Ultrarunning Injuries
from hot deserts to arctic ultra races

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"I should stop running until that pain goes away," said no runner ever.
Insight into the World of Ultrarunning (Objectives)

- Define ultra running
- Outline key factors & challenges related to ultrarunning
- Identify common injuries and conditions in ultrarunners
- Introduce current research on ultrarunners
- Recognize current trends and hot topics in ultrarunning
- Identify credible sources for learning more…
What is Ultra Running?

• Standard definition is anything longer than a marathon (26.2 miles)

• Shortest accepted distance = 50K (31.07 miles)

• Standard race distances = 50K, 50 mile, 100K, 100 mile

• Additionally defined as series of events lasting for specified time, i.e. 6 hour, 12 hour, 24 hour, 48 hour, 6 day events
Challenges of Ultrarunning

- Remote & difficult terrain: desert sand, mountain scree, snow & ice
- Adverse & unpredictable weather conditions
- Footwear, gear, & clothing = very important component
- Hydration & Nutrition = critical for self support
Mountain Challenges & Considerations

- Medical: Acute Mountain Sickness, frostbite, hypothermia, hyperthermia, acclimatization issues & considerations for travel
- Weather patterns & unpredictability…lightening strike at HR100 2014!
- Footwear: mountain scree, river crossings, snow fields
- Clothing: variable/ layers, breathable, dry wicking
- Gear: hydration packs
Desert Challenges & Considerations

- Medical: hyponatremia (potentially fatal if not recognized), hyperthermia / heat stroke
- Footwear: sand-blockers, gaiters
- Clothing: cool, breathable, dry wicking
- Gear: hydration packs
- Training considerations for stability and endurance
Arctic Challenges & Considerations

- Medical: frostbite, hypothermia
- Footwear: snowshoes?
- Clothing: warm, breathable, dry wicking
- Gear: hydration packs, pulling sleds?
Common Musculoskeletal Injuries

Based on questionnaire survey of 200 runners from 11 countries

Figure 13.5 Percentage of injured areas experienced by mountain runners. (Mei-Dan ed)
# Common Musculoskeletal Injuries

<table>
<thead>
<tr>
<th>Injury Type and/or Location</th>
<th>n</th>
<th>Distribution (%)</th>
<th>Incidence (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fractures not involving the extremities</td>
<td>12</td>
<td>0.6</td>
<td>1.0</td>
</tr>
<tr>
<td>Upper extremity injuries including fractures</td>
<td>17</td>
<td>0.9</td>
<td>1.4</td>
</tr>
<tr>
<td>Back injuries</td>
<td>150</td>
<td>7.9</td>
<td>12.4</td>
</tr>
<tr>
<td>Iliotibial band issue</td>
<td>191</td>
<td>10.1</td>
<td>15.8</td>
</tr>
<tr>
<td>Hip flexor strain</td>
<td>106</td>
<td>5.6</td>
<td>8.7</td>
</tr>
<tr>
<td>Hamstring strain</td>
<td>143</td>
<td>7.5</td>
<td>11.8</td>
</tr>
<tr>
<td>Stress fracture involving femur/hip</td>
<td>6</td>
<td>0.3</td>
<td>0.5</td>
</tr>
<tr>
<td>Other leg, pelvis or hip issues</td>
<td>45</td>
<td>2.4</td>
<td>3.7</td>
</tr>
<tr>
<td>Knee issues</td>
<td>291</td>
<td>15.3</td>
<td>24.0</td>
</tr>
<tr>
<td>Calf strain</td>
<td>159</td>
<td>8.4</td>
<td>13.1</td>
</tr>
<tr>
<td>Achilles tendinitis or tear</td>
<td>131</td>
<td>6.9</td>
<td>10.8</td>
</tr>
<tr>
<td>Lower leg or ankle tendinitis not involving Achilles</td>
<td>111</td>
<td>5.8</td>
<td>9.2</td>
</tr>
<tr>
<td>Stress fracture involving tibia or fibula</td>
<td>23</td>
<td>1.2</td>
<td>1.9</td>
</tr>
<tr>
<td>Other lower leg injuries</td>
<td>18</td>
<td>0.9</td>
<td>1.5</td>
</tr>
<tr>
<td>Ankle sprain</td>
<td>131</td>
<td>6.9</td>
<td>10.8</td>
</tr>
<tr>
<td>Plantar fasciitis</td>
<td>129</td>
<td>6.8</td>
<td>10.6</td>
</tr>
<tr>
<td>Stress fracture involving foot</td>
<td>41</td>
<td>2.2</td>
<td>3.4</td>
</tr>
<tr>
<td>Morton’s neuroma</td>
<td>38</td>
<td>2.0</td>
<td>3.1</td>
</tr>
<tr>
<td>Metatarsalgia</td>
<td>38</td>
<td>2.0</td>
<td>3.1</td>
</tr>
<tr>
<td>Great toe metatarsal phalangeal joint pain (bunion)</td>
<td>30</td>
<td>1.6</td>
<td>2.5</td>
</tr>
<tr>
<td>Other foot and ankle injuries</td>
<td>54</td>
<td>2.8</td>
<td>4.5</td>
</tr>
<tr>
<td>Skin wounds, blisters, and infections</td>
<td>18</td>
<td>0.9</td>
<td>1.5</td>
</tr>
<tr>
<td>Other not previously specified</td>
<td>18</td>
<td>0.9</td>
<td>1.5</td>
</tr>
</tbody>
</table>

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**Health and Exercise-Related Medical Issues among 1,212 Ultramarathon Runners: Baseline Findings from the Ultrarunners Longitudinal TRAcking (ULTRA) Study** (Hoffman MD, Krishnan E 2014)
Characteristics of those reporting an exercise-related injury (ULTRA study)

Compared with the uninjured group, those who had suffered an injury during this time period were…

• Younger
• Less experienced runners
• Relatively less focused on running (during 12 months prior to study)
• Greater proportion of exercise time at a high intensity
• More likely to have performed regular resistance training
Causes of Musculoskeletal Injuries

Figure 13.2 Causes of injury in international and club runners (Mei-Dan ed)
Treatment: What works?

- **No treatment/self management**: 72%
- **Physio**: 19%
- **Injection**: 5%
- **Surgery**: 1%
- **Orthotics**: 3%
Important Treatment Considerations

Biomechanics

• Correlations between different running styles & different demands on the structures of the body

Research

• Running patterns & specific injuries
Advising the (already) injured runner…

EdURep principle for healing and prevention of further injuries and runner education can be the key

Current Trends & Hot Topics in Ultrarunning

- Running patterns & foot strike options
- The max vs min cushioning debate
- Research on normals?
Thank you!

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Online Resources, Social Media & Athletes to Watch

- UltraRunning Magazine Online
  https://www.ultrarunning.com/
- http://www.irunfar.com/
- http://running.competitor.com/
- http://hardrock100.com/index.php
- Athletes to watch: Killian Jornet (Spain / Salomon), Anna Frost (New Zealand / Salomon), Darcy Piceau (Boulder! / HOKA), Anthony Krupika (Boulder! / La Sportiva), Timmy Olsen (Boulder! / The North Face)
References


References continued


References continued

