International Paralympic Committee

Medical Issues Specific to the Paralympic Athlete

Jan Lexell, MD PhD
Developing prevention programs

**Step 1**
Quantify the problem: Incidence and severity

**Step 2**
Establish the aetiology and mechanism of injury

**Step 3**
Introduce a preventive measure

**Step 4**
Assess its effectiveness
IPCI Injury and Illness Prevention Study

**IPC INJURY AND ILLNESS PREVENTION STUDY**

**LONDON 2012 PARALYMPIC GAMES**

Injury/Illness Calendar : AFG

Welcome back!
Thank you for your ongoing commitment to this project. If you experience any problems with data entry please contact us.

**Step 1:** Select one of the three options below:
- Record an INJURY for the team today (or on the date selected below)
- Record an ILLNESS for the team today (or on the date selected below)
- No Injuries or Illnesses are recorded for the team today (or on the date selected below)

**Step 2:** Click on the date in the calendar below on which you wish to report an injury or illness.

<table>
<thead>
<tr>
<th>Month/Year</th>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
<th>Saturday</th>
<th>Sunday</th>
</tr>
</thead>
<tbody>
<tr>
<td>August 2012</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>September 2012</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Key**

- **Red:** Data INCOMPLETE (past days)
- **Yellow:** Data INCOMPLETE (today)
- **Green:** Data COMPLETE
- **Gray:** Future days
Factors associated with illness in athletes participating in the London 2012 Paralympic Games: a prospective cohort study involving 49 910 athlete-days

Martin Schwellnus,1,2 Wayne Derman,1,2 Esme Jordaan,3 Cheri A Blauwet,4,5 Carolyn Emery,6,7 Pia Pit-Grosheide,5 Norma-Angelica Patino Marques,8,5 Oriol Martinez-Ferrer,5,9 Jaap Stomphorst,10,5 Peter Van de Vliet,5,11 Nick Webborn,12 Stuart E Willick,5,13


<table>
<thead>
<tr>
<th></th>
<th>Summer Olympics</th>
<th>Summer Paralympics</th>
<th>Winter Paralympics</th>
<th>Winter Olympics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Injury proportion (%)</td>
<td>11</td>
<td>15</td>
<td>29.3</td>
<td>12</td>
</tr>
<tr>
<td>Injury rate (/1000 athlete days)</td>
<td>9.2</td>
<td>12.7</td>
<td>24.4</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Summer Olympics</td>
<td>Summer Paralympics</td>
<td>Winter Paralympics</td>
<td>Winter Olympics</td>
</tr>
<tr>
<td>-------------------------</td>
<td>-----------------</td>
<td>--------------------</td>
<td>--------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>Illness proportion (%)</td>
<td>7</td>
<td>15.1</td>
<td>17.4</td>
<td>8</td>
</tr>
<tr>
<td>Illness rate (/1000 athlete days)</td>
<td>5.2</td>
<td>13.2</td>
<td>18.7</td>
<td>5</td>
</tr>
</tbody>
</table>
Incidence rate of illnesses

<table>
<thead>
<tr>
<th>System</th>
<th>N</th>
<th>IR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respiratory</td>
<td>138</td>
<td>3.52 (2.96 to 4.16)</td>
</tr>
<tr>
<td>Skin and subcutaneous tissue</td>
<td>91</td>
<td>2.32 (1.87 to 2.85)</td>
</tr>
<tr>
<td>Digestive</td>
<td>74</td>
<td>1.89 (1.48 to 2.37)</td>
</tr>
<tr>
<td>Nervous system</td>
<td>44</td>
<td>1.12 (0.82 to 1.51)</td>
</tr>
<tr>
<td>Genitourinary</td>
<td>38</td>
<td>0.97 (0.69 to 1.33)</td>
</tr>
<tr>
<td>Ears and mastoid</td>
<td>32</td>
<td>0.82 (0.56 to 1.15)</td>
</tr>
</tbody>
</table>

Findings from Paralympics 2012

- Age and gender were not independent predictors of illness in Paralympic athletes
- Illness rates generally higher than studies in able-bodied athletes
- Overall respiratory illnesses most common but...
- Non-respiratory illnesses overall are more common than respiratory - higher than studies in able-bodied athletes
- UTI much more common than in Olympians
- Skin and subcutaneous tissue were the most commonly affected system in wheelchair basketball, powerlifting and sitting volleyball

Incidence proportion (IP)

- Sports with IP >20%
  - Athletics (21.5%)
  - Equestrian (29%)
  - Powerlifting (22.1%)
  - Table tennis (21.2%)

- Sports with IP <10%
  - Football 7-a-side (3.1%)
  - Shooting (6.1%)

*Incidence proportion = number of reported illnesses i relation to the number of athletes*
Impairment Classes with most Illnesses

- Spinal cord injury (30%)
- Amputation/limb deficiencies (26.5%)
- Visual impairments (19%)
- CP, Les autres (24.5%)

Derman, Schwellnus & Jordaan. Physical Medicine & Rehabilitation, 6, 23-30, 2014
Illnesses in impairment classes

- Skin and subcutaneous illnesses
  - Spinal cord injured (46.7%)
  - Amputation/limb deficiency (31%)
- Urinary tract infection (UTI)
  - Spinal cord injured (77.4%)
When do athletes report illnesses?

Derman, Schwellnus & Jordaan  Physical Medicine & Rehabilitation, 6, 23-30, 2014
How severe are the illnesses?

![Bar chart showing the number of days lost due to different illnesses.](image-url)

- **Total illnesses**: A large number of days lost, with a majority of cases having no days lost.
- **Skin and...**: A significant number of cases with 1 day lost.
- **Ears and...**: A few cases with > 1 day lost.
- **Nervous system**: A small number of cases with no days lost and 1 day lost.
- **Respiratory**: A large number of cases with no days lost, and a small number with 1 day lost.
- **Genito-urinary...**: A moderate number of cases with no days lost, and a few cases with 1 day lost.

*Derman, Schwellnus & Jordaan, Physical Medicine & Rehabilitation, 6, 23-30, 2014*
In summary...

- Illnesses are common in paralympic athletes (high incidence)
- Incidence of illness similar in pre-competition vs competition period
- The spectrum of illnesses is different
- Most common are respiratory but non-respiratory illnesses (especially UTI and Skin & GIT) are common
- Participation in athletics is a risk factor
- Age and gender are not independent predictors
In summary...

- Spinal injured and amputees are at risk of these illnesses
- Most illnesses are infections
- Don’t forget allergy
- Athletes (esp SCI) may not display the usual symptom patterns (vague)
- High index of suspicion
- Paralympic athletes report late to the physician
- 20% time loss illness!
For the future!

- Athletes with an impairment might be more vulnerable to illnesses by nature of their underlying impairment.
- Detailing incidence and diagnostics of illness is therefore of significant clinical relevance for this population, and will allow for tailored prevention and intervention strategies.
- Particularly important given the self-management and delayed reporting to medical caretakers by Paralympic athletes.
The Sports-Related Injuries and Illnesses in Paralympic Sport Study (SRIIPSS): a study protocol for a prospective longitudinal study

Kristina Fagher, Jenny Jacobsson, Toomas Timpka, Örjan Dahlström and Jan Lexel
Obrigado!