

# 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.



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# 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

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

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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

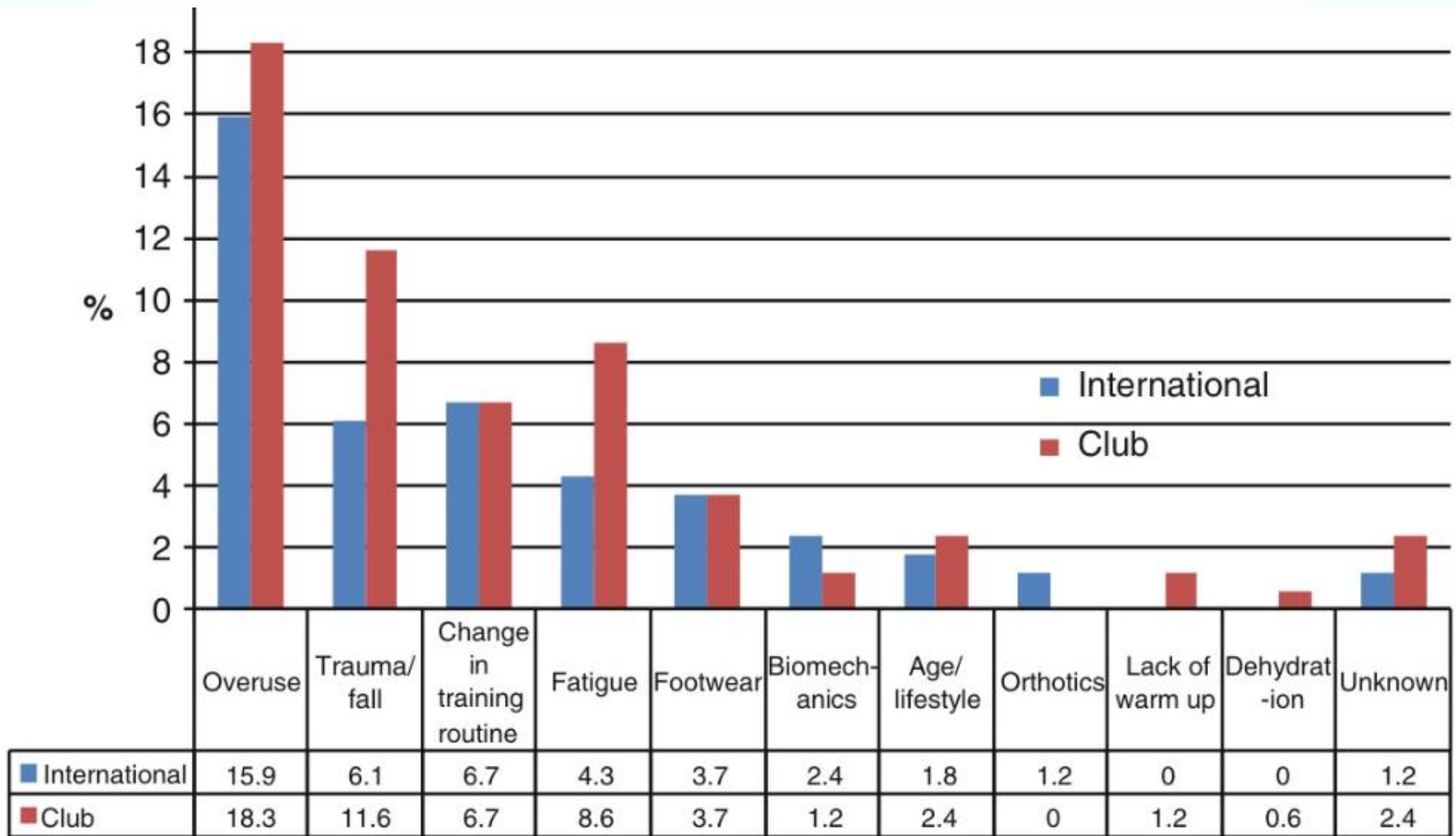
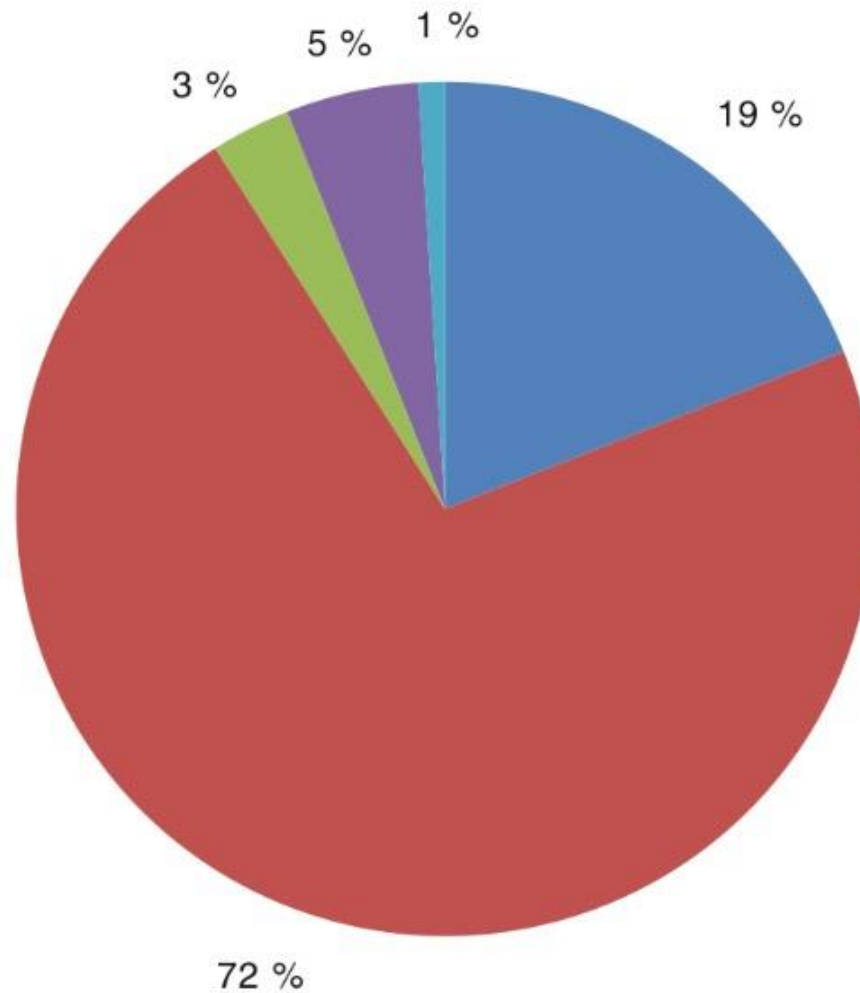


Figure 13.2 Causes of injury in international and club runners (Mei-Dan ed)

# Treatment: What works?

■ No treatment/self management   ■ Physio   ■ Injection   ■ Surgery   ■ Orthotics



# 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

Davenport TE, Kulig K, Matharu Y, Blanco C. The EdURep model for nonsurgical management of tendinopathy. *Phys Ther* 2005; 85(10):1093-1103.

# 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)

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