

WG 2 (Preventive Medicine and Healthcare Policies)

A Data-Driven Approach for Medical Risk Management: Exemptions of Soldiers with Medical Limitations for Combat Roles

Shai Shahar, Yaakov Eyal, Yoav J. Gutterman, Dean D. Lichter.

Medical Corps Israel, Defense Forces Israel.

Background:

During candidate screening for military service, the Israel Defense Forces (IDF) assigns a medical profile—encompassing physical and mental health—to determine role eligibility. Candidates may be eligible for positions requiring a higher threshold based on their motivation and the medical committee chairman's discretion, following established protocols.

Rationale:

Soldiers assigned to roles exceeding their medical profiles face an increased risk of injury, dropout, or early discharge. However, their strong motivation may also enable them to outperform peers in roles assigned according to their profiles. Comparing service outcomes between soldiers accepted into roles despite sub-threshold medical profiles and those assigned roles within their designated profiles.

Methods:

We will perform a retrospective cohort study using electronic health records and human resources databases. We will include recruits assigned to elite unit combatants, infantry combatants, armor combatants, air defense combatants, and combat fitness instructor roles. We will compare service-related outcomes between soldiers with sub-threshold medical profiles and those meeting standard medical requirements. Assessed outcomes will include training completion, role retention, timely service completion, service extension, and officer training.

Statement of importance:

Although approving soldiers for positions beyond their designated medical profiles is standard practice, its effectiveness has never been rigorously evaluated. This unexamined approach raises concerns about operational efficiency and soldier well-being, highlighting the need to reassess and validate current policies.

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Risk of Overuse Injuries Among Soldiers with Flat Feet and Scoliosis

Dean David Lichter, Yoav J. Gutterman, Yaakov Eyal, Shai Shahar, Yigal Chechik.

Department of Military Medicine and "Tzameret", Faculty of Medicine, Hebrew University of Jerusalem, and Medical Corps Israel, Defense Forces Israel.

Background:

Musculoskeletal overuse injuries are a common cause of disability in military personnel, often resulting in reduced operational readiness and increased healthcare burden. Structural orthopedic abnormalities such as flat feet (pes planus) and scoliosis may predispose soldiers to overuse injuries, especially under physically demanding conditions.

Rationale:

The Israel Defense Forces (IDF) permit individuals with mild to moderate scoliosis or pes planus to serve in combat roles. Still, the extent to which these conditions contribute to injury and lost duty time remains unclear. Assessing these relationships could optimize assignment policies and preventive care strategies. Comparing the incidence of overuse injuries and duty days loss, between soldiers with mild to moderate flat feet or scoliosis and their peers without these conditions.

Methods:

This retrospective cohort study will analyze the medical records of soldiers on active duty between 2014 and 2023. We will compare soldiers diagnosed with mild to moderate flat feet or scoliosis and a control group of matched soldiers without these conditions in similar military roles. Participants will be categorized based on their military roles. The outcomes will be the incidence of overuse injuries, including stress fractures and duty days lost. Outcomes will be assessed using regression models adjusted for demographic variables and medical history.

Preliminary Findings:

Pes planus and scoliosis prevalence among combat soldiers between 2014-2023 was 14% and 3.1%, respectively. The proportion of soldiers experiencing stress fractures among those with pes planus or scoliosis was 1,806 out of 24,464 (7.4%) and 356 out of 4849 (6.8%), compared to 10,932 out of 142,958 (7.6%) in those without pes planus and 12385 out of 162230 (7.6%) in those without scoliosis.

Statement of Importance:

Understanding the relationship between structural orthopedic abnormalities and the rate of overuse injury in military personnel will optimize assignment policies and targeted interventions, ultimately enhancing force readiness and reducing preventable morbidity.