## FEI SPORTS FORUM

Improving Human Performance in Hot Weather

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## **Acclimatisation** (Wikipedia)

"The process in which an individual organism adjusts to a change in the environment (such as change in temperature, humidity ....)"

"acclimation serves to enhance the performance of the organism"

## **Adaptation and Acclimatisation**



Winter coat

Icelandic Horse

Adaptation over generations to aid acclimatization to cold winters



**Summer coat** 

**Sport Horse** 

Adaptation reducing summer coat to aid acclimatisation



Hot weather

Summer marathon

Acclimatisation and appropriate clothing



**Cold weather** 

Antarctic marathon

Acclimatisation and appropriate clothing

# Acclimatisation – physiology

Takes 7 – 14 days <u>depending</u> upon aerobic fitness level

#### Reduces:

- Heart rate
- Core temperature
- Electrolyte loss
- Perceived exertion



# Acclimatisation – physiology

#### Increases:

- Sweating with earlier onset
- Heart function, stroke volume
- Plasma volume
- Overall ability to perform in heat



## **Cumulative Stress encountering hot climate**

Results from failure to recover from previous day(s) exertion

- Typically days 1 5
- Primary cause reduced sweat evaporation due to mild hypohydration
- Lesson Less likely if fit and prepared for heat stress before travel

## Who needs to acclimatise/adapt behaviour and dress?

- Athletes
- Grooms
- Coaches
- Venue staff
- Officials
- Spectators

### Common to all

- Health before travel
- Clothing lightweight, longsleeved, hats
- Hydration if thirsty, you are dehydrated
- Shade do not stand in the sun
- Sunscreen any exposed skin



## Do not ignore early signs of heat stress

#### **Athletes**

- Improved fitness prior to travel aids acclimatization
- Graduated training first few days (avoid "I think I did a bit too much yesterday")
- Clothing to protect against the sun, promote cooling
- Cooling before and after exercise, air conditioning, shade, cold towels

#### **Athletes**

Maintain hydration, water/isotonic drinks, volumes

Do not miss meals – fluid and salts replaced during meals

 Good sleep in air conditioned rooms aids recovery from heat stress

#### Grooms

- Work in the shade, do not stand in the sun watching your rider
- Drink water/sports drinks regularly
- Regular meals
- Protect your sleep, practice with ear plugs and eye masks if sharing a room



### Coaches, Stewards, Staff

Liable to long periods outside

- Appropriate clothing
- Use shade
- Carry drinks with you
- Look for early signs of heat stroke – in yourself and others



### **Spectators**

#### Preparation essential

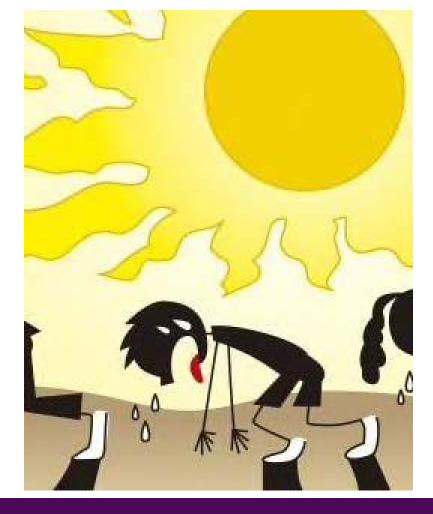
- General Health consult GP if on medication
- Clothing, hats, sunscreen
- Drink frequently pick up drinks on entry to site
- Be aware of symptoms of heat stress

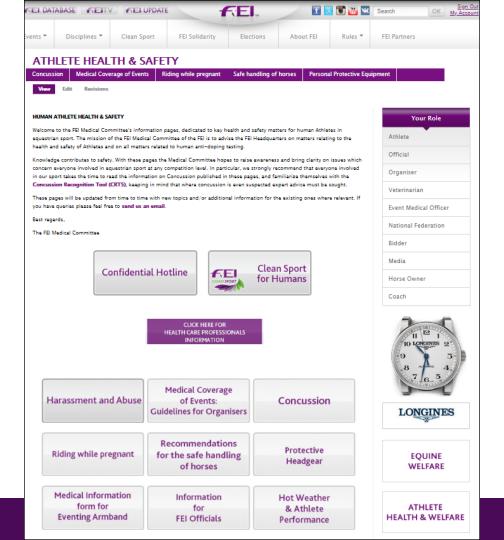


#### **Heat Stress**

- Sweating profusely
- Nausea
- Confusion
- Dizziness
- Fainting
- Cramps
- Headaches

Do not Ignore these Signs or Symptoms – seek advice





## Thank you