Load carriage: Impacts and conditioning

Orr, Rob Marc

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BLUF:

• A well-structured and periodised load carriage conditioning program can reduce the negative impacts of carrying load and optimise operational performance.

Introduction:

• Tactical operators are required to carry load as part of their occupation.

• Carrying these loads can place the operators at risk through reducing occupational task performance and causing injury.
Risks Associated with Load Carriage

When you get shot at, you move as fast as you can…but it wasn’t very fast. You are just tired. So tired.

Justin Kalentis, US Army, wounded in Afghanistan, discussing the loads they were carrying quoted in The Seattle Times (14 Feb 11)

- Injuries: Associated with a variety of injuries (from skin blistering to muscle, ligament, tendon, bone and nervous system injuries)
RISKS ASSOCIATED WITH LOAD CARRIAGE

- Decrements in performance:
  - ↓ Mobility

- Decrements in performance:
  - ↓ Lethality (Marksmanship / Grenade throw ability)
Risks Associated with Load Carriage

- Decrements in performance:
  - ↓ Mobility + ↓ Lethality

Risks Associated with Load Carriage

- Decrements in performance:
  - ↓ Attention to task
Load Carriage Conditioning

- Concept is not new and can be traced back to the Roman Legionnaires

Load Carriage Conditioning

- Initial literature search identified 8,053 papers.
- Further 36 papers gathered from colleagues.
- 8089 papers reduced to 214 papers following implementation of exclusion criteria
- Secondary literature search reduced papers to seven original research papers, one conference paper and four secondary source papers (military reports, journal articles).

F.I.T.T Formula (Frequency, Intensity, Time & Type)

- F. 10-14 days per load carriage session
- I. To loads required (Last decade 40-50kg) at the speeds and over the terrains required
- T. Duration of load carriage operations
- T. Load carriage preferable, but combined resistance and cardio may be of some benefit
Load Carriage Conditioning

Knapik et al., (2012)
- Method: Review of several literature databases
- Results: 11 Publications from 10 original studies
- Discussion:
  - Substantial trg effect with Progressive RT combined with Aerobic trg (3x4/52)
  - Effects greater when LC added specifically
  - Field based training (inc LC) also very effective
  - RT or Aerobic trg alone had varying effects

Take Home:

To improve load carriage performance and reduce the risks associated with load carriage (including injury and reduced tactical performance) a well designed and progressive LC program is needed.

This program would include specific LC events, preferably every 7-14 days.
References:


References:


