

Investigating the Effects of Exercise

Aim: To describe how the body changes during exercising.

Equipment:

- A partner to work with
- A blood pressure monitor
- A timer



Safety Information

Exercise – possible injury

Do not exercise more than you feel comfortable with. Any sickness or dizziness inform the teacher immediately.

Only exercise in a clear space.

Method:

Step 1: Decide who will be the 'coach' and who will be the 'exerciser'

Step 2: Exerciser – find your pulse, either on your neck or wrist, and count the number of 'beats' you can feel in 15 seconds. Multiply this by 4 to get the BPM. Record your resting pulse rate

Step 3: Measure the exerciser's blood pressure using an automatic monitor and record the results

Step 4: Whilst resting, observe the amount of redness and sweat on the exerciser's face, as well as their breathing pattern. Record these observations

Step 5: Exerciser – perform some moderate exercise e.g. 50 jumping jacks or jogging on the spot for 2 minutes

Step 6: Repeat steps 2 to 4 and record your measurements after exercise

Step 7: Swap roles and repeat for the other person



Questions:

1. Describe how your pulse rate changed after exercising.
2. Describe how your blood pressure changed after exercising.
3. Describe how your appearance (redness and sweating), and your breathing changed after exercising.
4. Explain why you think you saw the changes you observed.

| Factor | Observations whilst resting | Observations after exercising |
|----------------|-----------------------------|-------------------------------|
| Pulse rate | | |
| Blood pressure | | |
| Redness | | |
| Sweating | | |
| Breathing | | |

| Factor | Observations whilst resting | Observations after exercising |
|----------------|-----------------------------|-------------------------------|
| Pulse rate | | |
| Blood pressure | | |
| Redness | | |
| Sweating | | |
| Breathing | | |

Answers:

1. Describe how your pulse rate changed after exercising.

The pulse rate has increased.

2. Describe how your blood pressure changed after exercising.

The blood pressure has increased.

3. Describe how your appearance (redness and sweating), and your breathing changed after exercising.

The face will have become more red than before. There may be visible sweating. The breathing will have become deeper and more rapid.

4. Explain why you think you saw the changes you observed.

When the body is exercising there is a demand for more energy; and therefore more oxygen to release the energy.

The pulse rate increases as the heart works faster to pump more blood, carrying oxygen, to the cells.

The blood pressure increases as the heart is pumping faster and harder, so the blood is being moved at a higher pressure.

The blood vessels move towards the surface, and sweating begins in order to transfer excess heat energy from the body (by evaporation of sweat).

Breathing becomes deeper and more rapid in order to get more oxygen into the body, and to remove the increased production of carbon dioxide.