

Fact Sheet

People at risk in heatwaves

Any individual, regardless of age, sex, or health status, can suffer from heat related illness, especially when engaged in intense physical activity and/or exposed to environmental heat.

Some people are more at risk than others, these include:

- > people who are dehydrated, including fit healthy people
- > older people, particularly those living alone and with pre-existing health conditions
- > those living without air conditioning; and/or unwilling to use their air conditioners due to cost of electricity
- > infants and young children
- > pregnant women
- > people who are breastfeeding
- > people with certain health conditions, particularly mental illness, heart disease, kidney disease, diabetes, and hypertension
- > people with conditions that impairs sweating including cystic fibrosis, skin disorders, scleroderma, congenital impairment of sweating
- > people of all ages who are undertaking extended or heavy physical activity, like playing sports, or working outdoors or in hot environments
- > those taking certain medications that as a side effect impairs their body's ability to control body temperature.

Mechanisms	Drug class or sub-class	Examples	
Reduced vasodilation	Beta-blockers	Atenolol, metoprolol, propranolol	
	Triptans	Sumatriptan, zolmitriptan	
Decreased sweating	Anticholinergics	Tricyclic antidepressants	Amitriptyline, clomipramine, dothiepin
		Sedating antihistamines	Promethazine, doxylamine, diphenhydramine
		Phenothiazines	Chlorpromazine, thioridazine, prochlorperazine
		Other anticholinergics	Benztropine, hyoscine, clozapine, olanzapine, quetiapine, oxybutynin, solifenacin
	Beta-blockers	Atenolol, metoprolol, propranolol	

Fact Sheet

Increased heat production	Antipsychotic drugs	Clozapine, olanzapine, quetiapine, risperidone
	Stimulants	Amphetamines, cocaine, thyroxine
Decreased thirst	Antipsychotics	Haloperidol, droperidol
	Angiotensin-converting enzyme (ACE) inhibitors	Enalapril, perindopril, ramipril
Dehydration	Alcohol	
	Diuretics	Frusemide, hydrochlorothiazide, acetazolamide, aldosterone
	Stimulant laxatives	Senna extract, bisacodyl
Aggravation of heat illness by worsening hypotension in vulnerable patients	All antihypertensives, particularly vasodilators (nitrates, calcium channel blockers)	
	Nitrates	GTN, isosorbide mononitrate
	Calcium channel blockers	Amlodipine, felodipine, nifedipine
Increased toxicity for drugs with narrow therapeutic index in dehydration	Various	Digoxin, immunosuppressants, lithium, metformin, warfarin

Factors that contribute to heat-related illness:

- > Older people (especially those living alone) may be more susceptible to heat-related illness than younger people because their body may not adjust well to sudden or prolonged temperature change. They may be more likely to have a chronic medical condition and be taking medication that may interfere with the body's ability to regulate temperature.
- > The presence of frailty, limited mobility without aid, or conditions like dementia or mental illness can also impact capacity to safely self-manage in hot weather.
- > Dehydration – to keep healthy, the body temperature needs to stay around 37°C. The body cools itself by sweating, which normally accounts for 70 to 80% of the body's heat loss. Dehydration results in a reduced ability to sweat, and a resultant rise in body temperature. Dehydration may occur through inadequate fluid intake, impaired thirst mechanism, be as a result of exercise (especially in hot weather), severe diarrhoea or vomiting, drinking alcohol, taking certain medications (for example, diuretics).
- > Some medications can increase the risk of heat-related illness. For more information on some of these medications, speak to a prescribing doctor or pharmacist or visit www.choiceandmedication.org/sahealth/printable-leaflets/patient-information-leaflets/37/ALL/

Fact Sheet

- > Some medications can be less effective or more toxic when exposed to extreme heat or sunlight and therefore their storage is important. Check with your pharmacy on how best to store your medicines.

Potential for direct heat related injuries

- > Severe burn injuries can result from contact with hot surfaces including footpaths, roads, metal structures etc. There is some evidence to show both intended and unintended injury rates at a population level rise with extreme heat. Australian studies including falls, wounds, lacerations, and amputations along with burns increase during high temperatures and extreme heat.
- > People who rely on a wheelchair, walker, or any metal equipment should ensure it is sheltered from direct sunlight because it can rapidly heat up, posing a risk of burns upon contact.
- > Occupational injury rates can be negatively affected by extreme heat due to fatigue, loss of concentration, or reduced cognitive function and fine motor skills, or altered behaviour, interacting with existing physical hazards in the workplace, example, fall from ladders due to dizziness.
- > There is some evidence that presentations for musculoskeletal sport-related injuries may decrease in extreme-heat, due to implementation of risk management strategies, resulting in cancellations or shortened playing times.

Acute, chronic, and severe illness

Increased vulnerability resulting from acute, chronic, and severe illness may affect people:

- > with a high temperature from an existing infection
- > with heart or breathing problems, diabetes, respiratory or renal insufficiency, serious mental illness, or who are above a healthy weight
- > taking certain types of medications that can make them more vulnerable to the heat
- > who use medical equipment (e.g. ventilators, oxygen, gastric tubes)
- > individuals with problematic alcohol or other drug use, such as amphetamines.

Inability to keep cool

The body's ability to thermo-regulate is critical during periods of extreme heat. The following are examples of people who may be at increased risk due to their body's inability to keep cool:

- > infants and children under five years
- > anyone confined to bed
- > people with Dementia or Alzheimer's
- > people with neurodivergence e.g. Autism Spectrum Disorder; Attention Deficit Hyperactivity Disorder.

Disability

People living with a disability are at an increased risk during extreme heat, such as those:

- > who are non-ambulatory (unable to walk)
- > with physical/intellectual disabilities that impair their capacity to self-manage
- > with sensory impairments (blind/visually impaired or deaf/hard of hearing)
- > with cognitive disorders
- > with mobility issues.

Fact Sheet

Environmental factors (including working in the heat)

Environmental factors that may contribute to increase impact of extreme heat/heatwave include:

- > wearing inappropriate clothing
- > being outdoors during the hottest part of the day (usually in mid or late afternoon)
- > engaging in activities in places with no cooling, or outdoors, and which includes high levels of physical exertion (e.g. gardeners or labourers)
- > working conditions, such as air temperature, air flow, humidity, radiant heat sources, work requirements and the workplace itself
- > living in a confined space with no ventilation
- > those who may live on their own, are socially and/or geographically isolated
- > crowded living conditions
- > living on the top floor of a house or apartment building.

Social factors

- > pregnancy
- > individuals with substance misuse issues
- > people who are socially and economically disadvantaged
- > people experiencing homelessness
- > people who live alone or who are socially isolated
- > people who are unable to readily access health-related information and advice

Additional resources

- > NSW Health, Information for health professionals
<https://www.health.nsw.gov.au/environment/beattheheat/Pages/information-for-health-professionals>
- > Victoria Health, Extreme heat information for clinicians
<https://www.health.vic.gov.au/environmental-health/extreme-heat-information-for-clinicians>

For more information

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