



Biomechanical Research for the Soldier

Overview:

The joint Natick Soldier Center/U.S. Army Research Institute of Environmental Medicine (USARIEM) research program in biomechanics studies forces in and on the human body, and the effects produced by those forces. Biomechanics is very relevant to the soldier system; while working and training, soldiers are exposed to great physical forces on the musculoskeletal system. Also, clothing and individual equipment protects and sustains soldiers, but adds weight and places physical forces on the body. Forces acting on the body may lead to inefficient work performance or worse — injury.

Description:

The Natick Soldier Center and USARIEM joint program in biomechanics studies ways to avoid injury and enhance soldier performance through clothing and individual equipment developments, specification of physical requirements of jobs, and physical training program configurations.

The physical facility for biomechanics research is unique in DoD. It consists of a 7,500 square foot dedicated laboratory outfitted with state-of-the-art equipment for three-dimensional analysis of human movement, measurement of external forces on the body, monitoring of muscle activity, and real-time mapping of pressure patterns associated with wear of clothing and equipment.

Status:

Recent accomplishments of the joint Natick Soldier Center/USARIEM program in biomechanics include qualification of waist belt and frame type effects to improve load carriage capabilities, combat footwear assessment for injury reductions, and Land Warrior load carriage design improvements.

Point of Contact:

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