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Injuries common to tactical personnel (A multi-disciplinary Review)
Dr Rob Orr and SGT Mick Stierli





TACTICAL STRENGTH & CONDITIONING AUSTRALIA

BLUF

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

EVIDENCE BASED . TACTICALLY TESTED . OPERATIONALLY PROVEN



TACTICAL STRENGTH & CONDITIONING AUSTRALIA

Injuries in the ADF



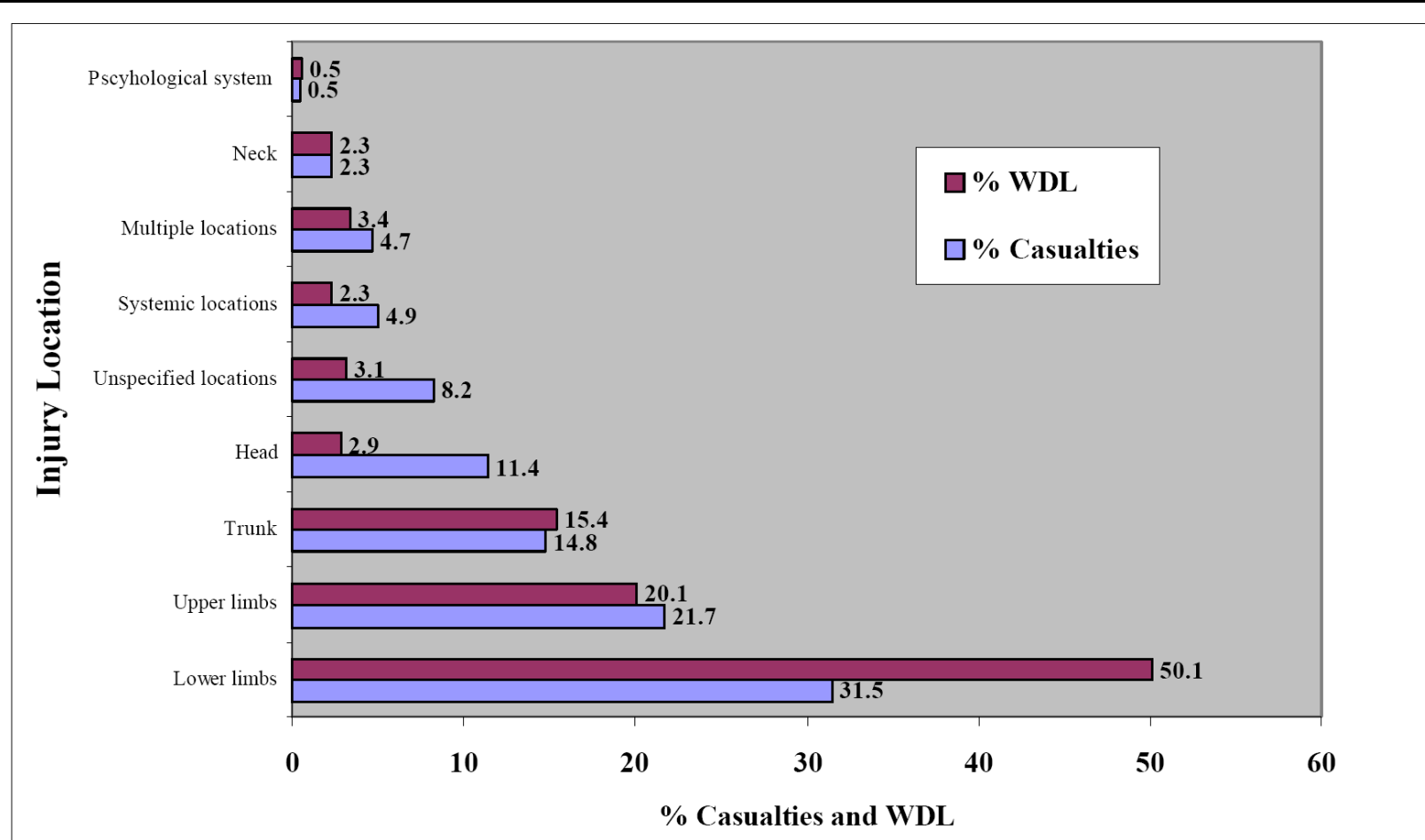
Source: Department Media

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TACTICAL STRENGTH & CONDITIONING AUSTRALIA

Sites of Injury – ADF



Source: Department of Defence, 2000, *ADF Health Status Report*, Defence Publishing Service, ACT

EVIDENCE BASED . TACTICALLY TESTED . OPERATIONALLY PROVEN



TACTICAL STRENGTH & CONDITIONING AUSTRALIA

Sites of Injury – ADF

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

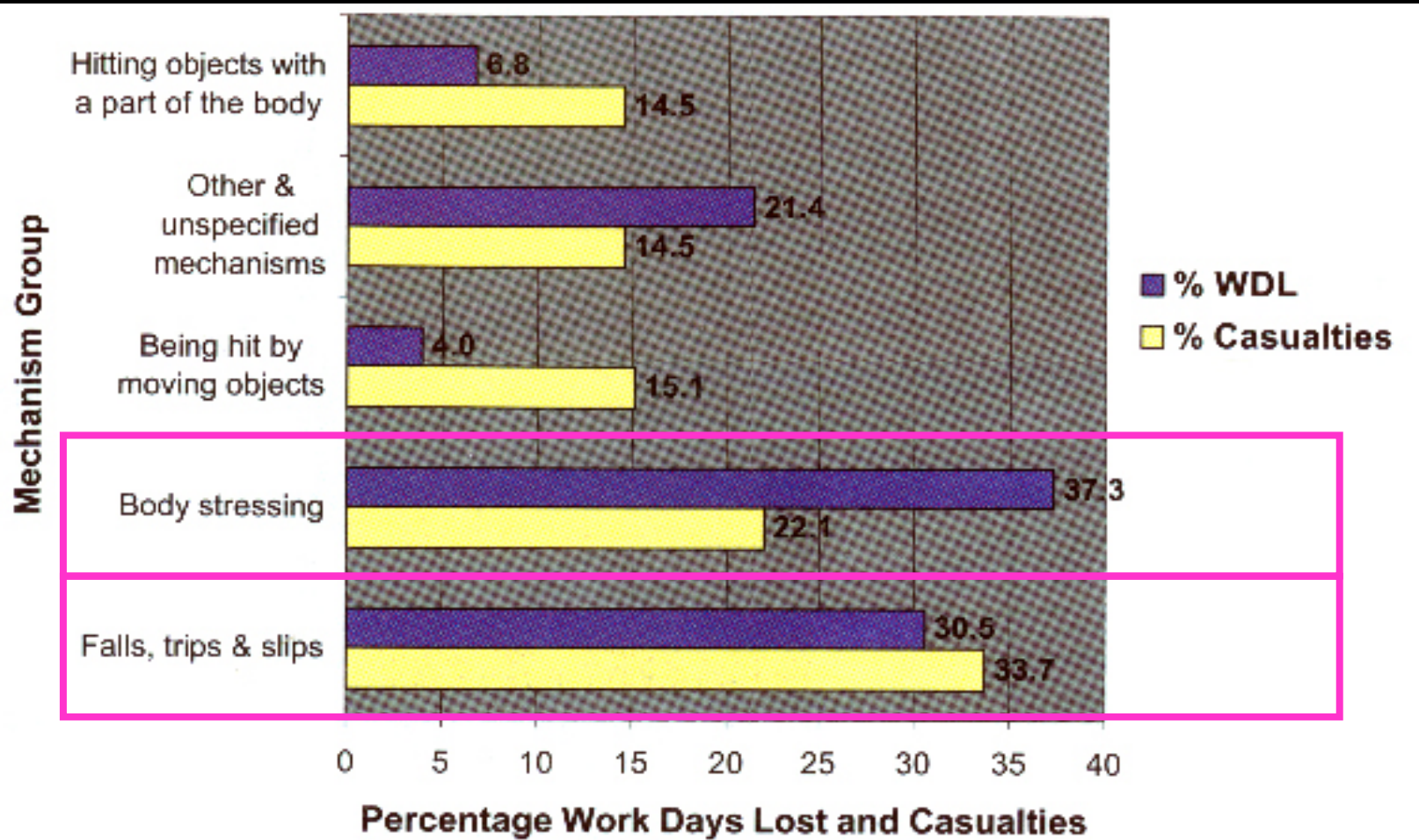
Source: Department of Defence, 2000, *ADF Health Status Report*, Defence Publishing Service, ACT

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TACTICAL STRENGTH & CONDITIONING AUSTRALIA

Mechanism of Injury – ADF



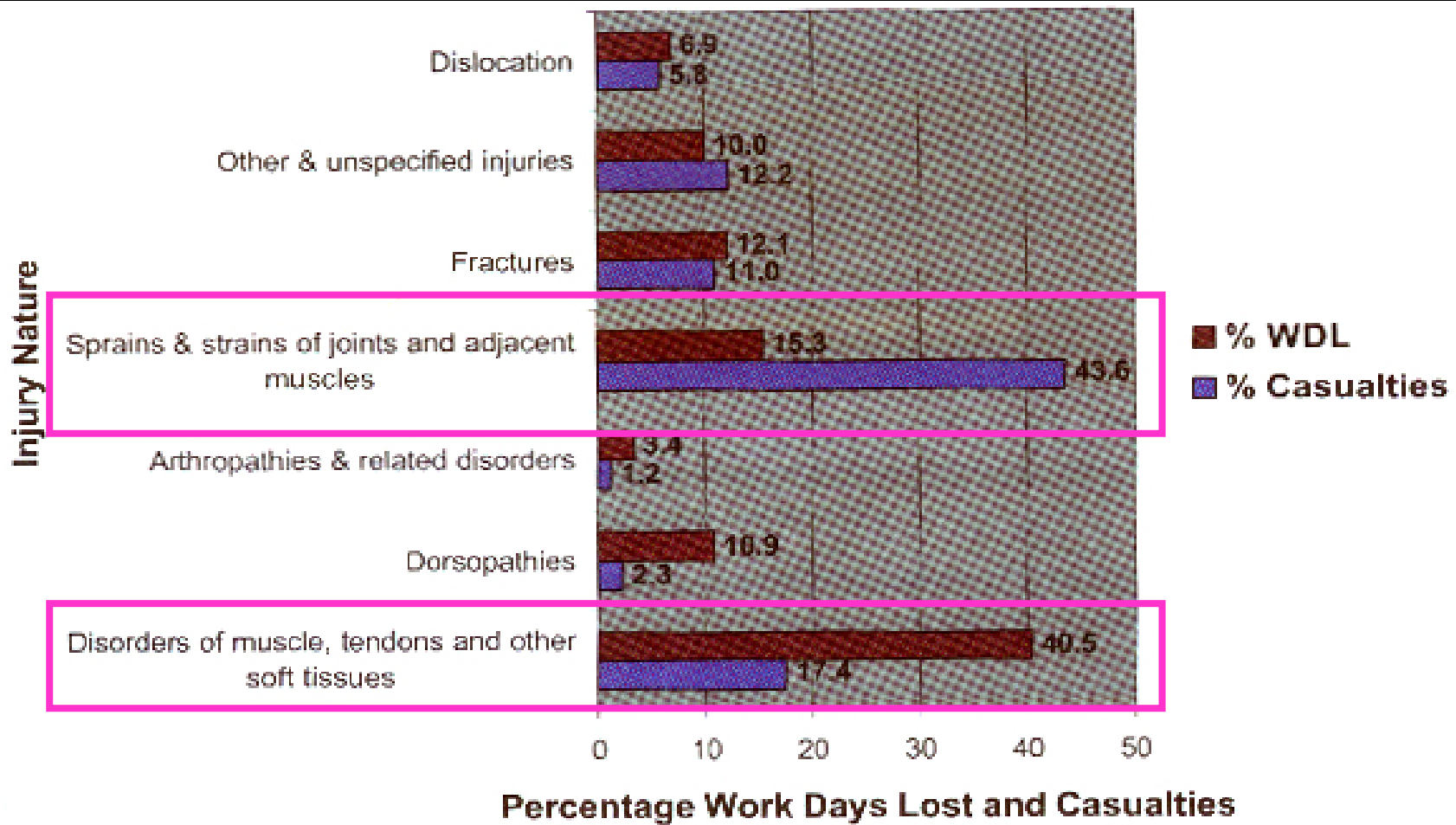
Source: Department of Defence, 2000, *ADF Health Status Report*, Defence Publishing Service, ACT

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Nature of Injury – ADF



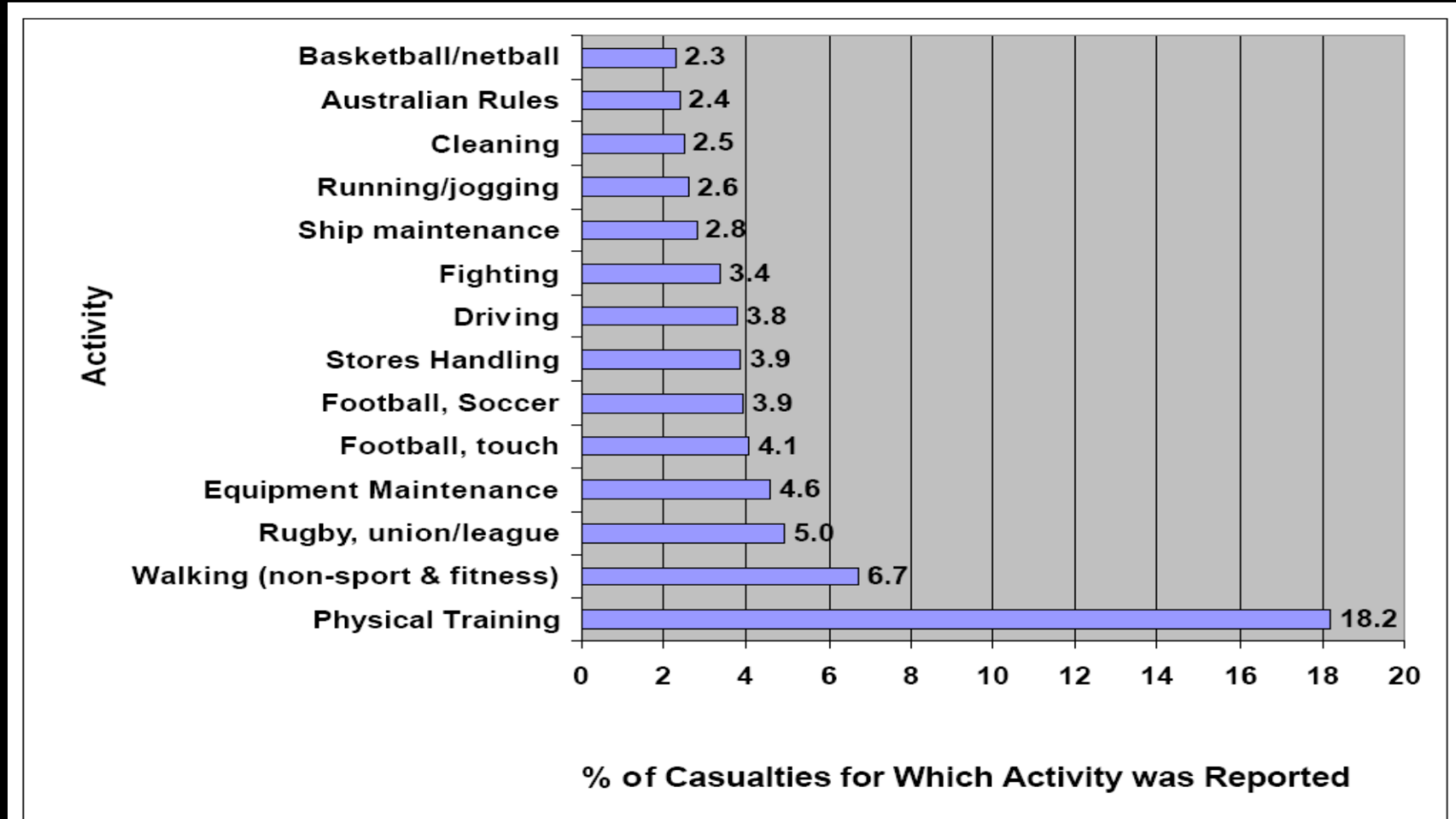
Source: Department of Defence, 2000, *ADF Health Status Report*, Defence Publishing Service, ACT

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Activity when Injured – ADF



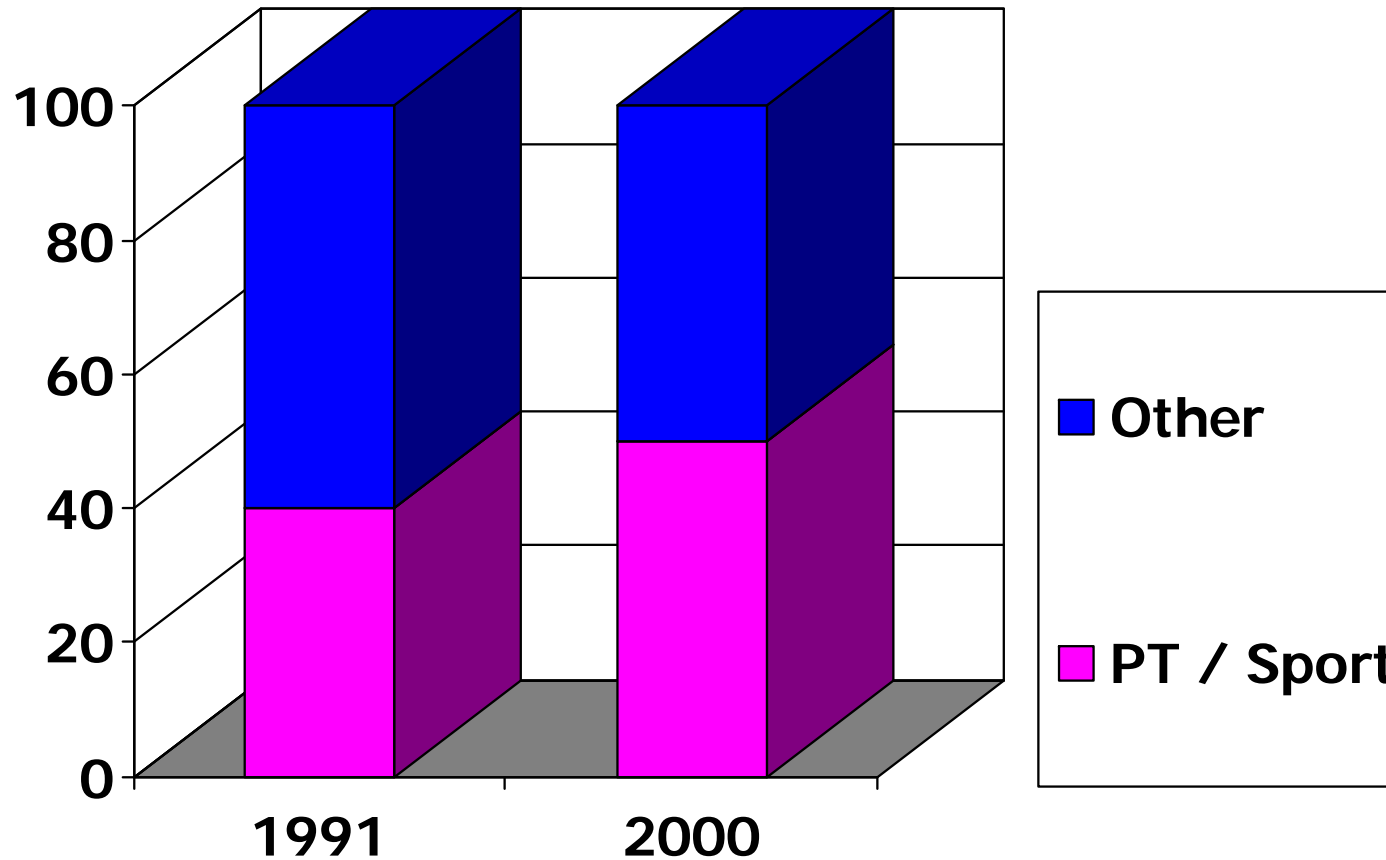
Source: Department of Defence, 2000, *ADF Health Status Report*, Defence Publishing Service, ACT

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Activity when Injured – ADF





Activity when Injured – ADF

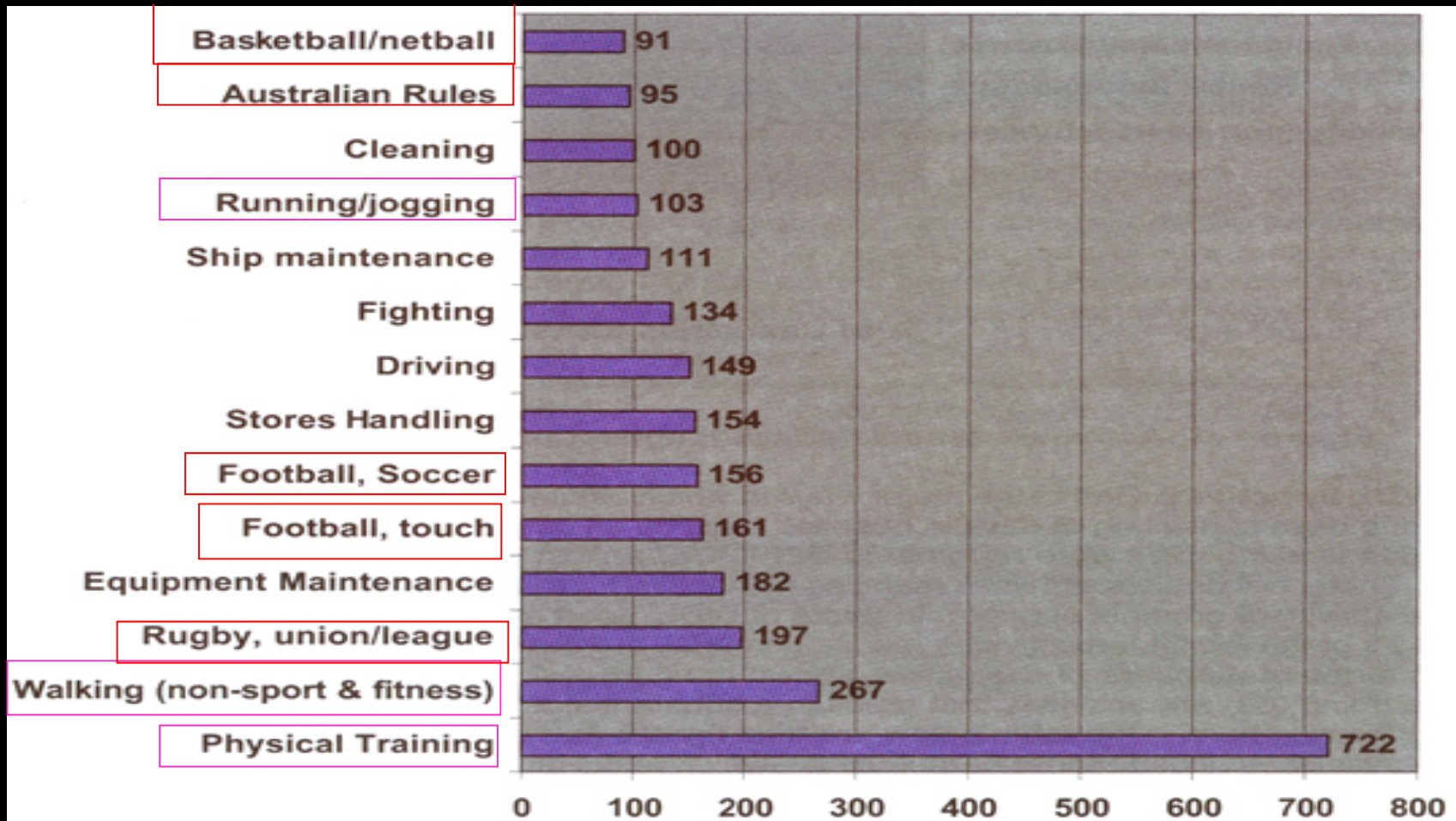
Physical training is linked to the highest number of working days lost, hospital admissions, sick and light duties days. Sporting injuries are another significant factor.

Senate Committee Hansard 17 Aug 2004



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Activity when Injured – ADF



Source: Department of Defence, 2000, *ADF Health Status Report*, Defence Publishing Service, ACT

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TACTICAL STRENGTH & CONDITIONING AUSTRALIA

Trainees – ARMY

- 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



TACTICAL STRENGTH & CONDITIONING AUSTRALIA

Different Corps

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



EVIDENCE BASED . TACTICALLY TESTED . OPERATIONALLY PROVEN



TACTICAL STRENGTH & CONDITIONING AUSTRALIA

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

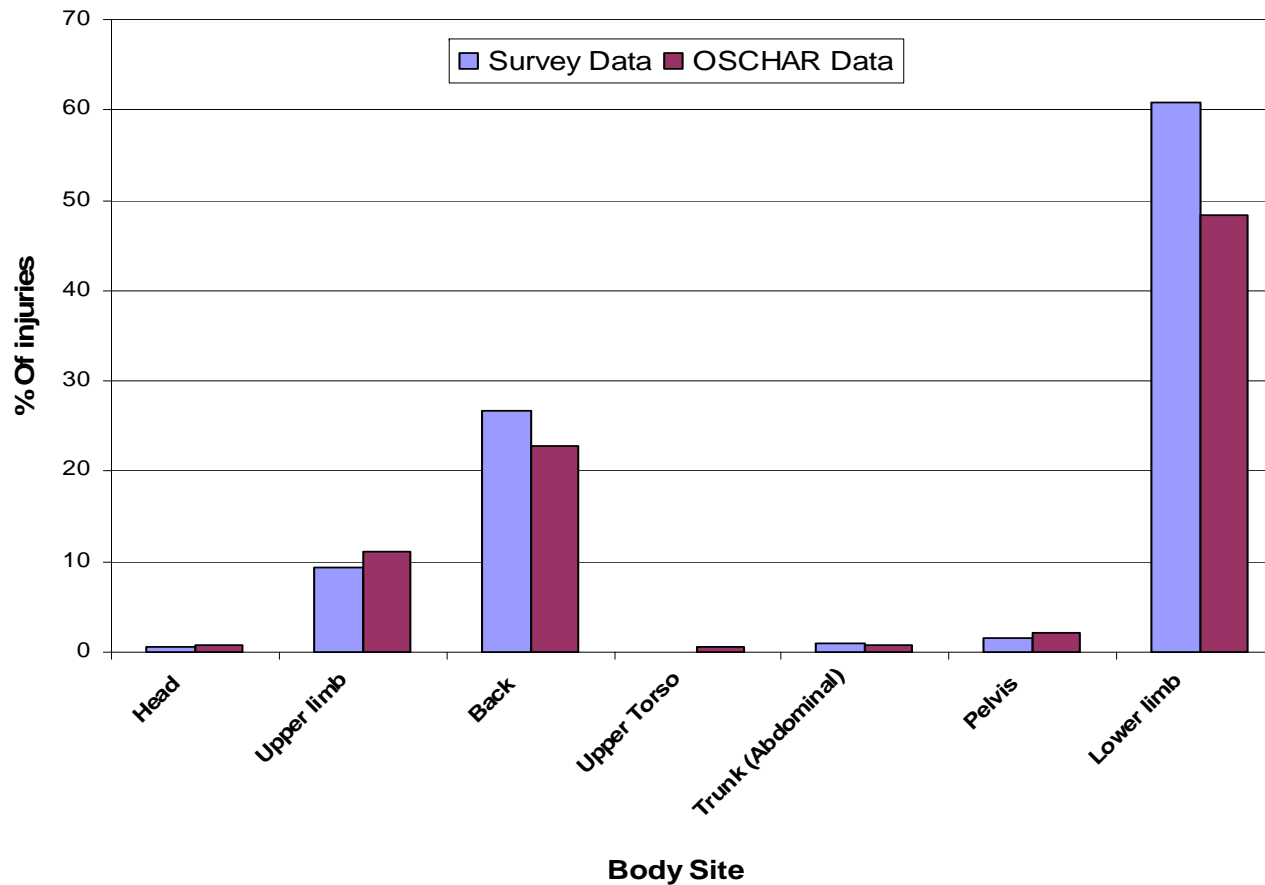




TACTICAL STRENGTH & CONDITIONING AUSTRALIA

Different Tasks – Load Carriage

Comparison of Reported Load Carriage Injuries
Captured By Survey (1999-2010) and By OSCHAR (2009-2010)

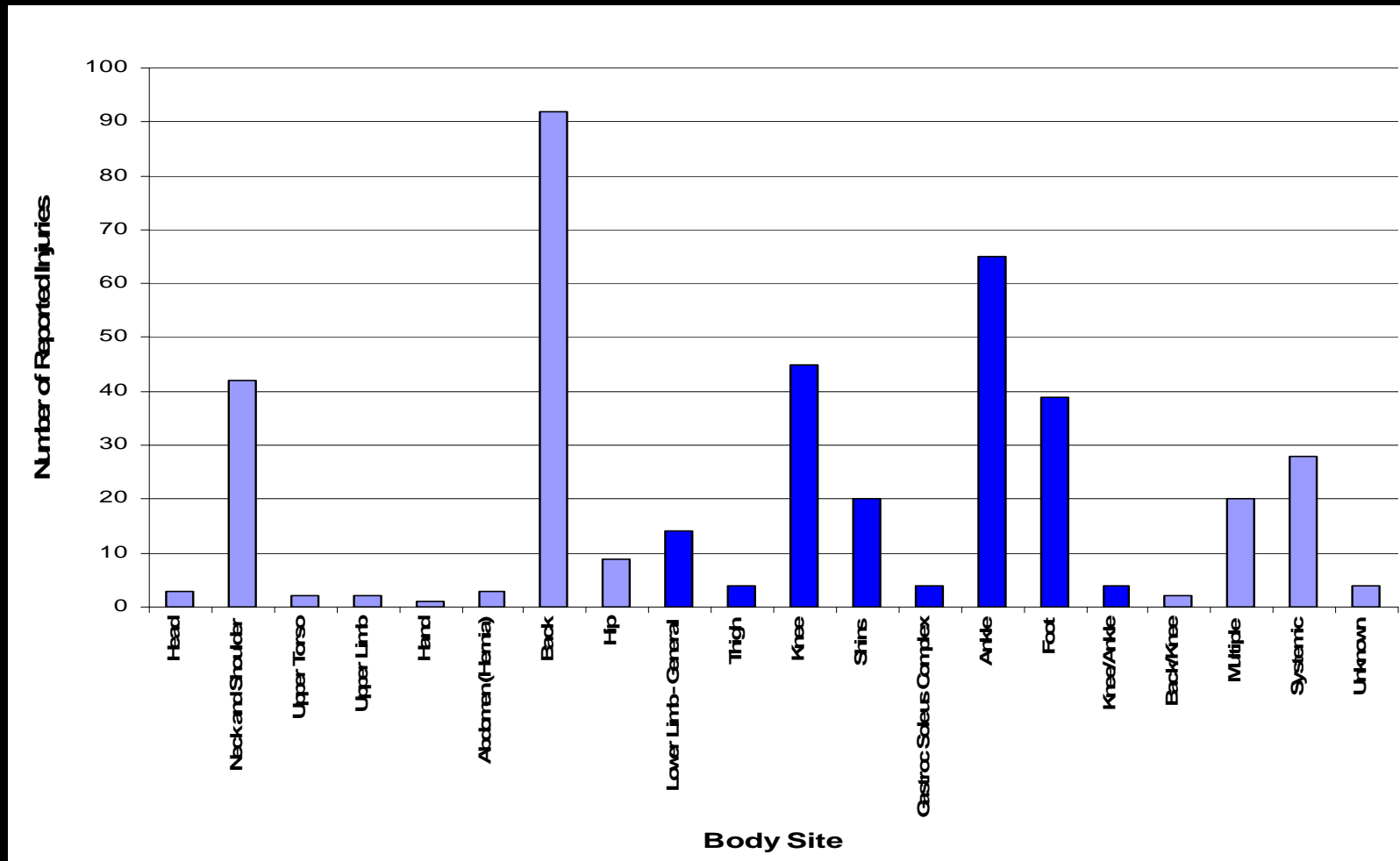


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TACTICAL STRENGTH & CONDITIONING AUSTRALIA

Different Tasks – Load Carriage



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TACTICAL STRENGTH & CONDITIONING AUSTRALIA

Different Tasks – Load Carriage

- 39% Bones & Joints
- 36% Tendons & Muscles
- 15% Ligaments
- 4% Skin





TACTICAL STRENGTH & CONDITIONING AUSTRALIA

Different Tasks – Load Carriage

14%



28%



38%



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TACTICAL STRENGTH & CONDITIONING AUSTRALIA

Different Tasks – Load Carriage

<u>Mechanism of Load Carriage Injuries</u>	<u>Number of reported injuries (%)</u>	
Muscular stress	251	62%
Fall	85	21%
Exposure to environmental heat	28	7%
Rubbing and chafing	21	5%
Stepping kneeling or sitting on objects	9	2%
Unspecified mechanisms of injury	3	1%
Contact with moving or stationary object	4	1%
Other and multiple mechanisms of injury	2	0%
Being trapped between stationary and moving object	1	0%
TOTAL	404	100%

EVIDENCE BASED . TACTICALLY TESTED . OPERATIONALLY PROVEN



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



TACTICAL STRENGTH & CONDITIONING AUSTRALIA

Injuries in the Police Force



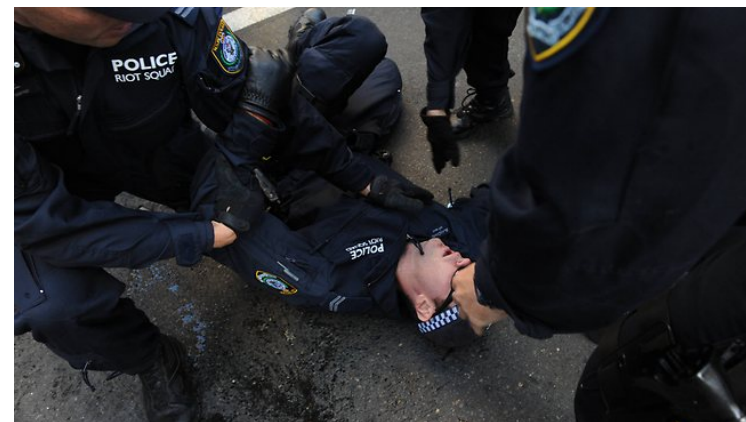
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TACTICAL STRENGTH & CONDITIONING AUSTRALIA

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!





TACTICAL STRENGTH & CONDITIONING AUSTRALIA

What's the Problem?

- Common injury sites in law enforcement





TACTICAL STRENGTH & CONDITIONING AUSTRALIA

Impact of Injuries

- Acute injuries can have a significant impact on your partner, the tactical team or the operation.



EVIDENCE BASED . TACTICALLY TESTED . OPERATIONALLY PROVEN



TACTICAL STRENGTH & CONDITIONING AUSTRALIA

Tactical Options Model



Use of Force Concepts

Control Theory

The ultimate goal is control of the situation.
 You need advantage for control.
 Evaluate the propensity for control –v- 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

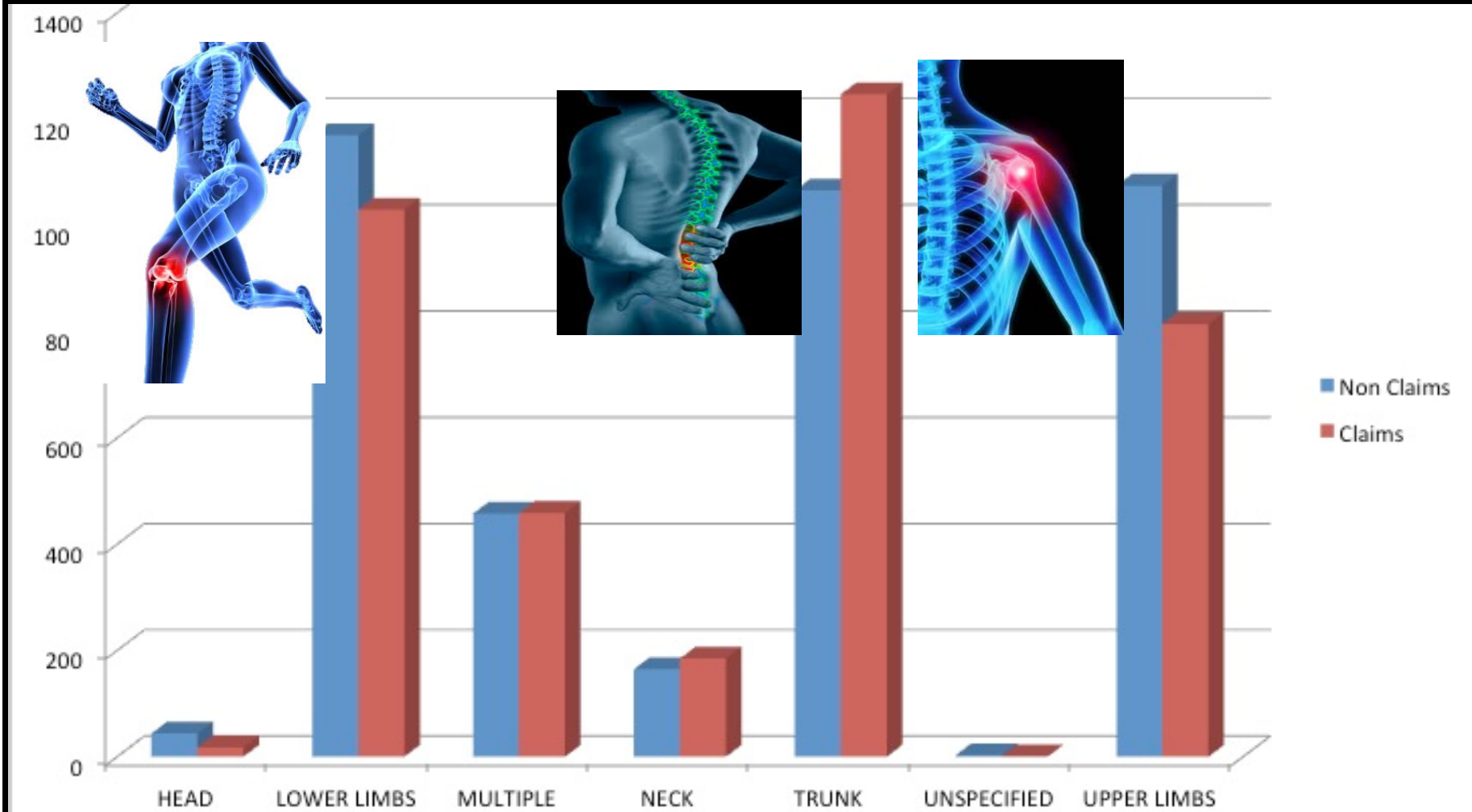
- Proximity to a Weapon
- Special Knowledge
- Injury or Exhaustion
- Ground Position
- Disability
- Imminent Danger
- Drugs/Alcohol
- Mental State

EVIDENCE BASED . TACTICALLY TESTED . OPERATIONALLY PROVEN



TACTICAL STRENGTH & CONDITIONING AUSTRALIA

Injuries to Police officers (Jul 09-Jun 12)



EVIDENCE BASED . TACTICALLY TESTED . OPERATIONALLY PROVEN

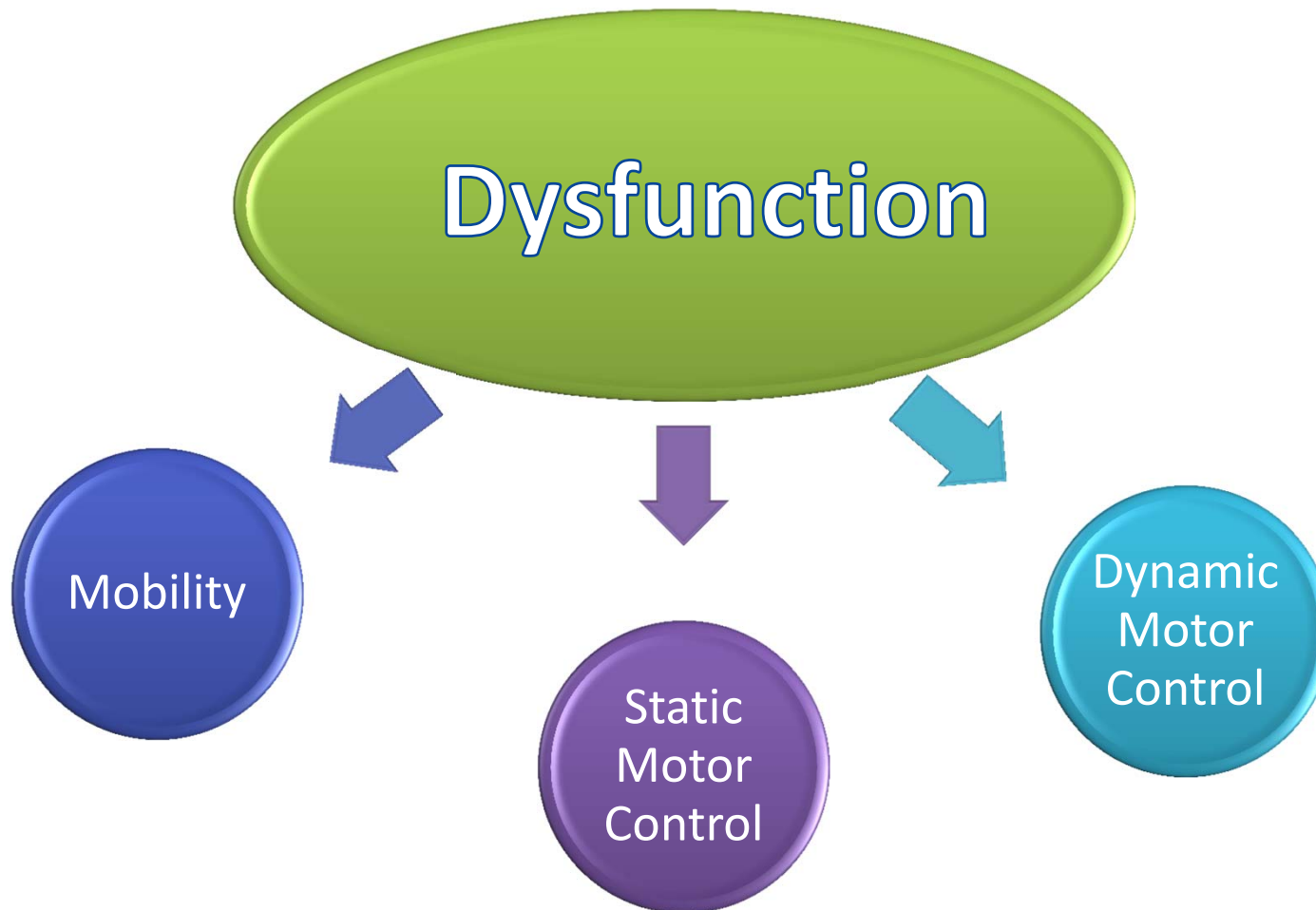


TACTICAL STRENGTH & CONDITIONING AUSTRALIA

Musculoskeletal Screening



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TACTICAL STRENGTH & CONDITIONING AUSTRALIA



FMS Average Scores

Police officer weak points



EVIDENCE BASED . TACTICALLY TESTED . OPERATIONALLY PROVEN



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



TACTICAL STRENGTH & CONDITIONING AUSTRALIA

Questions?



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TACTICAL STRENGTH & CONDITIONING AUSTRALIA

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