

CARRY ON SOLDIER: A HISTORICAL AND CONTEMPORARY LOOK AT SOLDIER LOAD CARRIAGE INJURIES, CONDITIONING, RECONDITIONING AND RISK MANAGEMENT

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ABSTRACT

The requirement to carry loads has challenged military units and soldiers as far back in time as the Assyrian spearmen of antiquity (circa 800 B.C.), who experimented with their shield weights in order to reduce their combat load. The impacts of these carried loads on the soldier have reduced army size and impacted on warfare tactics. As such, it is not surprising that soldiers have gone to great efforts to reduce the load weight that they must carry - from the Roman Legionnaires employing mules and slaves to carry their loads, to Confederation soldiers in the American Civil War throwing away equipment; an action mimicked by Australian soldiers in Vietnam. However, recent research suggests that, even acknowledging the impacts of load weight and dedicating resources to minimising these loads, load weights carried by soldiers are increasing. For the Australian soldier during the Great War, the external carried loads were estimated to weigh between 27 and 33.5 kg. In the Second World War these loads ranged from 20 to 41 kg and in the Vietnam War, loads increased again from between 30 to 40 kg for rifleman, up to 56 kg for radio operators. In more recent conflicts in East Timor, Iraq, and Afghanistan, loads were reported to have averaged around 50 kg to 56.7 kg (the latter being mean marching order loads) for all soldiers, regardless of platoon role. On this basis, load weights continue to present as a challenge for the Australian Army soldier and 3 millennia of history suggests that this will not change in the near future.

While worn to protect and sustain these personnel, these loads are known to cause a variety of injuries to the neurological and musculoskeletal systems of the carrier, from brachial plexus palsy and meralgias to sprains, strains, and fractures. In fact, the first report of stress fractures in the literature circa 1855 was by Dr Breithaupt, who noted the condition in Prussian Army soldiers returning from long marches. In addition, these loads are known to impede task performance and have ultimately led to task and mission failure. To mitigate these potential risks of injury and performance decrement optimised load carriage conditioning and training is vital to the physical capability and task performance of soldiers and wider military personnel (e.g., ship boarding parties, Airfield Defence Guards, etc.).

Encapsulating the latest research and through a narrative review this session will explore research regarding both the impacts of load weight and more importantly contextual factors (like speed of movement and terrain traversed) on load carriage capability. Typical injuries associated with load carriage will be discussed as will potential negative task impacts (like decreased mobility and attention-to-task). The latest evidence on optimal load carriage conditioning and reconditioning requirements will be presented in a simple, easy to apply, practical approach using the well-known Frequency, Intensity, Time, and Type of Training formula. Furthermore, a proposed soldier load management framework, following the Army Risk Management Framework, will be provided. The

framework, underpinned by a clear understanding of the impacts of contextual factors (like speed of march, terrain grade and type, training and injury history, etc.,) will allow commanders at all levels to manipulate the load carriage context to meet mission requirements while also managing risks. Through this approach, the essential load weight required for a mission, even when extreme, can be carried at a level of risk that is as low as reasonably possible, allowing the soldier to carry on.