Assessment of Fall Risk Associated with High-Heeled Footwear Utilizing Computerized Dynamic Posturography: A Two-Phase Study

McFeely, Alexis (School: St. John Paul II Catholic High School)

The purpose of this experiment was to determine the impact of high-heeled footwear on balance and fall risk as well as to conduct a survey to ascertain whether people believe high heels make women appear more attractive. In Phase I, the student tested balance equilibrium scores in 25 subjects utilizing the Sensory Organization Test on a Computerized Dynamic Posturography machine. Each participant underwent baseline control balance testing in flats; these objective scores were then compared with those in high heels. Differences in opinion concerning how much footwear (heels vs. flats) affects attractiveness were assessed through comparison of Phase II survey results from over 400 subjects. The student's Phase I hypothesis was correct in that the average balance score for all subjects significantly decreased, and the number of falls increased dramatically when subjects wore high heels. The student's Phase II hypothesis was partially correct, as both men and women consistently preferred the illustrations depicting women in heels rather than those wearing flats. Unexpectedly, a larger percentage of women (rather than men) preferred heels over flats. Older women appeared to be most receptive to potential educational efforts with provision of evidence-based recommendations. Targeted fall prevention in the elderly is critical; they are most prone to serious and costly fall-related injuries. This investigation also indicates that modification of an important risk factor (wearing flats instead of heels) could substantially reduce fall injuries and potentially save lives. However, data from this study suggests that convincing women to change their behavior could be difficult.

Awards Won:
American Psychological Association: Certificate of Honorable Mention