

## KISS: Heat-Related Illness

[Wilderness Medical Society Guidelines 2013](#), [NHS Choices](#)

A heat wave is considered as  $\geq 2$  consecutive days of average  $30^{\circ}\text{C}$  by day and  $15^{\circ}\text{C}$  overnight, during which there is a significant increase in the risk of people developing heat-related illnesses. These may also be seen in people undertaking strenuous exercise in lower temperatures.

### Definitions

- **Heat exhaustion**
  - Mild>mod illness caused by exposure to high environmental heat or strenuous exercise
  - Headache, weakness, anorexia, nausea, cramps, excessive sweating, clammy skin, tachycardia/pnoea, intense thirst, discomfort, anxiety, dizziness, syncope
  - In children also consider if floppy and sleepy
  - **Core temperature may be normal or slightly elevated** -  $>37.0^{\circ}\text{C}$  to  $<40.0^{\circ}\text{C}$ 
    - NB a rectal measurement is considered most accurate in heat-related illness
- **Heat stroke**
  - More severe illness, characterised by a **core temp  $>40^{\circ}\text{C}$  & CNS abnormalities**
  - Confusion, seizure, loss of consciousness, marked tachycardia/pnoea/SOB, dehydration, lack of sweating despite temperature

### Pathophysiology

- Core temperatures rising to critical levels results in thermoregulatory dysfunction, acute-phase response and heat shock protein response, the ensuing chain reaction culminating in circulatory shock
- The acute phase response is similar to the inflammatory response seen in sepsis
- Protective “heat shock proteins” fail, resulting in denaturation of normal protein and enzymes at a cellular level, resulting in end-organ dysfunction
- Critical hyperthermia can cause direct tissue injury and death

### Specific considerations

- **Various medications and illicit drugs can contribute**, particularly:
  - Most antihypertensives, TCAs, antiepileptics, antipsychotics, phenothiazines, anticholinergics, laxatives, thyroid agonists, benzos, amphetamines, cocaine, alcohol

### Treatment

- The **NHS has some simple advice** for managing people with heat exhaustion:
  - **Move the person to a cool place**
  - **Lie the person down and slightly elevate their legs**
  - **Encourage plenty of water - sports/rehydration drinks are ok**
  - **Cool the person's skin using a spray or sponge with cold water and fan - cold packs around the axillae and neck are also helpful**
  - **Monitor the person - they should improve within 30 minutes**
- Our role, as ever, is to identify those with severe illness or at increased risk
- **Heat stroke is a medical emergency - call 999 if any signs or a person fails to improve from heat exhaustion after 30 minutes despite the above interventions**