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## Characterizing the loads of NATO soldiers

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## Featured Science Session 23 – Reducing the burden on the dismounted soldier

### Session Overview

#### Featured Science Session 23 – Reducing the burden on the dismounted soldier



Nicola C. Armstrong

Throughout history, the dismounted soldier has been required to carry heavy loads. Soldiers often need to march long distances carrying loads over demanding terrain and in extreme environmental conditions. On arrival at the designated location, whilst soldiers can remove their packs and much of their sustainment load, they must still be fit to fight whilst wearing assault or fighting loads. Loads currently carried by NATO soldiers are at record highs and anecdotal evidence suggests that, on occasion and for some roles, current combat loads may be approaching the soldier's own body mass. NATO Human Factors and Medicine (HFM) Research Task Group (RTG) 238 "Reducing the Burden on the Dismounted Soldier" was established to develop an international consensus on the best approach to address the systemic problem of soldier burden. The specific objectives of this RTG were to:

1. Define the burden
2. Identify factors known to influence the size and nature of the burden
3. Identify strategies to mitigate the threats from burden in order to maintain operational effectiveness
4. Identify an exploitable strategy for burden reduction

HFM RTG 238 concludes in 2017 and this thematic session will communicate outcomes, findings and recommendations for strategies to mitigate soldier burden.

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#### Characterizing the loads of NATO soldiers



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**Purpose:** The aim was to define the loads carried by soldiers of participating nations in order to determine the severity of the problem and determine if differences between loads carried by each nation might help to identify mitigating strategies.

**Methods:** Two methods were used to characterize loads. Several nations (CA, GE, FR, NL, UK) took the following approach. With guidance from NATO Land Capability Group Dismounted Soldier Systems, three operational scenarios were developed, representing a range of tasks, threats and environmental conditions, in order to provide suitable context for determining load items. Groups of experienced soldiers (typically at the Group/Section Commander or Squad Leader level), were then asked to identify what clothing and equipment items, and how many of each, they would wear or carry for each scenario. Each group was asked to arrive at a consensus on a load list for a given scenario. The mass of individual items was then used to determine the load mass for the group/section/squad, average soldier, and by dismounted group/section/squad role. A descriptive analysis was used to characterize loads and differences between scenarios, nations and roles. The remaining nations (AS, NZ, SE, US) provided a generic scenario or doctrinal load lists as part of this effort.

**Results:** Average soldier loads ranged from 49 kg (CA, Scenario 1) to 67 kg (UK, Scenarios 2 and 3). Generic loads ranged from 41.0 kg (NZ) to 70.2 kg (AS). Using either methodology, the greatest variability between nations was related to the amount/mass of protection, weapon system and subsistence, with variance also in specialty gear carried by different nations.

**Conclusion:** Soldier overload is more severe than originally thought. For every nation, soldier loads go well beyond long-standing recommended fighting or marching load limits and highlights a disconnect between doctrine and decisions made by commanders or soldiers on the ground.

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