



# Musculoskeletal Injuries in UK Service Personnel and the Impact on In-theatre Rehab during Cold Weather Warfare Training: Ex CETUS

Maj D Ferraby & Maj D Hayhurst  
Royal Army Medical Corps  
British Army





# The Issue

## Cold Weather Operations are a high risk activity



**1 in 8**

RM Service Personnel downgraded with MSKI



**Royal Marines**

High risk group for Medical Discharge due to MSKI



**53%**

Of Armed Forces Medical Discharge is due to MSKI

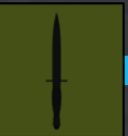




Strategic Command

# Challenges of Injury Surveillance

- Medical record system does not provide easily accessible injury data
- Knowledge gaps – abundance of data on recruits and annual medical discharges but little on trained personnel
- Lack of timely and meaningful data to inform decision making
- Lack of UK Injury Consensus statement





# Development of Surveillance Approach

## Nature of Injury

- New / Recurring injury

## Onset of Injury

- Sudden / Gradual

## Primary Cause of Injury

- Military Training / Personal Training / Sport / Other

## Secondary Cause of Injury

- Activity associated with injury

## Anatomic Location of Injury

- Upper / Lower extremity / Trunk

## Sub-Anatomic Location of Injury

- Specific area





# Forward Rehabilitation Team

Supports Role 1 Care:

- Maritime, Army Physiotherapist
- Royal Marine Exercise Rehabilitation Instructor





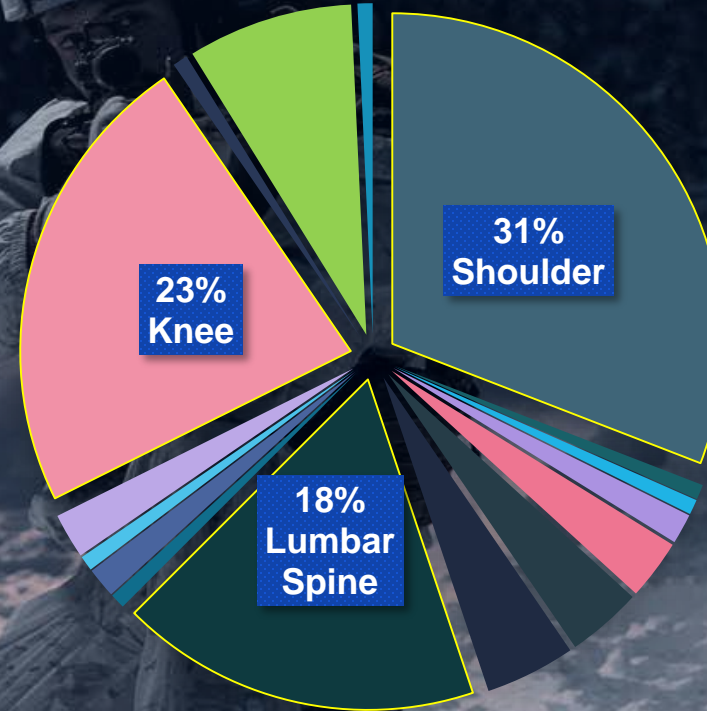
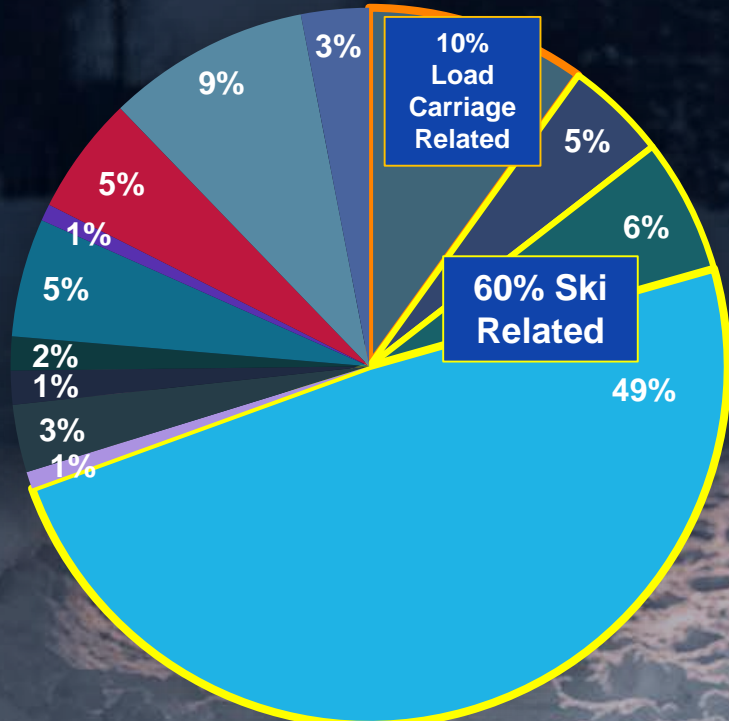
# CETUS Study Method

- A prospective injury surveillance study was undertaken
- Data Capture: All new and follow up patients seeking treatment for a musculoskeletal injury from the Fwd Rehab Tm
- Adapted surveillance approach to Exercise (included phase of training)
- Patient reported outcome measures – FAA and MSK-HQ





# Results



- Shoulder
- Upper Arm
- Elbow
- Forearm
- Wrist
- Hand
- Cervical Spine
- Thoracic Spine
- Lumbar Spine
- Sacrum/SIJ
- Chest
- Abdominals
- Pelvis
- Groin
- Hip
- Anterior Thigh
- Posterior Thigh
- Knee
- Anterior Lower Leg
- Posterior Lower Leg
- Ankle
- Foot

- Load Carriage
- Cross-country skiing
- Downhill skiing
- Ski fall
- Ski collision
- Strength/Power Training
- Flexibility
- Sitting/Driving
- Other
- Cross Training
- Speed/Agility Training
- Slip/Trip/Fall
- Lifting/Carrying
- Cause Unknown





# Impact on the Ground

- Eleven per cent of the deployed population (n=136 cases) reported a musculoskeletal injury
- Injury rate: 17.8 injuries per 10 000 personnel days
- Military training was the most common cause of injury (n=120; 88%) mainly due to ski-related injury (n=79; 61% of injuries)
- 74% (n=119) of all patients seen were rehabilitated in situ
- FAA
  - Admission: 23% fit for role (n=31)
  - Discharge: 74% fit for role (n=91)







# Recommendations Going Forward

- Continued injury surveillance to understand causation and inform the development of mitigation strategies
- Continued deployment of Forward Rehab Team as force multiplier
- Assess ski competency and levels of pre-exercise physical fitness
- Understand the contribution of environmental factors (hydration, sleep and nutrition)





# Conclusion

- Development and use of a systematic injury surveillance tool.
- Further understanding of factors associated with CWW injuries
- Demonstrated effect of forward rehabilitation
- Provide recommendations for future mitigation strategies





Questions?

[david.ferraby100@mod.gov.uk](mailto:david.ferraby100@mod.gov.uk)

[debra.hayhurst817@mod.gov.uk](mailto:debra.hayhurst817@mod.gov.uk)

