

Staying cool in summer

Staying cool during a heatwave involves a combination of behavioural adaptations, environmental modifications, and building design strategies aimed at reducing heat exposure and improving thermal comfort. Urban households, particularly in vulnerable regions, often rely on personal behaviour changes such as using fans, accessing water, and seeking shelter to mitigate heat stress, although the effectiveness of these methods can be limited by socio-economic factors like income and education levels. (Hossain, I. *et al.*, 2024)

In urban environments, green infrastructure and urban cooling strategies, including white and green roofs, can help reduce the urban heat island effect, thereby lowering ambient temperatures and improving outdoor thermal comfort. (Dube, K. *et al.*, 2025; Hossain, I. *et al.*, 2024) Additionally, the presence of water bodies in urban areas has been shown to reduce ambient air temperature by approximately 0.9 °C and surface temperatures by 3.5 °C, while also increasing wind velocity, which can enhance thermal comfort at pedestrian levels, (Zeeshan, M. and Ali, Z., 2023).

For indoor environments, especially educational buildings, passive cooling strategies such as natural night ventilation (NNV) and indirect evaporative cooling (IEC) have been evaluated for their capacity to maintain thermal comfort during heatwaves and power outages. These strategies can provide moderate resilience to overheating under typical meteorological conditions and some heatwave scenarios, although their effectiveness decreases during prolonged or intense heatwaves, (Sengupta, A. *et al.*, 2023)

The thermal mass of a building also influences its ability to recover from peak temperatures, with heavier thermal mass generally providing better long-term thermal resilience, (Sengupta, A. *et al.*, 2023)

Early warning systems and heat indices are additional adaptation measures that can help mitigate heatwave impacts, but current approaches are considered insufficient for long-term resilience, highlighting the need for further research and targeted policy interventions, (Dube, K. *et al.*, 2025)

In summary, staying cool during heatwaves requires a multifaceted approach involving personal adaptive behaviours, urban planning with green and blue infrastructure, and building design incorporating passive cooling and thermal mass considerations. Socio-economic disparities influence the accessibility and effectiveness of these strategies, indicating a need for tailored interventions in vulnerable populations.

References

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