



ABN: 72 893 760 500

Extreme Weather Guidelines

Important Disclaimer

The information contained in this guide is general in nature and does not constitute medical advice from a doctor or health professional. While all reasonable attempts have been made to ensure the accuracy of the information in this guide, Hockey Albury Wodonga and associated parties cannot accept responsibility for loss, injury, claim or damage resulting from the use or application of information within this guide.

1. Introduction

Hockey Albury Wodonga Extreme Weather Guidelines have been developed based on the guidelines produced by Hockey Australia and Sports Medicine Australia. It should be noted that these are purely guidelines.

The guidelines should be considered for all participants involved in hockey, including players, officials, umpires, coaches, parents, volunteers, staff and spectators.

As a general rule, matches will not be cancelled by Hockey Albury Wodonga as conditions can vary between locations and at different times of the day.

For any match that is interrupted for more than 15 minutes, see Chapter 7 - Interrupted Match Instructions.

2. Extreme Weather

Extreme weather may be defined as weather that threatens the immediate or long-term safety of individuals, as a result of rain, hail, lightening, ice, wind chill or heat.

The risk is determined in conjunction with Sport Medicine Australia's Guidelines as well as the Bureau of Meteorology's forecast conditions.

Weather Condition	Extreme weather determinant
Ambient temperature	> 36 degrees Celsius
Wet bulb globe temperature (shade)	> 30
Apparent temperature (wind chill)	< 2 degrees Celsius
Wind speed	> 40km per hour
Rainfall	> 80mm within 24 hours

Notes:

- Wind may create additional hazards in regard to trees, branches or other materials becoming projectiles.
- Rain also needs to be considered in relation to its impact on the safety of the playing surface.

3. Interrupted Match Instructions

If a match is interrupted by the umpires because of extreme weather or field of play conditions, the continuation of the match is dependent on the following features:

- If the match is in the first half and cannot be resumed a 0-0 draw will be the result
- If the match has progressed to the second half, the score at that point in the match was abandoned will stand.

What teams may decide to do for high temperatures, at the discretion of the umpires and two captains (or two managers for a junior team) is

- Amend the match times – play shorter halves
- Instigate four quarters so that there is a drinks break in the middle of each half

4. Hail

All hailstorms present some risk to players in an open playing field, and the size and intensity of the storm can change dramatically in a short period of time.

All play should be suspended during hail storms so that players and officials can seek shelter.

It is important to also be aware of any significant temperature drop, rainfall and increased wind that may be associated with the hail conditions.

Play should be restarted after the hail has stopped falling, with particular attention being given to the amount of ice on the playing surface (size and thickness of layer). In some cases it may be unsafe to resume play immediately due to an ice covered surface. Deferral of the restart to allow melting (or manual clearing in parts) should be considered in extreme circumstances.

5. Lightning

Lightning is the visible part of an electrical discharge. Thunder is the resulting sound from the rapid expansion of the air after this electrical discharge. Sound follows light at 0.34 km/sec and is not usually heard 24-32 kilometres from the lightning strike. Check the forecast and watch the sky. Darkening skies, flashes or lightning, or increasing wind may indicate an approaching storm.

Lightning safety tips:

- Use the 30/30 Lightning Rule. If the time between the lightning flash and the thunder sound is less than 30 SECONDS then play should be suspended, and not resumed until 30 MINUTES after the last thunder (30 seconds relates to 10 Kilometres away).

- Find safe shelter. Sturdy buildings are the safest place to be during lightning storms. Avoid sheds, picnic shelters, metal coaching boxes & goals. Staying in a car with windows closed also offers some protection.

6. Ice on the field

Extreme weather can cause the field surface to freeze.

If the surface is frozen then no one is to take the field to either warm up or play until the ice has thawed or has been cleared from the field. If a game is delayed to a point that 2 x 20 minutes halves cannot be played, the game is to be considered as deferred and the Director of Competitions consulted for a new game time.

The umpires and the two captains (or two managers for a junior team) are to determine when the ice is thawed and the field is safe to play on. If there is a Board member at the ground they are to consult with the Board member. At that stage the warm up can begin.

7. Chill

Extreme weather can produce two chill risks: the absolute air temperature and the wind chill factor. Of these, wind chill in winter sports is the more significant risk.

Apparent Temperature (AT) is an adjustment to the actual air (ambient) temperature based on the perceived effect of the extra elements such as humidity and wind. AT is valid over a wide range of temperatures, and it includes the chilling effect of the wind at lower temperatures. Refer to the chart in References or the Bureau of Meteorology website.

Minus 2°C (AT) is the point where play should be suspended for wind chill factor.

When using the AT as a wind chill indicator, the model assumes an appropriately dressed adult. If clothing were to get wet, the cooling effect would be greater than that predicted by the model, and the chance of hypothermia would be greater than indicated. In wet, windy conditions, someone wearing inadequate clothing can become hypothermic in quite mild conditions, particularly children.

8. UV Exposure and Heat Illness

The sun's UV is both the major cause of skin cancer and an important source of vitamin D. Sport and recreation must take a balanced approach to UV exposure that reflects the varying levels of UV throughout the year and local conditions.

Overexposure to UV can cause skin damage, eye damage and skin cancer. These risks can be reduced by implementing some simple strategies.

Whenever UV levels reach three and above, sun (UV) protection is needed. During this time, use a combination of five sun protection measures:

1. Slip on sun-protective clothing – that covers as much skin as possible.
2. Slop on SPF30+ sunscreen and lip balm – make sure it is broad spectrum and water-resistant. Apply it 20 minutes before going outdoors and every two hours afterwards.
3. Slap on a hat – that protects your face, head, neck and ears.
4. Seek shade.
5. Slide on some sunglasses – make sure they meet the Australian standard.

If you cannot utilise these points when playing, ensure that you follow them in off-field activities.

You can easily find the daily UV alert by checking the HAW website home page in the bottom left corner. For more information relating to UV exposure and heat illness visit www.smartplay.com.au.

8.1 Heat Illness

Heat illness can occur when a participant exercises vigorously in hot conditions. It may also occur with prolonged exposure to hot weather, even if activity is low intensity. In cool weather, heat illness can also present when exercising at high intensity.

Heat illness in sport presents as heat exhaustion (more common) or heat stroke (rare but life threatening). Symptoms may include light-headedness, dizziness, nausea, obvious fatigue or loss of skill and coordination, unsteadiness, cessation of sweating, confusion, aggressive or irrational behaviour, collapse or ashen grey pale skin.

Responses to heat vary; it is not possible to provide overall recommendations about limiting conditions in hot weather. However, heat illness can be prevented by knowing the risk factors and applying prevention strategies to minimise risk. Factors that increase the risk of heat illness include:

- High exercise intensity (e.g. exercising close to your personal capacity)
- Lack of fitness (e.g. exercising at an intensity or duration beyond your current capacity)
- Previous history of heat illness or heat intolerance
- Age – junior and veteran participants are at higher risk due to their age
- Illness and medical conditions (e.g. current or recent infectious illness or chronic health disorders at any age)
- High air temperature and high humidity (see Heat Illness Chart below)
- Low air flow or movement (no wind)
- Prolonged exposure to hot conditions, heavy clothing and protective clothing (e.g. padding)
- Lack of acclimatisation to being active in warm and humid conditions
- Dehydration (inadequate water intake before exercise and during activity)

8.2 Children and Heat Stress

Children sweat less and get less evaporative cooling than adults. In warm and hot weather they have greater difficulty getting rid of heat; they look flushed, and feel hotter and more stressed than adults. Overweight children are particularly disadvantaged exercising in warm weather.

Children seem to be effective at “listening to their bodies” and regulating their physical activity. For this reason, children should always be allowed to exercise at their preferred intensity. They should never be urged to exercise harder or compelled to play strenuous sport in warm weather. If children appear distressed or complain of feeling unwell, they should stop exercising.

Drinks should be available for children playing sport. In warm weather wet sponging will make children feel more comfortable.

8.3 Heat Illness Chart

The Heat Illness Chart is a guide to the relationship between ambient temperature and the risk of heat illness. When observing this chart consider:

- there are not clear demarcations in risk between temperature ranges
- stress increases with rising air temperature and relative humidity
- at low ambient temperatures the body can cope with higher humidity than at high ambient temperatures
- stress increases with relative humidity as it becomes more difficult to regulate body temperature due to a decrease in the evaporation of sweat (a mechanism used to keep the body cool in the heat and while exercising)
- Individual risk factors including acclimatisation to location conditions.

Ambient Temperature - Easily understood, most useful on hot, dry days.

Ambient Temperature °C	Relative Humidity	Risk of Heat Illness	Recommended management for sports activities
15-20		Low	Heat illness can occur in running.
21-25	Exceeds 70%	Low – Moderate	Increase vigilance. Caution over-motivation.
26-30	Exceeds 60%	Moderate - High	Moderate early pre-season training. Reduce intensity and duration of play/training. Take more breaks.
31-35	Exceeds 50%	High - Very High	Uncomfortable for most people. Limit intensity, take more breaks. Limit duration to less than 60 minutes.
36 and above	Exceeds 30%	Extreme	Very stressful for most people. Defer or cancel.

Wet Bulb Globe Temperature (WBGT) - Further guidance might be gained from the WBGT index. It is particularly useful for hot, humid days. Refer to the chart in references or go to www.bom.gov.au.

WBGT	Risk of Heat Illness	Recommended management for sports activities
Less than 20	Low	Heat illness can occur in running. Caution over-motivation.
21-25	Moderate - High	Increase vigilance. Caution over-motivation. Moderate early pre-season training. Take more breaks.
26-29	High – Very High	Limit intensity, take more breaks. Limit duration to less than 60 minutes per session.
30 and above	Extreme	Consider postponement to a cooler part of the day or cancellation (allow swimming).

8.4 UV Checklists for Clubs and Participants

Players, coaches and officials need to be responsible for their own protection and aware of the following:

- SPF 30+ broad spectrum, water resistant sunscreen should be worn by participants
- Apply sunscreen 20 minutes before training or playing and to reapply every two hours. For best protection, participants are encouraged to apply a generous amount of sunscreen (the equivalent of one teaspoon per limb).
- All participants are responsible for bringing their own clearly labelled drink bottle and ensure they are adequately hydrated prior to participating in any physical activity. Taps are available at all grounds with clean water

Clubs need to be aware of the following

- Where possible, training and warm up activities, are to be modified to minimise exposure to UV and high temperatures. For example, reduce the duration of activity, limit the intensity, increase and/or extend the number of rest breaks, seek shade, ensure water is available.
- Training can be cancelled when high-risk conditions are forecast.
- Increase the number of player rotations within a match.
- Officials, coaches and senior members are to act as role models by wearing sun-protective clothing, hats and sunglasses, applying sunscreen and seeking shade wherever possible.
- Utilise shade available from dugouts, buildings, trees and other structures where possible.
- Individuals are permitted to drink between breaks at their own discretion.
- Club supplied ice and water spray bottles are available as cooling aids.
- Any participant feeling discomfort or distress is monitored by club officials and if necessary sent to be evaluated by trained safety personnel.
- Information on participants' medical conditions and medical history is collected (according to privacy legislation).
- A record of injuries (including heat illness) is kept.
- Age, fitness, skin characteristics, acclimatisation, gender and medical conditions are considered when making decisions.
- If in doubt, an individual is advised to see a medical professional for clearance to participate.

9. Useful Resources

UV Exposure and Heat Illness Guide

<http://sma.org.au/wp-content/uploads/2010/02/UV-Exposure-and-Heat-Illness-Guide.pdf>

Hot Weather Guidelines: for sporting clubs and associations and the physically active

<http://sma.org.au/wp-content/uploads/2009/05/hot-weather-guidelines-web-download-doc-2007.pdf>

Beat the Heat: playing and exercising safely in hot weather

<http://sma.org.au/wp-content/uploads/2011/03/beat-the-heat-2011.pdf>

SunSmart

<http://www.sunsmart.com.au/>

Smartplay

<http://www.smartplay.com.au/>

Bureau of Meteorology - www.bom.gov.au

BOM provides information on local weather conditions and observations including temperature, UV, wind speed and thermal comfort. Weather warnings, including heat waves, fire and storms can be viewed and should be considered as part of any club's safety plan. The provision of safety personnel able to identify, treat and manage heat illness is also an important part of this planning.

Wet Bulb Globe Temperature Approximation

		Wet Bulb Globe Temperature (WBGT) from Temperature and Relative Humidity																														
		Temperature (°C)																														
		20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
Relative Humidity (%)	0	15	16	16	17	18	18	19	19	20	20	21	22	22	23	23	24	24	25	25	26	27	27	28	28	29	29	30	31	31	32	32
	5	16	16	17	18	18	19	19	20	21	21	22	22	23	24	24	25	26	26	27	27	28	29	29	30	31	31	32	33	33	34	35
	10	16	17	17	18	19	19	20	21	21	22	23	23	24	25	25	26	27	27	28	29	30	30	31	32	32	33	34	35	36	36	37
	15	17	17	18	19	19	20	21	21	22	23	23	24	25	26	26	27	28	29	29	30	31	32	33	33	34	35	36	37	38	39	
	20	17	18	18	19	20	21	21	22	23	24	24	25	26	27	27	28	29	30	31	32	32	33	34	35	36	37	38	39			
	25	18	18	19	20	20	21	22	23	24	24	25	26	27	28	28	29	30	31	32	33	34	35	36	37	38	39					
	30	18	19	20	20	21	22	23	23	24	25	26	27	28	29	29	30	31	32	33	34	35	36	37	39							
	35	18	19	20	21	22	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39								
	40	19	20	21	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39									
	45	19	20	21	22	23	24	25	26	27	27	28	29	30	32	33	34	35	36	37	38											
	50	20	21	22	23	23	24	25	26	27	28	29	30	31	33	34	35	36	37	39												
	55	20	21	22	23	24	25	26	27	28	29	30	31	32	34	35	36	37	38													
	60	21	22	23	24	25	26	27	28	29	30	31	32	33	35	36	37	38														
65	21	22	23	24	25	26	27	28	29	31	32	33	34	36	37	38																
70	22	23	24	25	26	27	28	29	30	31	33	34	35	36	38	39																
75	22	23	24	25	26	27	29	30	31	32	33	35	36	37	39																	
80	23	24	25	26	27	28	29	30	32	33	34	36	37	38																		
85	23	24	25	26	28	29	30	31	32	34	35	37	38	39																		
90	24	25	26	27	28	29	31	32	33	35	36	37	39																			
95	24	25	26	27	29	30	31	33	34	35	37	38																				
100	24	26	27	28	29	31	32	33	35	36	38	39																				

Note: This table is compiled from an approximate formula which only depends on temperature and humidity. The formula is valid for full sunshine and a light wind



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Steadman Apparent Temperature

Apparent temperature (AT) from temperature and relative humidity - after Steadman 1994

		Temperature (°C)																														
		20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
Relative Humidity (%)	0	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46
	5	16	17	18	19	20	21	22	23	24	25	26	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	44	45	46	47	48
	10	17	18	19	20	21	22	23	24	25	26	27	28	29	31	32	33	34	35	36	37	38	39	41	42	43	44	45	46	48	49	50
	15	17	18	19	20	21	22	24	25	26	27	28	29	30	31	33	34	35	36	37	38	40	41	42	43	45	46	47	48	50		
	20	17	18	20	21	22	23	24	25	26	28	29	30	31	32	33	35	36	37	38	40	41	42	43	45	46	47	49	50			
	25	18	19	20	21	22	24	25	26	27	28	29	31	32	33	34	36	37	38	40	41	42	44	45	46	48	49					
	30	18	19	21	22	23	24	25	26	28	29	30	31	33	34	35	37	38	39	41	42	43	45	46	48	49						
	35	19	20	21	22	23	25	26	27	28	30	31	32	34	35	36	38	39	40	42	43	45	46	48	49							
	40	19	20	21	23	24	25	26	28	29	30	32	33	34	36	37	39	40	41	43	44	46	48	49								
	45	19	21	22	23	24	26	27	28	30	31	32	34	35	37	38	40	41	43	44	46	47	49									
	50	20	21	22	24	25	26	28	29	30	32	33	35	36	38	39	41	42	44	45	47	49	50									
	55	20	22	23	24	25	27	28	30	31	32	34	35	37	38	40	42	43	45	46	48	50										
	60	21	22	23	25	26	27	29	30	32	33	35	36	38	39	41	42	44	46	48	49											
	65	21	22	24	25	27	28	29	31	32	34	35	37	39	40	42	43	45	47	49												
	70	21	23	24	26	27	28	30	31	33	35	36	38	39	41	43	44	46	48	50												
	75	22	23	25	26	28	29	31	32	34	35	37	38	40	42	44	45	47	49													
	80	22	24	25	27	28	30	31	33	34	36	38	39	41	43	45	46	48	50													
85	23	24	26	27	29	30	32	33	35	37	38	40	42	44	45	47	49															
90	23	25	26	28	29	31	32	34	36	37	39	41	43	45	46	48	50															
95	23	25	26	28	30	31	33	35	36	38	40	42	43	45	47	49																
100	24	25	27	29	30	32	33	35	37	39	41	42	44	46	48	50																

AT above 50°C

Legend: Red values, apparent temperature above air temperature; blue values, apparent temperature below air temperature

Steadman Apparent Temperature as a Wind Chill

Apparent temperature (AT) as a Wind Chill - after Steadman 1994

		Temperature (°C)																				
		-6	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Wind Speed (km/h)	0	-8	-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	11	12
	2	-9	-8	-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	11
	4	-9	-8	-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	11
	6	-9	-8	-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	11
	8	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10
	10	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10
	12	-11	-9	-8	-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10
	14	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9
	16	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9
	18	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8
	20	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8
	22	-13	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8
	24	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7
	26	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7
	28	-14	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
	30	-14	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
	32	-14	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
	34	-15	-14	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5
	36	-15	-14	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5
	38	-16	-15	-14	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4
	40	-16	-15	-14	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4
	42	-16	-15	-14	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4
	44	-17	-16	-15	-14	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0	1	2	3
	46	-17	-16	-15	-14	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0	1	2	3
	48	-18	-16	-15	-14	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0	1	2	3
50	-18	-17	-16	-15	-14	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0	1	2	
52	-18	-17	-16	-15	-14	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0	1	2	
54	-19	-18	-17	-16	-15	-14	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0	1	
56	-19	-18	-17	-16	-15	-14	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0	1	
58	-20	-18	-17	-16	-15	-14	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0	1	
60	-20	-19	-18	-17	-16	-15	-14	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0	
62	-20	-19	-18	-17	-16	-15	-14	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0	
64	-21	-20	-19	-18	-17	-16	-15	-14	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	
66	-21	-20	-19	-18	-17	-16	-15	-14	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	
68	-21	-20	-19	-18	-17	-16	-15	-14	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	
70	-22	-21	-20	-19	-18	-17	-16	-15	-14	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	
72	-22	-21	-20	-19	-18	-17	-16	-15	-14	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	
74	-23	-22	-21	-20	-19	-18	-17	-16	-15	-14	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	
76	-23	-22	-21	-20	-19	-18	-17	-16	-15	-14	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	
78	-23	-22	-21	-20	-19	-18	-17	-16	-15	-14	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	
80	-24	-23	-22	-21	-20	-19	-18	-17	-16	-15	-14	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	

Apparent temperature with no radiational heating and relative humidity fixed at 70%
 Formula from *Norms of apparent temperature in Australia*, Aust. Met. Mag., Vol 43, 1994, 1-16.

Legend: Colours added to visually delineate increasingly colder values.