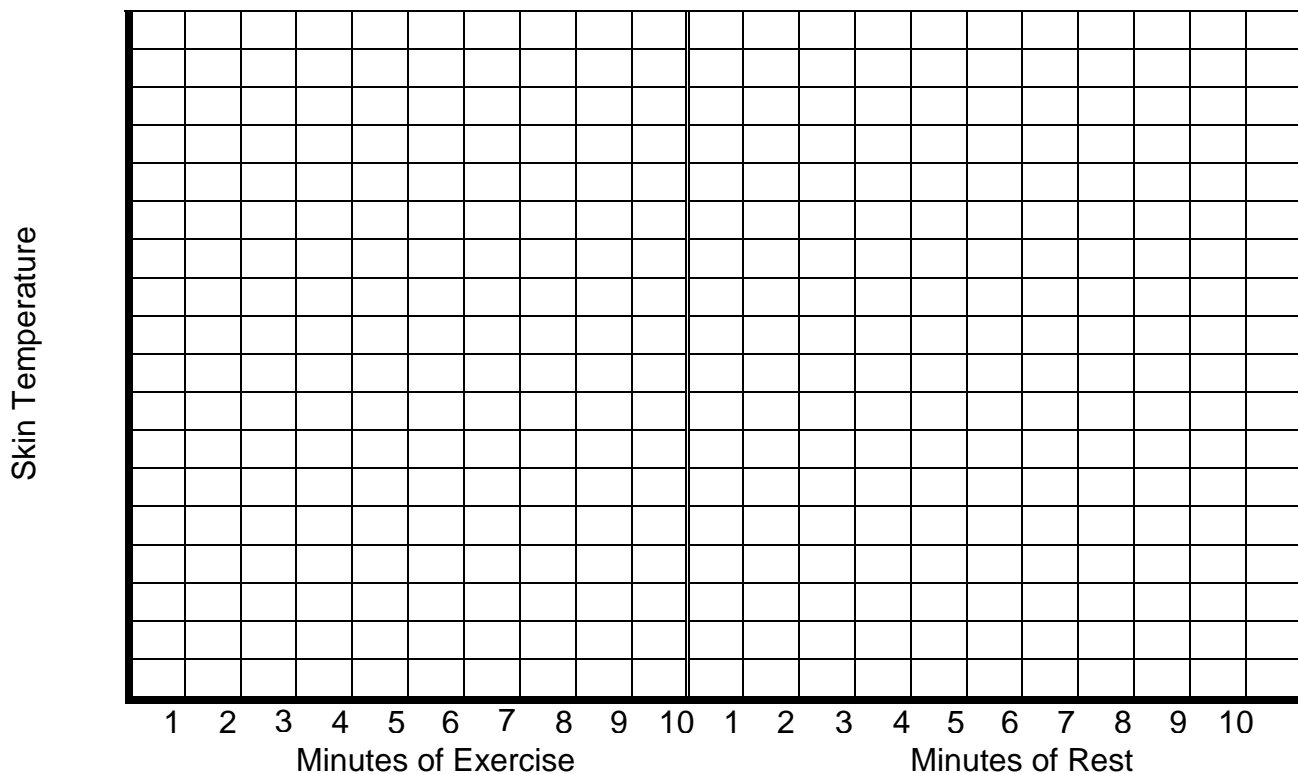
Data Table:

Copy the following data table into your lab notebook, and use it to record the data that you collect:

	Start	Exercise										Rest										
		1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10	
Temp																						

Graph:

Plot your data on a line graph to show the change in skin temperature that was measured through the exercise and rest periods:



Summary Questions:

1. What happened to the surface temperature of your skin during exercise? During rest?
2. Were these results what you expected?
3. Explain what was happening to your dermal blood vessels during the exercise and rest periods.