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Injuries common to tactical personnel (A multidisciplinary review)

Rob Orr
Bond University, rorr@bond.edu.au

Michael Stierli
New South Wales Police

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Injuries common to tactical personnel (A multi-disciplinary Review)
Dr Rob Orr and SGT Mick Stierli
Tactical personnel are exposed to a variety of occupational and workplace specific hazards that can cause injuries.

The lower limbs and lower back are prone to injuries in both Military and Police populations although some variation in mechanism and upper limb prevalence between populations must be noted.
Injuries in the ADF

Source: Department Media
Sites of Injury – ADF

## Sites of Injury – ADF

<table>
<thead>
<tr>
<th>Location Group</th>
<th>Casualties</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower limbs</td>
<td>1586</td>
<td>31.5</td>
</tr>
<tr>
<td>Upper limbs</td>
<td>1095</td>
<td>21.7</td>
</tr>
<tr>
<td>Trunk (includes back)</td>
<td>745</td>
<td>14.8</td>
</tr>
<tr>
<td>Head</td>
<td>574</td>
<td>11.4</td>
</tr>
<tr>
<td>Unspecified locations</td>
<td>414</td>
<td>8.2</td>
</tr>
<tr>
<td>Systemic locations</td>
<td>249</td>
<td>4.9</td>
</tr>
<tr>
<td>Multiple locations</td>
<td>237</td>
<td>4.7</td>
</tr>
<tr>
<td>Neck</td>
<td>115</td>
<td>2.3</td>
</tr>
<tr>
<td>Psychological system</td>
<td>23</td>
<td>0.5</td>
</tr>
</tbody>
</table>

Mechanism of Injury – ADF

Source: Department of Defence, 2000, ADF Health Status Report, Defence Publishing Service, ACT
Nature of Injury – ADF

Activity when Injured – ADF

% of Casualties for Which Activity was Reported

Activity when Injured – ADF

- Other
- PT / Sport

Physical training is linked to the highest number of working days lost, hospital admissions, sick and light duties days. Sporting injuries are another significant factor.

Senate Committee Hansard 17 Aug 2004
Activity when Injured – ADF

Recruits typically report 3-5 times the rates of injury reported by trained ADF personnel

- lower skill and experience levels, low levels of personal control, high training tempos and constant group training and fixed workloads contribute strongly to this situation, which is common across industries for new recruits

This is similar to military trainees of other nation
Different Corps

- Different Corps have different exposures to military task requirements (eg Load Weight carried – Orr, 2012)
Different Corps

- Review of musculoskeletal injuries sustained by Air Defence Artillery
  - Back injuries significantly more than other injuries
  - Followed by patella and knee ligament, neck and ankle
Comparison of Reported Load Carriage Injuries Captured By Survey (1999-2010) and By OSCHAR (2009-2010)

Different Tasks – Load Carriage

Body Site

Survey Data
OSCHAR Data

% Of Injuries

0 10 20 30 40 50 60 70

Head
Upper Limb
Back
Upper Torso
Trunk (Abdominal)
Pelvis
Lower Limb
Different Tasks – Load Carriage
Different Tasks – Load Carriage

- 39% Bones & Joints
- 36% Tendons & Muscles
- 15% Ligaments
- 4% Skin
Different Tasks – Load Carriage

14% 28% 38%
## Different Tasks – Load Carriage

<table>
<thead>
<tr>
<th>Mechanism of Load Carriage Injuries</th>
<th>Number of reported injuries (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Muscular stress</td>
<td>251</td>
</tr>
<tr>
<td>Fall</td>
<td>85</td>
</tr>
<tr>
<td>Exposure to environmental heat</td>
<td>28</td>
</tr>
<tr>
<td>Rubbing and chafing</td>
<td>21</td>
</tr>
<tr>
<td>Stepping, kneeling or sitting on objects</td>
<td>9</td>
</tr>
<tr>
<td>Unspecified mechanisms of injury</td>
<td>3</td>
</tr>
<tr>
<td>Contact with moving or stationary object</td>
<td>4</td>
</tr>
<tr>
<td>Other and multiple mechanisms of injury</td>
<td>2</td>
</tr>
<tr>
<td>Being trapped between stationary and moving object</td>
<td>1</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>404</strong></td>
</tr>
</tbody>
</table>
Defence Injury Wrap

• The lower limbs and back are common injury sites
• Nature of injuries are wide and varied from blisters to nerve injuries
• Conditioning and Reconditioning practices need to consider:
  – The sites more prone to injury
  – The corps and tasks required of the individual
Injuries in the Police Force
Injuries to Police Officers

- Police undertake a complex and varied job.
- Job details can change minute to minute, hour to hour and day to day.
- Play doesn’t stop!
What’s the Problem?

• Common injury sites in law enforcement
Acute injuries can have a significant impact on your partner, the tactical team or the operation.
Use of Force Concepts

Control Theory
The ultimate goal is control of the situation.
You need advantage for control.
Evaluate the propensity for control –vs- injury (reasonable force).
Ability to disengage, de-escalate the situation or respond to escalation is imperative

Officer/Subject Factors
- Age
- Gender
- Size
- Fitness
- Skill Level
- Multiple Officers/Subjects

Special Circumstances
- Proximity to a Weapon
- Special Knowledge
- Injury or Exhaustion
- Ground Position
- Disability
- Imminent Danger
- Drugs/Alcohol
- Mental State
Injuries to Police officers (Jul 09-Jun 12)
Musculoskeletal Screening
Dysfunction

- Mobility
- Static Motor Control
- Dynamic Motor Control
Police officer weak points
Police Injury Wrap

• The lower limbs, back and Upper limbs are all common injury sites
• There is a link between the sites of movement dysfunction in police officers and sites typically injured.
• Conditioning and Reconditioning practices need to consider:
  – The sites more prone to injury
  – The role and tasks required of the individual
Questions?
References:

- Department of Defence, 2000, ADF Health Status Report, Defence Publishing Service, ACT