

Heat and Health: Impacts & Physiology

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Heat and Health: Impacts & Physiology

How does **heat** impact **health**?



Romanello et al. 2022

How does **heat** affect human **physiology**?



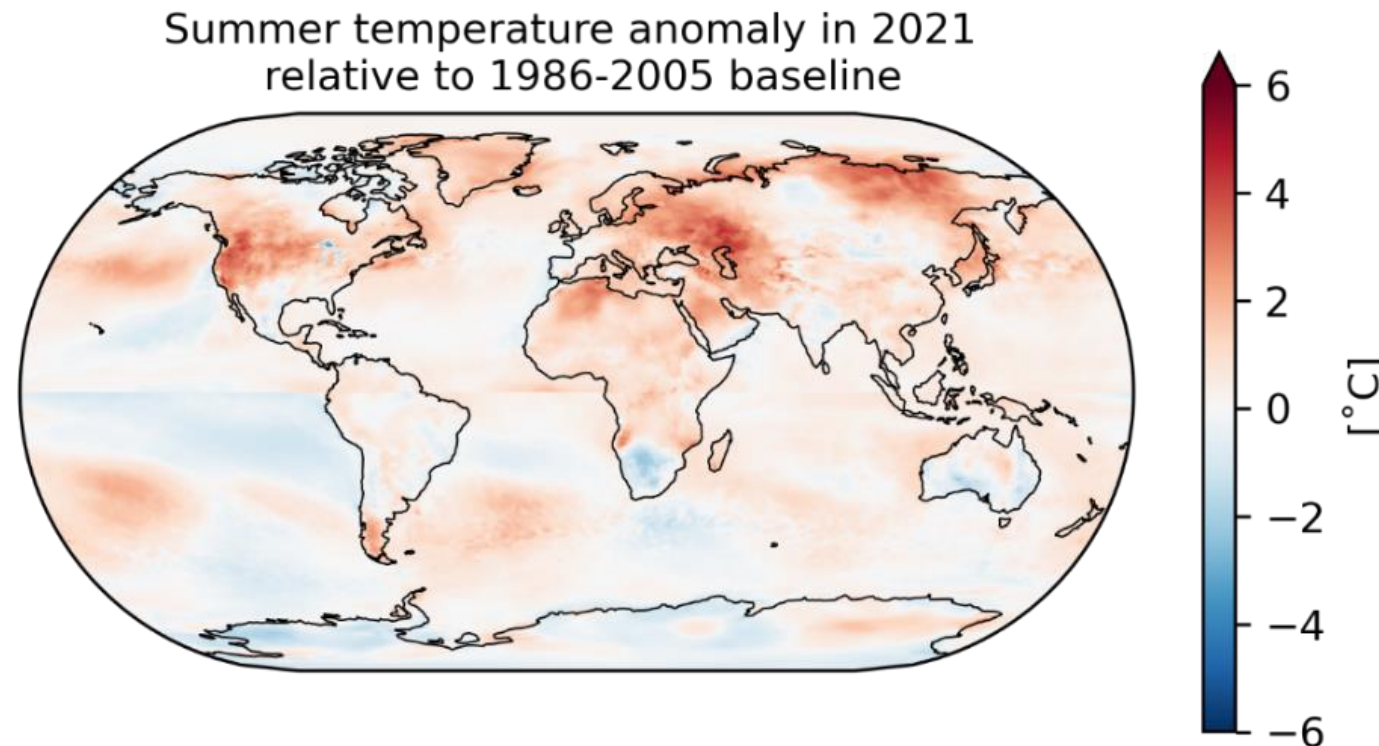
Ebi....Jay. 2021



Heat Indicator #1: Exposure to Warming

Tracks changes in summer temperatures compared to 1985-2006 average

- On average, humans exposed to 0.6°C HIGHER summer temperatures in 2021





Heat Indicator #2: Exposure of Vulnerable Populations to Heatwaves

Tracks heatwave exposure of most vulnerable people to extreme heat

- Over 2012-21, relative to 1986-2005

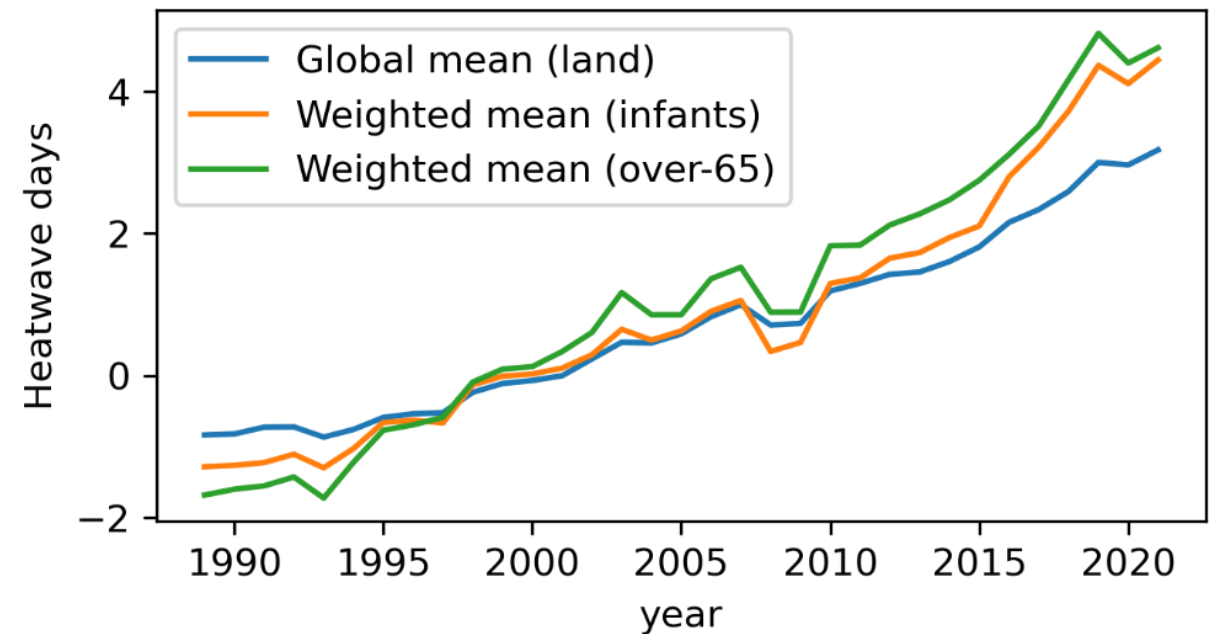
Children (<1 years):

4.4 MORE heatwave days per child annually

Older adults (>65 years):

3.2 MORE heatwave days per person annually

Change in heatwave days relative to 1986-2005 baseline, 10-year rolling mean





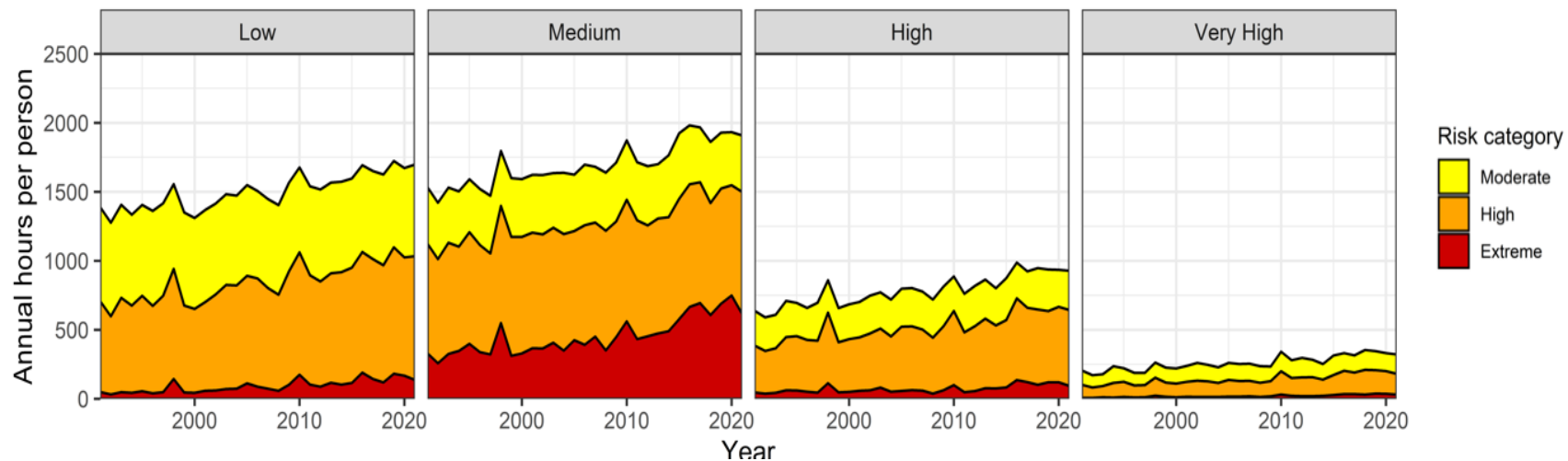


Heat Indicator #3: Heat and Physical Activity

Tracks changes in daily hours that physical activity entails heat stress risk

Relative to 1991-2000, outdoor physical activity increased globally in 2012-21:

- Moderate Risk: 281 MORE hours per person:  33%
- High Risk: 238 MORE hours per person:  42%



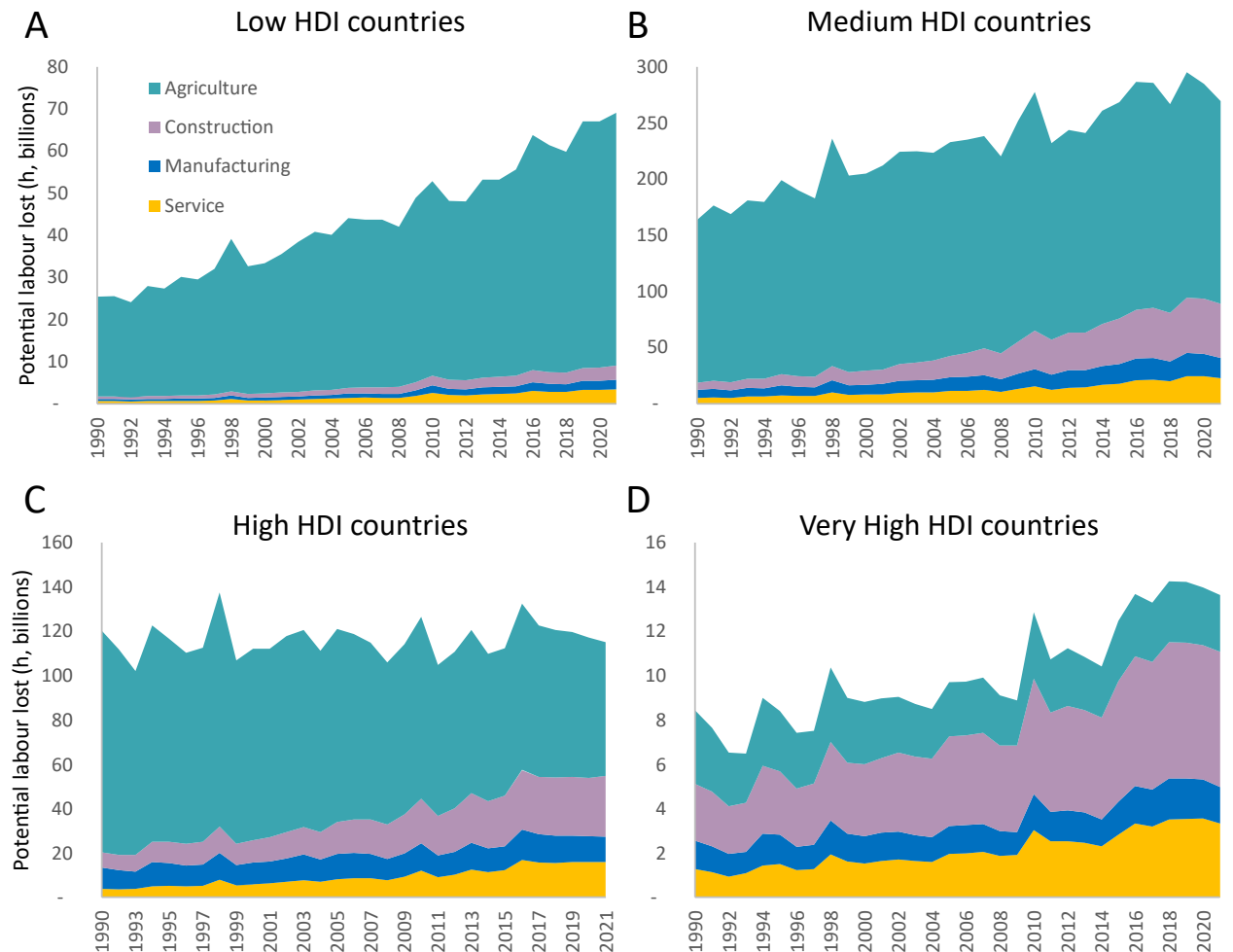
Average annual hours per person that light physical activity entailed at least a moderate, high, or extreme heat stress risk by HDI group.



Heat Indicator #4: Change in Labour Capacity

Tracks lost work hours due to heat stress in four sectors

- In 2021, heat exposure led to the loss of 470 billion potential labour hours, a 37% increase from 1990–1999.
- 87% of the losses in low HDI countries occurred in the agricultural sector.



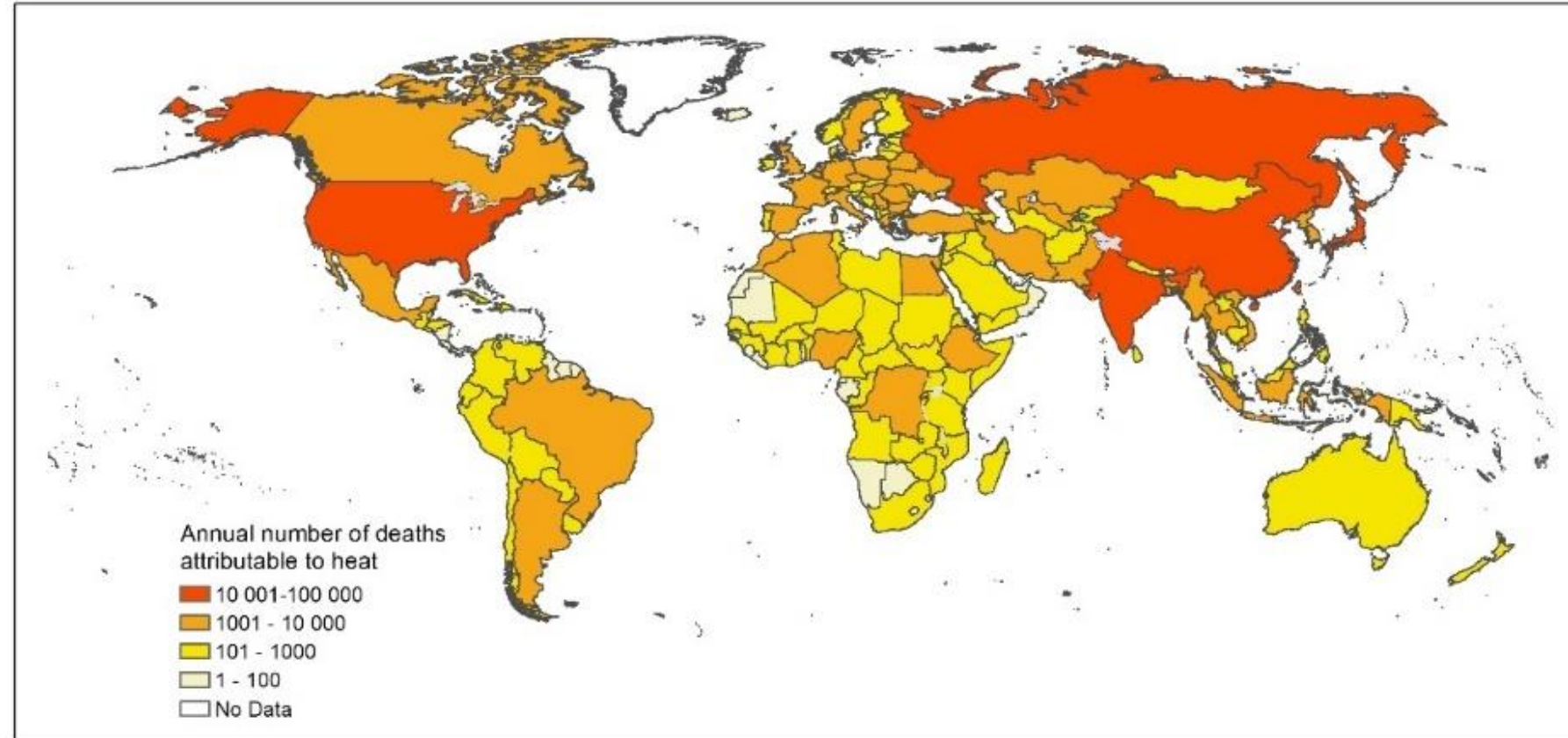
Potential labour lost due to heat-related factors in each sector, assuming all work is undertaken in the sun.



Heat Indicator #5: Heat-related Mortality

Estimates heat-related deaths in people older than 65 years

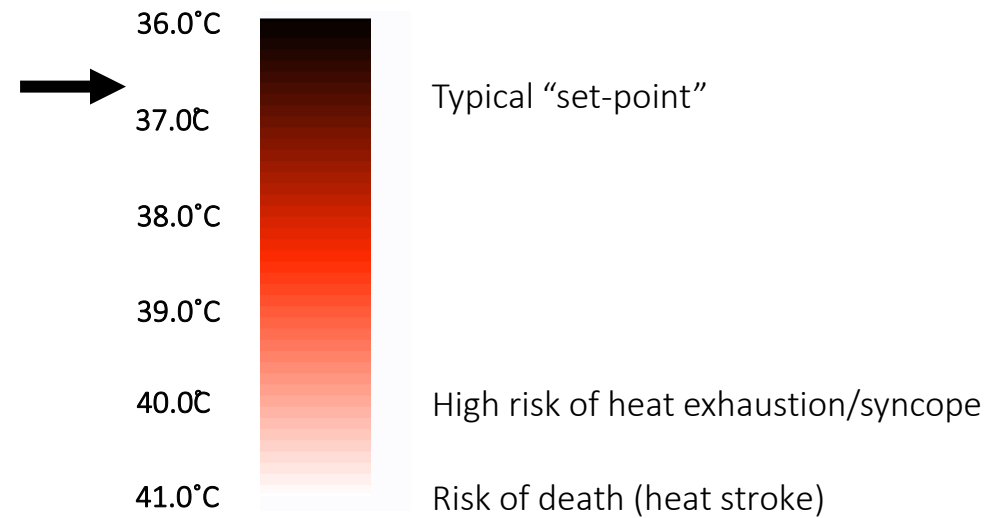
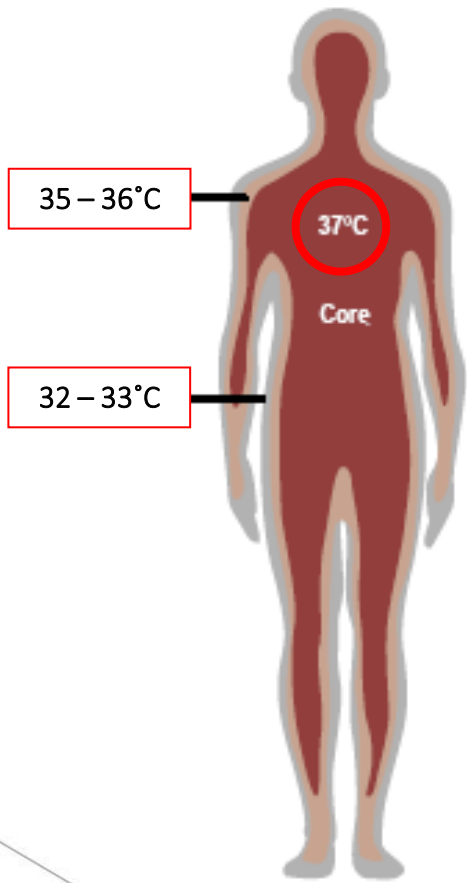
- Heat-related mortality for people over 65 increased by approximately 68% between 2000-2004 and 2017-2021



Heat-related deaths in the over 65 population, 2021.



How Does the Body React to Extreme Heat?

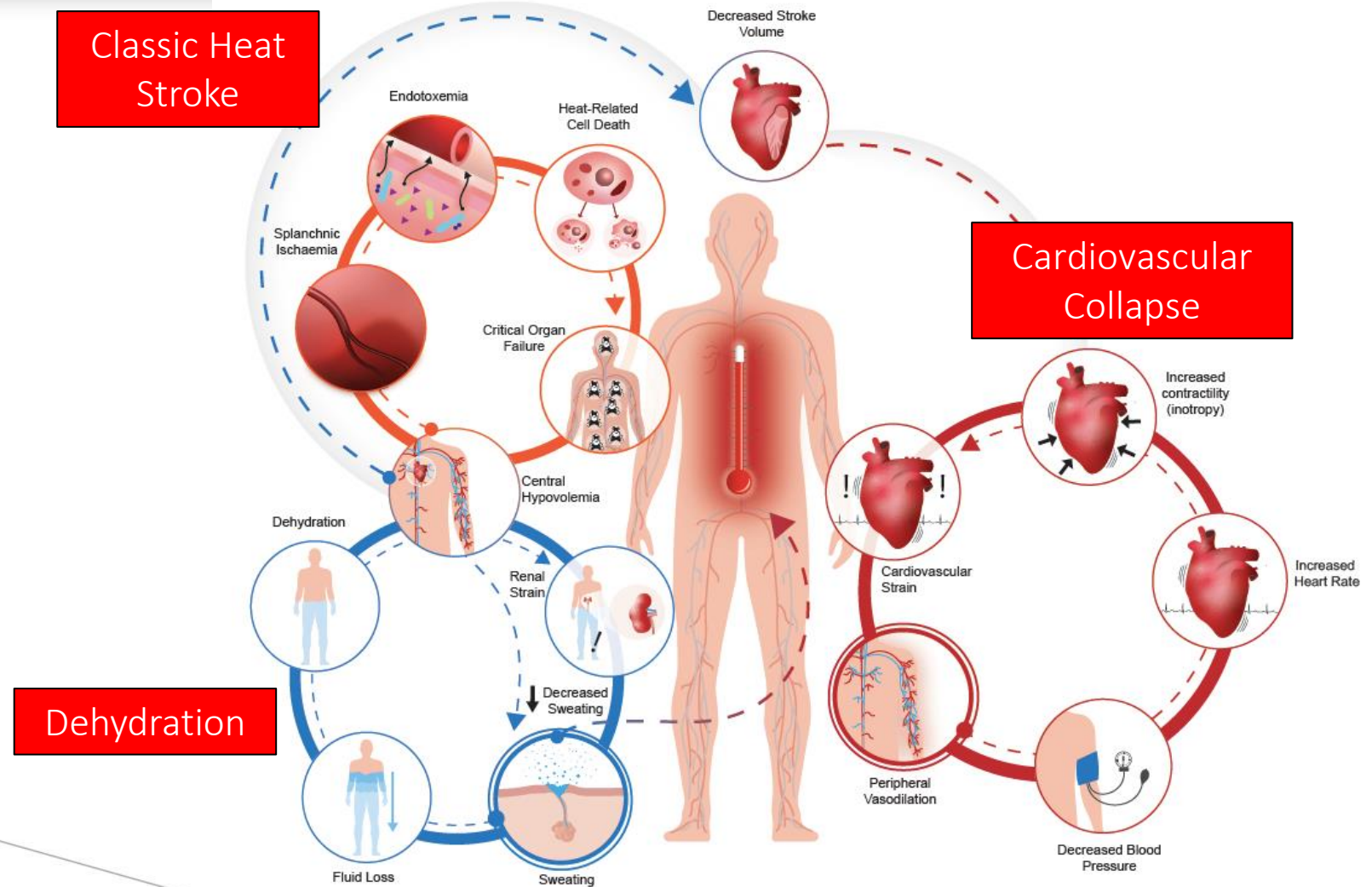




How Does the Body React to Extreme Heat?

The most vulnerable:

- Older Adults (>65 y)
- Working in the Heat
- Pre-existing Diseases
- Certain Medications
- Poverty
- Socially Isolated



Thank you

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