Mu Shoe Physics Lab

Question: What sports shoe offers the greatest amount of traction for both lateral and longitudinal movements as reflected by the coefficient of static friction values?

Purpose: To determine the coefficient of static friction for both lateral and longitudinal movement for 5 different shoes, compare the shoes, and use such values to evaluate the relative effectiveness of the shoes in terms of providing traction.

A complete lab write-up includes a Title, a Purpose, a Description of Study section, a Data Section, a Conclusion, and a Discussion of Results. The Description of Study section describes the methods used to collect data. The Data section includes a complete record of collected data organized in a data table as well as a table for class data. Sample calculations are shown and calculated µ values are given. Trials should be repeated to insure accuracy. The Conclusion should (as always) respond to the question raised in the lab. The Discussion of Results should provide a reflection of results (Were any surprising? Suspicious? Expected?); discuss any possible errors associated with the study, and suggest possible alternative approaches which would improve the study.

Scoring Rubric:

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|  | Included, labeled and organized all parts of the lab report. | \_\_\_\_\_/12 |
|  | Description of Study section describes the methods used to conduct the study. Includes diagrams for clarity. Discusses details regarding how the shoes were pulled and the direction of pull, and how the normal and friction forces were measured. |
|  | Data section includes a table of collected data; units are included. Trials were repeated for reliability; averaging was conducted. Work is shown for coefficients calculations. Class data is reported. |
|  | Conclusion ranks the shoes according to relative effectiveness for providing traction. |
|  | Discussion of Results provides reflection upon the results of the study. Errors are discussed and alternative approaches are suggested. |