A Profile of Ankle Injuries in Australian Army Soldiers

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Background

Injuries in the military are associated with interruptions in service, detract from capability and present a high financial and resource burden. Prior to injury prevention strategies being implemented, research is needed to further understand the circumstances of these injuries. Ankle injuries are among the most common injuries reported in military training (1, 2, 3).The ankle in particular is a problematic area as many perceive it to not be a serious injury, despite the potential to lead to long term disability (4). The risk of recurrence is also considered to be high, with estimates of double the risk of a recurrent ankle sprain within the 12 months after an initial injury with further risk of ongoing pain and instability (5). In military personnel, risk ratios of recurrence of 2.8 [2.02-3.87] in males and 2.83 [1.89-4.23] in females have been reported. The aim of this investigation was to profile ankle injuries suffered by both full time and part time Army personnel over a two-year period.

Methods

Data from a two-year period 2012-2014 was obtained from the Department of Defence, detailing the locations, activities, natures and mechanisms of ankle injuries. Minor Personal Injuries (MPI) were injuries which did not require immediate hospitalization, whereas Serious Personal Injuries (SPI) did. Descriptive analyses were performed to determine the lead contributors of these types to ankle injuries, and ankle injury rates were calculated for each service type relative to days of exposure.

Results

A total of 1315 ankle injuries were reported, giving an incident rate of 2.1 recorded ankle injuries per 100 soldier years of service. Of these injuries, 1291 were deemed Minor Personal Injuries (MPI) and 24 as Serious Personal Injuries (SPI). MPIs were most commonly trauma to the ankle joint and ligaments (n=693), soft tissue (n=491) or due to fractures (n=54), with the ankle injuries most commonly occurring in Physical Training (n=457), Combat Training (n=267) or while walking (n=109). Ankle injuries were commonly due to Falls (n=832), gradual onset muscular stress (n=284) and muscular stress from handling objects (n=45). SPIs affecting the ankle were primarily fractures (n=10), soft tissue injuries (n=6) or dislocations (n=4), and occurred during Physical Training (n=4), while playing touch football (n=3) or while walking (n=3), due primarily to falls (n=12), contact with objects (n=4), or cumulative muscular stress (n=3).

MINOR INJURY

Nature of Injury	Number	ARA	ARES
Trauma to joint and ligament	693	611	82
Soft Tissue injury	491	441	50
Fracture	54	52	2
Dislocation	28	28	0
Contusion/Bruising/Crushing	14	11	3
*Collated Others	11	9	2
TOTAL	**1291**	**1152**	**139**

Activity	Number	ARA	ARES
Physical Training	457	423	34
Combat Training	267	212	55
Walking	109	95	14
Marching	85	66	19
Football/Soccer	75	74	1
*Collated Others	298	282	16
TOTAL	**1291**	**1152**	**139**

Mechanism	Number	ARA	ARES
Falls	832	729	103
Muscular Stress	284	264	20
Muscular Stress while handling/lifting/carrying	45	40	5
Being hit by moving objects	66	64	2
Stepping/kneeling/sitting on objects	18	15	3
*Collated Others	46	40	6
TOTAL	**1291**	**1152**	**139**

SERIOUS INJURY

Nature of Injury	Number	ARA	ARES
Fractures	10	9	1
Soft tissue injuries	6	5	1
Dislocation	4	4	0
Trauma to joint and ligaments	4	0	0
TOTAL	**24**	**22**	**2**

Activity	Number	ARA	ARES
Physical Training (PT)	4	4	0
Football Touch	3	3	0
Walking	3	3	0
Combat Training	2	2	0
Manual/Materials Handling	2	0	2
*Collated Others	10	10	0
TOTAL	**24**	**22**	**2**

Mechanism	Number	ARA	ARES
Falls	12	12	0
Muscular stress	3	3	0
Muscular stress while handling /lifting/ carrying	2	1	1
Hitting moving or stationary objects	4	4	0
Other	1	0	1
Vehicle accident	2	2	0
TOTAL	**24**	**22**	**2**

Conclusions

Targeted approaches to minimizing these ankle injuries should focus on reducing risks of slips, trips and falls during both Physical Training and Combat Training. Previous ankle injuries need to be rehabilitated completely so they do not contribute to re-injury.

Operational Relevance

Injuries to the ankle are common in tactical environments and recurrence rates are the highest of all lower limb musculoskeletal injuries. Attempts should be made to identify causes and minimize first time occurrences where possible.

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