Endurance Athletes Care and Management

Rance McClain, DO, FACOFP, FAOASM
Learning Objectives

1. Understand classification of activities as endurance sports
2. Identify and address common injuries in endurance athletes
3. Manage chronic medical conditions affecting endurance athletes
1. A sports activity by individual –i.e., non team-athletes in which key muscles are exercised at submaximal intensity for prolonged periods of time

1. Problems with this?
   1. Rowing/Crew?
   2. Soccer and other field sports?
   3. Cycling, is it really a solo sport?
Endurance Sports

1. Marathon/ultra-marathon
2. Obstacle course (Tough Mudder, Spartan Race, etc.)
3. Cycling
4. Cross Country Skiing
5. Triathlon
6. Orienteering
7. Open water swimming
8. Rowing
Not your usual sport
Endurance Athlete Profile

1. Slightly more females than males
2. Participation peaks in 30-49 year old age range
3. 1/3 self classify as “average athlete”
4. Most participate in events close to home
5. Majority are higher than average income earners
Endurance Athlete Profile

<table>
<thead>
<tr>
<th>Level</th>
<th>Hrs/Yr Men</th>
<th>Hrs/Yr female</th>
<th>Wk/Yr</th>
<th>Hr/Wk</th>
<th>Days</th>
<th>Sessions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elite International</td>
<td>1000-1200</td>
<td>850-1000</td>
<td>48</td>
<td>21-25</td>
<td>6</td>
<td>1-4</td>
</tr>
<tr>
<td>National</td>
<td>800-1000</td>
<td>700-850</td>
<td>48</td>
<td>17-21</td>
<td>6</td>
<td>1-4</td>
</tr>
<tr>
<td>Regional</td>
<td>600-800</td>
<td>600-700</td>
<td>44-46</td>
<td>13-18</td>
<td>5-6</td>
<td>1-3</td>
</tr>
<tr>
<td>Local</td>
<td>500-600</td>
<td>500-600</td>
<td>42-44</td>
<td>10-15</td>
<td>4-6</td>
<td>1</td>
</tr>
<tr>
<td>High School</td>
<td>300-500</td>
<td>300-500</td>
<td>10-30</td>
<td>2-10</td>
<td>3-4</td>
<td>1</td>
</tr>
<tr>
<td>Novice High School</td>
<td>100-300</td>
<td>100-300</td>
<td>2-10</td>
<td>1-4</td>
<td>1-2</td>
<td>1</td>
</tr>
</tbody>
</table>
1. Overuse injuries
   1. Patellafemoral syndrome
   2. Illiotibial band friction syndrome
   3. Medial tibial stress syndrome
   4. Achilles tendinopathy
   5. Plantar fasciitis
   6. Stress fracture
Approach to Overuse Injuries

1. Understand epidemiology
2. Diagnose injury mechanism
   1. Intrinsic vs extrinsic
      1. Ex: arch structure vs incorrect footwear
      2. As a DO, you must use your special skillset to identify

<table>
<thead>
<tr>
<th>Intrinsic</th>
<th>Extrinsic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Malalignment</td>
<td>Training errors</td>
</tr>
<tr>
<td>Muscle imbalance</td>
<td>Equipment</td>
</tr>
<tr>
<td>Inflexibility</td>
<td>Environment</td>
</tr>
<tr>
<td>Muscle weakness</td>
<td>Technique</td>
</tr>
<tr>
<td>Instability</td>
<td>Sports-acquired deficiencies</td>
</tr>
</tbody>
</table>
5 Steps to Manage Overuse Injuries

1. Establish correct diagnosis
2. Control inflammation
3. Promote healing
   1. Rehab, OMT, manage psychology, address fitness
4. Increase fitness upon return to play
5. Control abuse/improper training
Sport Specific Injuries
1. Cycling
   1. Abrasions
   2. Blunt trauma
   3. Fractures (clavicle!)
   4. Ulnar Neuropathy (handlebar palsy)
   5. Psoas Syndrome
   6. Low back pain
   7. Upper extremity and neck pain
Sport Specific Injuries

1. Swimming
   1. Rotator cuff impingement
   2. Neck pain
   3. Biceps tendinitis

2. Rowing
   1. Extensor tendinitis of the wrist
   2. Stress fractures of the ribs
   3. Low back and knee pain
Common Medical Conditions

1. Exercise Induced Asthma
2. Exercise Associated Collapse and Hyponatremia
3. Over-training syndrome
Ironman Collapse
Hyperthermia Athlete

Collapse of an Athlete

Unresponsive/cardiac arrest

- HR, BP, Rectal temp
- Labs: Na+, glucose
- IV Access
- Treat vs. triage
- Transfer to ED

Rectal temp >104
- Initiate hyperthermia protocol
- Immediate cold water immersion
- If hyponatremic
  - Initiate hyponatremia protocol
  - 3% NaCl
- Evaluate for hypoglycemia, hypothermia, and other causes of collapse

Mental status changes/ altered responsiveness

- H&P
- Trendelenburg position
- HR, BP, rectal temp
- Consider Na+, glucose
- Oral fluids if no hyponatremia

NO

Reassess in 5-20 minutes
- Able to ambulate on own
- Normal mental status
- Improved

YES

Discharge

NO

Reassess vitals
- Rectal temperature
- Reassess mental status

Rectal temp >104
- Mental status changes

YES

- Oral fluids
- Trendelenburg position
- Observe
- Failure to improve within 30-60 minutes, transfer to hospital
- Consider labs

NO

- Immediate cooling with cold water immersion
- Transfer to hospital

Lab abnormalities or rectal temp >104

Na+ 125 - 120

Source: Raj Mitra: Principles of Rehabilitation Medicine
Copyright © McGraw-Hill Education. All rights reserved.
See you at AOASM 2020!