Name(s)	Project Number
Liam B.K. Mason	**J0413**

Project Title

To Wear or Not to Wear

Abstract

Objectives/Goals

The objective of this study was to measure and analyze how running unshod affects a runner's speed and strike style compared to running shod.

Methods/Materials

Volunteers ran 200 meters with and without shoes. A the 25, 50, 100, and 200 meters marks, the volunteers' time was recorded. At the 25 and 200 meter distance markers, each volunteer's strike style was recorded using a GoPro video camera.

Two sets of trials were performed. In the first, larger trial, all subjects ran shod first and then ran unshod. In the second, smaller trial, a coin-flip determined whether subjects ran shod or unshod first, thus randomizing the data.

In both sets of trials, subjects ran on the same recycled-rubber track surface.

Results

Analysis of the data showed that running unshod did not consistently change speed and strike style across all subjects. Whether a subject was faster unshod or slower unshod depended on the individual subject. In addition, most subjects' strike styles remained the same regardless of whether they were running shod or unshod.

Conclusions/Discussion

For any distance, no significant difference was found between average shod times and average unshod times, and running unshod did not change the majority of subjects' strike patterns. This is most likely because subjects in this test have been running with shoes most of their lives and have developed a habitual running style.

Analysis of the data from the second set of trials showed that, on average, males and subjects under 20 ran faster unshod, and that, on average, females and subjects 20 and over ran slower unshod.

Summary Statement

As measured by the time to complete a 200-meter race, there is no overall difference between running barefoot vs. with shoes.

Help Received

I received help from my parents and bother to record volunteers' running times. My science teacher and parent volunteers helped me refine my testing methods.