

The Science of Soldiering

Aaron Gilliam, Pete Jaros, Matt Park, Timothy Young, and Paul Evangelista

United States Military Academy, West Point, NY 10996, USA

Corresponding author's Email: timothy.young@usma.edu

Author Note: This work encompasses nearly two semesters worth of research, experimentation, and analysis conducted by cadets from the Department of Systems Engineering and the Department of Mathematical Sciences. Lieutenant Colonel (Promotable) Paul Evangelista, who serves as an Academy Professor within the Department of Systems Engineering, provides both advice and mentorship for the team.

Abstract: Soldier load is a classic tradeoff problem, and the present research seeks to build a framework to measure and understand this tradeoff. Through the development of constructed scales and newly developed direct measures, it is possible to gain improved understanding of the effect of load on Soldier performance. When considering the effect of Soldier load, it is critical to consider the Soldier as a system, with critical functions and requirements. The measurement of these functions, and the impact of Soldier load on the efficacy of these functions, is not well understood. A methodology to understand and measure Soldier functions is proposed. Results include the presentation of novel constructed scales of an existing obstacle course, insights from a weapon employment experiment that explored Soldier load impact, and an alternative measurement technique for load effects during movement. The application of this work extends into a variety of human performance domains.

Keywords: Human Performance, Soldier Load, Constructed Scales, Load Effects