Musculoskeletal injuries and associated healthcare utilization among Naval Special Warfare Sea, Air and Land Qualification Training students

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BACKGROUND AND PURPOSE

- Unintentional musculoskeletal injuries are an important cause of concern in the US military. A large proportion of these injuries occur during military training and sports, and result in pain, morbidity, and loss of tactical readiness. They are associated with high cost due to healthcare utilization, disability, and attrition from the military.
- Naval Sea, Air and Land (SEAL) students go through intense physically demanding training for over a year. The final phase of the training is SEAL Qualification Training (SQT) before becoming a SEAL Operator.
- The aim of this analysis was to describe musculoskeletal injuries and their impact on healthcare utilization, among a sample of SQT students.

LEARNING OBJECTIVES

- Identify the frequency and types of musculoskeletal injuries among Naval Special Warfare Sea, Air and Land Qualification Training students.
- Assess the impact of musculoskeletal injuries on healthcare utilization among Naval Special Warfare Sea, Air and Land Qualification Training students.

METHODS

- Injury self-reports were obtained from a sample of SQT students.
- Musculoskeletal injuries during a one-year period were described and classified according to their:
  - Frequency
  - Anatomic location
  - Injury type
  - Injury cause
  - Activity during injury
  - Associated health care utilization
  - Potential for prevention

RESULTS

- The study sample consisted of 169 SQT students (age: 24.2 ± 2.5 years). A total of 59 injuries were reported during a one year period.


<table>
<thead>
<tr>
<th>Injury classification</th>
<th>Frequency (injuries/100 subjects/year)</th>
<th>Incidence (injured subjects/100 subjects/year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total injuries</td>
<td>34.9</td>
<td>26.0</td>
</tr>
<tr>
<td>Preventable injuries</td>
<td>28.4</td>
<td>21.9</td>
</tr>
<tr>
<td>Injuries during training (physical or tactical training)</td>
<td>26.6</td>
<td>21.9</td>
</tr>
<tr>
<td>Lower extremity injuries</td>
<td>20.7</td>
<td>17.2</td>
</tr>
<tr>
<td>Upper extremity injuries</td>
<td>9.5</td>
<td>9.5</td>
</tr>
<tr>
<td>Spine injuries</td>
<td>4.1</td>
<td>4.1</td>
</tr>
</tbody>
</table>

- The majority of injuries (35/59, 59.3%) affected the lower extremity.

DISCUSSION AND CONCLUSIONS

- Common injury sub-locations were the ankle (14/59, 23.7% of injured) and shoulder (9/59, 15.3%).
- In case of 45 injuries (45/5259, 76.3%), subjects were engaged in physical or tactical training when injuries occurred.
- Running was the cause of 27 injuries (27/59, 45.8%).
- Common injury types were:
  - Sprain (15/59, 25.4%)
  - Strain (14/59, 23.7%)
- Common forms of management:
  - Radiological assessment - (10/59, 16.9%)
  - Rehabilitation - 12/59 (20.3%)
  - Pain medication - 18/59 (30.5%)
  - Rest - 28/59 (47.5%)

- Preventable musculoskeletal injuries cause considerable morbidity and impact healthcare utilization among SQT students.
- There is a need to investigate potential injury prevention strategies and to implement a customized injury prevention program to reduce the occurrence of preventable musculoskeletal injuries in this population.

Table 1. Injury frequency and incidence

Figure 1. Anatomic location of injuries

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