Name(s)

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Project Title

Tell Tale Footprints: Determination of Stature from Foot Length in Forensic Cases

Abstract

Objectives/Goals

The objective of this project is to study the relationship between the human foot length and the individual's height. It examines if the size of a footprint at a crime scene can be used to assess the approximate height of the individual, and narrow the possible suspects considered as crime perpetrators.

Methods/Materials

A sample of 22 individuals (11 male, 11 female) was used to draw inferences about the general population. Measurements of foot length, height, and shoe size were evaluated. The "best-fit" line was drawn through the scatter plot (foot length versus height) to determine if a correlation between foot size and height was observed. Shoe impressions in the soil were made, and plaster of paris molds prepared.

Results

The predicted percent for the ratio between foot size and height was 15%. The actual range for the percent foot size/height was 13.9 to 16.7% (variation range of -1.1 to +1.7). The equation from the plot of foot length versus height ($y = 60.424 + 4.246*x$) found that the relationship was 15.2%. The equation from the plot of shoe size versus height ($y = 137.096 + 3.761*x$) found the relationship was 17.5%.

Conclusions/Discussion

The foot measurement yielded important predictive information about the individual's height. Valuable assistance in solving crimes is gained through comparing shoe impression casts with actual shoes. Identifying marks and wear patterns can be used to match the shoe with the print to the exclusion of all others. Bones, and impressions left by foot bones, are key in solving many crime cases.

Summary Statement

The observation of footprint impressions at a crime scene can be important evidence that links a suspect with a crime.

Help Received