

Sustainable and accessible ways to keep cool

Mitigating climate change is vital, but inevitable rising temperatures means that identifying sustainable cooling strategies is also important. Strategies at the individual scale that focus on cooling the person instead of the surrounding air can be effectively adopted, even in low-resource settings.



- +** Can provide effective cooling for young healthy adults up to 42°C (108°F) in 50% humidity
- Effectiveness is reduced with low humidity, and in older adults (>65 years), unless accompanied by self-dousing
- Increases dehydration, but can be offset by drinking an extra glass of water per hour



- +** Can reduce heat strain and dehydration up to 47°C (117°F) if dousing is sufficient to keep the skin wet
- +** Can be used during power outages
- Low compatibility with high clothing coverage



- +** Can reduce dehydration and thermal discomfort in hot and humid conditions
- +** Can be used during power outages
- Risk of slips and falls



- +** Provides high evaporative heat loss without needing to sweat
- +** Can be used during power outages
- Clothing must be re-soaked roughly every 60 min



Electric fans can be used below these temperatures irrespective of humidity:

39°C
102°F

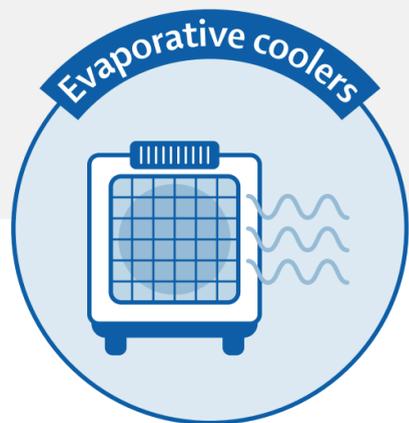
Healthy young adults
(aged 18 to 40 years)

38°C
100°F

Healthy adults
(aged over 65)

37°C
99°F

Over 65s taking anti-cholinergic medication



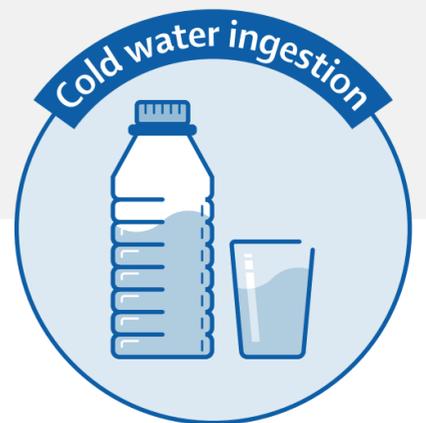
- +** Can cool air temperatures in dry conditions
- Minimal effect in high humidity
- Risks creating mosquito breeding sites without proper maintenance



- +** Lowers air temperatures in hot and dry conditions
- Must be used in well ventilated or outdoor areas otherwise humidity increases offset any benefit
- Risk of slips and falls



- +** Can reduce core temperature and cardiovascular strain in conditions up to 45°C (113°F)
- Requires access to ice
- Labour-intensive to prepare



- +** Can provide internal cooling
- +** Water should be ingested at a temperature that is most palatable (~10°C/~50°F) to ensure optimal hydration
- If person has already started sweating, not effective at lowering core temperature

Read the full paper: Jay O, Capon A, Berry P, et al. Reducing the health effects of hot weather and heat extremes: from personal cooling strategies to green cities. *The Lancet* 2021. Published online August 19