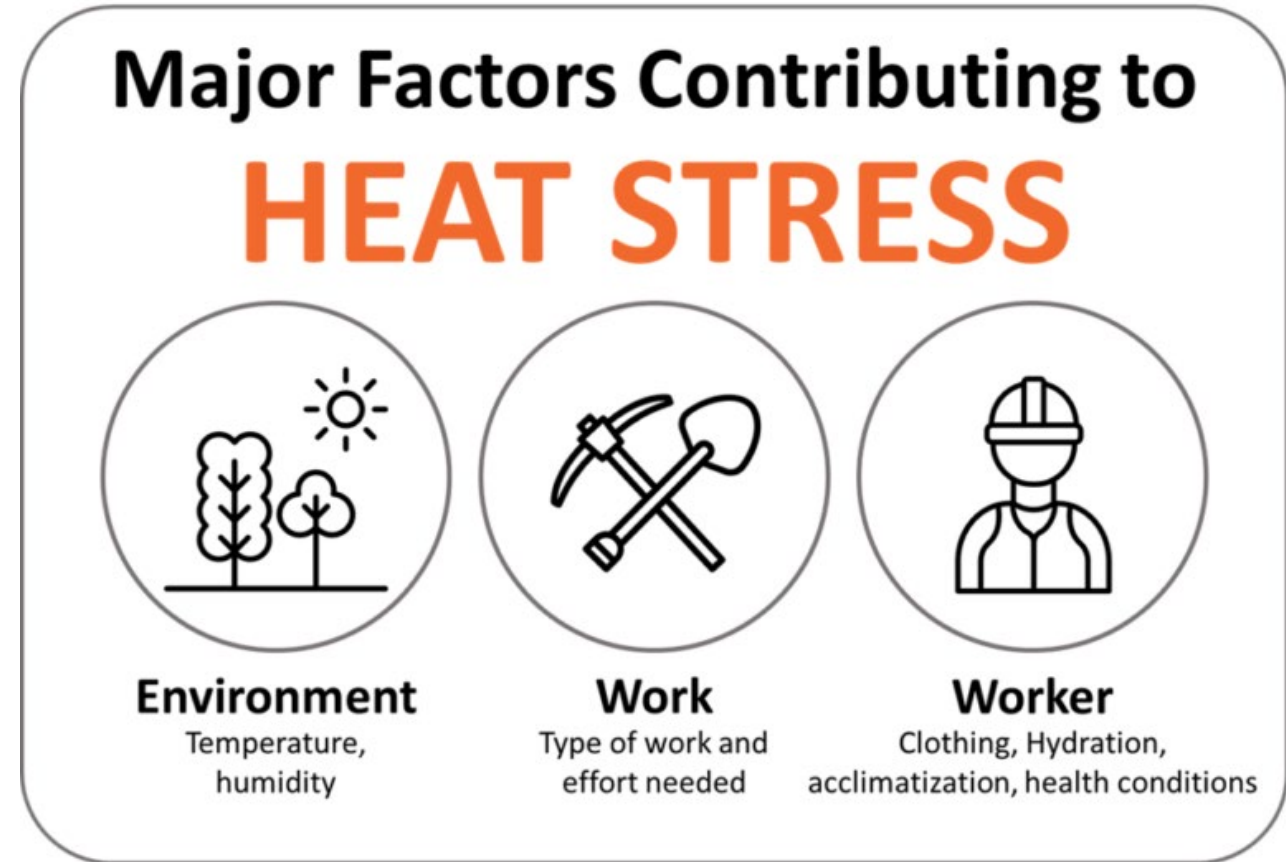


Heat Stress Factors

- Environmental Factors
 - Temperature
 - Humidity
 - Air movement
 - Radiant heat
- Work Level (Metabolic factor)
- Worker Factors:
 - Age, weight, degree of physical fitness
 - Use of alcohol or drugs, and medical conditions
 - Clothing factor
 - Degree of acclimatization



Knowledge Check

The 3 primary factors contributing to heat stress are:

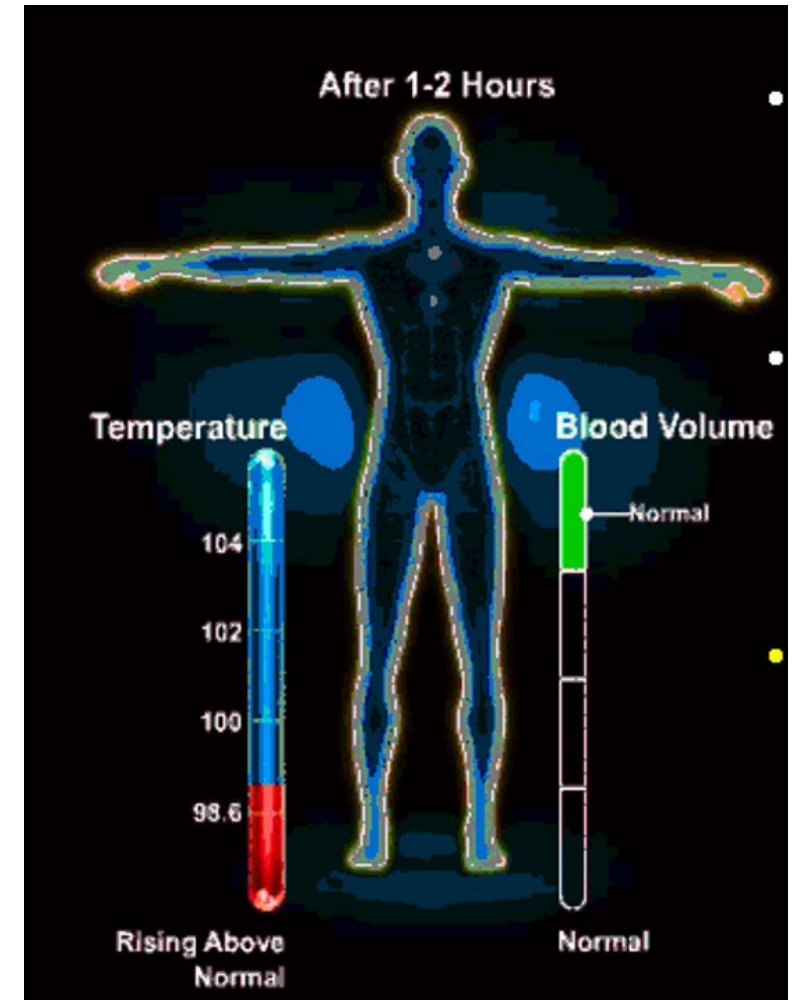
- a. Metabolic, Physiology, Environmental
- b. Work, PPE, and Environmental
- c. Metabolic, Environmental, Worker
- d. Worker, Engineering, Environmental

c. Metabolic, Environmental, Worker



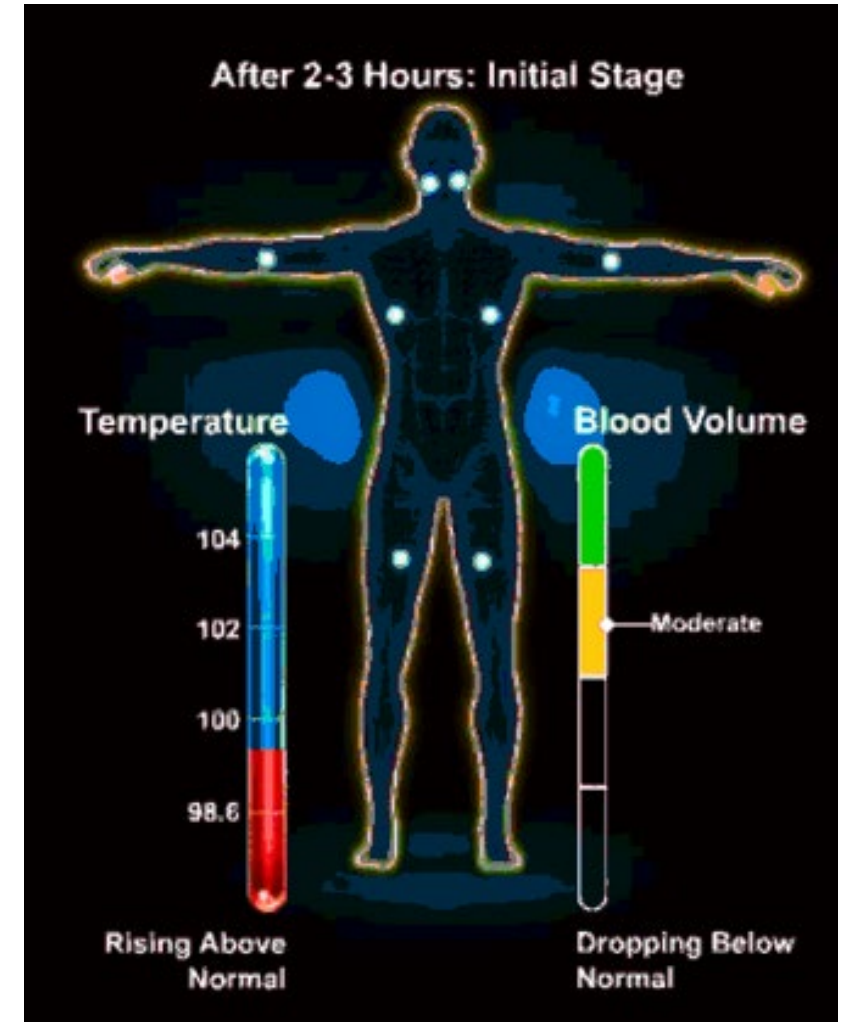
Physiology of Heat Stress

- Hot weather, work-related heat sources, and physical exertion (hard work) raise the body's core temperature.
- Heated blood is pumped to the skin's surface, where body heat transfers to the environment (maybe...).
- Sweating helps to cool your body even faster through evaporative cooling.



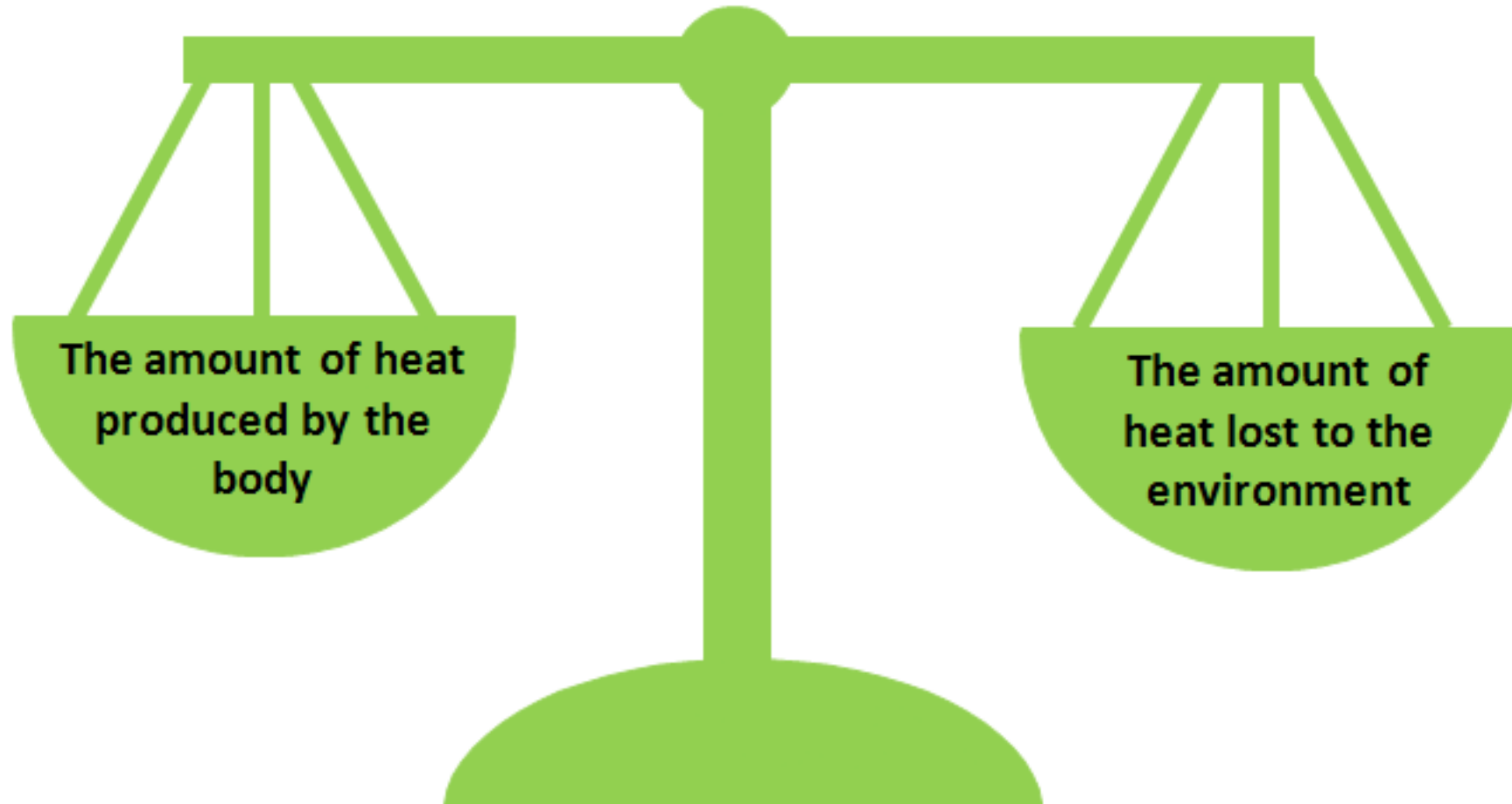
Physiology of Heat Stress

- During heavy work, your body can lose up to 2 liters of water per hour.
- After 2-3 hours of losing fluids at that rate, an individual is likely to:
 - Lose endurance
 - Become uncomfortable
 - Feel hot
 - Become thirsty



Heat and the Human Body

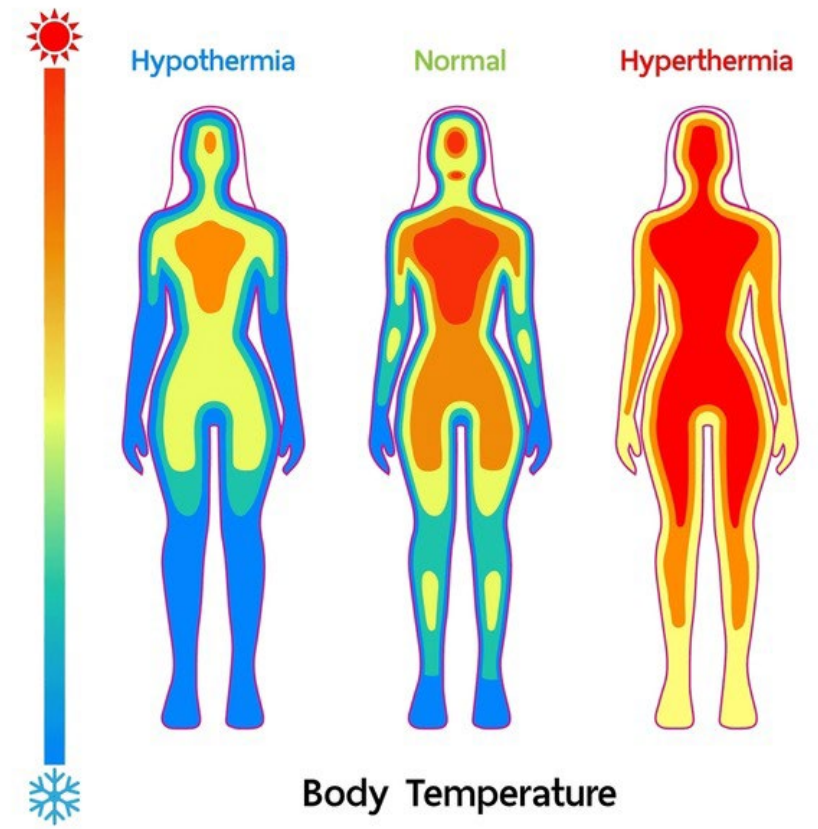
It's all about balance...



Heat and the Human Body

Heat Storage Rate (S) is dependent on several factors:

- Metabolic rate (M)
- External work rate (W)
- Radiant heat exchange rate (R)
- Convective heat exchange rate (C)
- Convective heat exchange rate by respiration (C_{resp})
- Conductive heat exchange rate (K)
- Rate of evaporative heat loss by respiration (E_{resp})
- Rate of evaporative heat loss (H)



Always Remember

Key Elements of HRI Prevention Programs:

- Major Heat Stress Factors:
 - Environment
 - Work
 - Worker
- Will always require a combination of engineering and work practice controls
- Heat Illness Prevention Training:
 - Water
 - Rest
 - Shade

