Aim

The aim of this investigation is to determine the effects of light exercise on the surface skin temperature of 15 to 18 year old students at Colonel Gray High School.

Introduction

The process of thermoregulation in the human body is an important part of maintaining a homeostatic environment. Metabolic processes that take place inside our cells require optimum temperatures that are usually within a very tight range. In order to keep these essential reactions occurring the human body must dissipate any excess heat it creates. This is accomplished by the dilation of blood vessels that lie close to the surface of the skin and the opening of specialized sweat glands that aid in the evaporation of water molecules that remove heat when they diffuse into their surrounding environment. As a person’s metabolism increases as a result of physical activity their body must respond to maintain homeostasis. Moderate physical activity for the purpose of this investigation will follow guidelines outlined in the Harvard School of Public Health’s website and be performed for a total of five minutes (2014).

Hypothesis

If a person participates in five minutes of moderate exercise this will result in an elevation in their body temperature.

Variables

<table>
<thead>
<tr>
<th>Control</th>
<th>Independent</th>
<th>Dependant</th>
</tr>
</thead>
<tbody>
<tr>
<td>- age</td>
<td>- length of exercise</td>
<td>- external body temperature</td>
</tr>
<tr>
<td>- type of physical activity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- location</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- intensity of activity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- type of clothing worn</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- area of temperature reading</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Materials

- 4 treadmills capable of manual speed manipulation
- 1 GLX sensor and associated temperature probe
- 1 high school physical education class
- alcohol wipes
- timer
Procedure

1. At the beginning of the class period ask for volunteers from the physical education classes
2. Bring them into the Wellness Center and explain the activity to them by reading the description contained in Appendix I.
3. Take their axillary body temperature by asking the participant to insert the temperature sensor tightly under one of their armpits.
   - Care should be taken to keep the sensor next to the participants skin
4. Wait until the temperature reading stabilizes and record the measurement.
5. Remove the sensor and instruct the participant to get on the treadmill
6. Push the start button and allow the participant 30 seconds to get comfortable on the machine.
7. Slowly increase the speed of the treadmill to 3.3 miles per hour.
8. Start the timer and allow participant to continue this pace of walk for 5 minutes.
9. After the 5 minute time period press the stop button on the treadmill.
10. Record the external skin temperature by repeating steps 3 and 4 once again.
11. Thank the participant for their participation and allow them to return to class.

Appendix I

Thank you for choosing to participate in our study. Your participation is totally voluntary and you are free to discontinue at any time. The aim of this investigation is to measure your body temperature before and after 5 minutes of moderate exercise. This requires the use of a temperature sensor and a treadmill. Please follow the directions of the research co-ordinators and make sure to inform them of any discomfort you may feel.

Work Cited

The Harvard School of Public Health Website (2014). Examples of Moderate and Vigorous Physical Activity. Retrieved from: