



HEAT GUIDELINES

The following guidelines, produced by Sports Medicine Australia, South Australian Branch, must be considered by Rugby League organizations and their personnel when considering their duty of care responsibilities and taking a responsible approach towards the safety of their participants.

A common sense attitude must be applied with consideration to the comfort and well being of all individuals, including participants and officials. Cancellation, modification of events and/or training or withdrawal from participation may be appropriate even in circumstances falling outside these guidelines.

When considering modifying, canceling or postponing a specific sporting event or training there are many factors that need to be considered. Exercise in the heat creates competitive demands on the cardiovascular system, which is required to increase the blood supply to the exercising muscles. At the same time it must regulate body temperature by increasing skin blood flow in order to produce the sweat that keeps the body cool.

High intensity exercise in a hot environment, with the associated fluid loss and elevation of body temperature, can lead to **Dehydration - Heat Exhaustion - Heat Stroke**.

Dehydration

Fluid loss occurs during exercise, mainly due to perspiration and respiration. It makes an athlete more susceptible to fatigue and muscle cramps. Inadequate fluid replacement before, during and after exercise will lead to excessive dehydration and may lead to heat exhaustion and heat stroke.

Heat Exhaustion

Dehydration can lead to heat exhaustion:

- Characterized by a high heart rate, dizziness, headache, loss of endurance/skill, confusion and nausea.
- The skin may still be cool/sweating, but there will be signs of developing vasoconstriction, e.g. pale color.
- Athletes will pass little urine, which will be highly concentrated (dark in colour).
- Cramps may be associated with dehydration.

The body temperature may be up to 40 degrees Celsius and the athlete may collapse on stopping activity.

Heat Stroke

Severe dehydration may lead to heat stroke.

- Characterized similar to heat exhaustion, but with dry skin, confusion and collapse.
- Heat stroke may arise in an athlete who has not been identified as suffering from heat exhaustion and has persisted in further activity.

This is a potentially fatal condition and must be treated immediately by a medical professional. Heat exhaustion/stroke can still occur even in the presence of good hydration.

It is recommended athletes drink:

- At least 500mls (2-3 glasses) of water ½ to 1 hour prior to exercise.
- At least 200mls (1 glass) of water every 10-15 minutes during exercise.
- And after exercise drink 1.5 times their fluid deficit to ensure that they are fully re-hydrated.

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Factors To Consider Before Canceling A Sporting Event

The following are factors to be considered in canceling or modifying a sporting event or training. Remember to not only take players into account, but also consider umpires, officials and volunteers. Refer to the separate checklist / risk management sheet to guide your organization in making that decision.

Temperature

The Ambient Temperature - suitable for hot, dry days

Ambient Temperature	Risk of Thermal Injury
25 to 31 degrees	Moderate
32 to 37 degrees	High
38 degrees and above	Extreme

Or

Wet Bulb Globe Temperature (WBGT) - suitable for hot, humid days

Note: The wet bulb globe temperature can be obtained by ringing the Bureau of Meteorology in your state and asking for a forecaster. State the area you are from and request the WBGT for that area. In some states the Bureau may provide the WBGT via their website; for example in South Australia it is available from:

www.bom.gov.au/products/IDS65004.shtml

WBGT	Risk of Thermal Injury
23 to 27 degrees	Moderate
28 to 29 degrees	High
30 degrees and above	Extreme

- At extreme thermal risk, cancel training (allow swimming)
- At high thermal risk, modify training

1. Clothing

- Type of clothing is vital in minimizing health risks associated with exercise in heat.
- Fabrics that minimize heat storage and enhance sweat evaporation should be selected.
- Light colored, loose fitting clothes, made of natural fibres or composite fabrics with high wicking (absorption) properties, that provide for adequate ventilation are recommended as the most appropriate clothing in the heat. This clothing should further complement the existing practices in Australia that protects the skin against permanent damage from the sun.
- This should be applied to the clothing worn by players, referees, other officials and volunteers.

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2. Duration and Intensity of an event

- The combination of extreme environmental conditions and sustained vigorous exercises is particularly hazardous for the athlete. The greater the intensity of the exercise the greater the risk of heat related symptoms, e.g. distance running is more of a problem than stop-start team events.
- Player and official rotation may also be considered.
- A reduction in playing time and extended rest periods with opportunities to re-hydrate during the event will help safe guard the health of participants.
- Provision of extra water for wetting face, clothes and hair is also important.
- A fan to enhance air movement will be beneficial.

3. Acclimatization of the Participant

- Acclimatization of the participant includes the referee, other officials and volunteers as well as the players.
- Preparation for exercise under hot conditions should include a period of acclimatization to those conditions, especially if the athlete is traveling from a cool / temperate climate to compete under hot / humid conditions.
- It has been reported that children will acclimatize slower than adults.
- Regular exercise in hot conditions will facilitate adaptation to help prevent the athlete's performance deteriorating, or suffering from heat illness, during later competitions. A period of 7 to 10 days of 60 minutes acclimatization activity each day provides substantial preparation for safe exercise in the heat.

4. Fitness Levels / Athletic Ability of Participant

- A number of physical/physiological characteristics of the athlete will influence the capacity to tolerate exercise in the heat, including body size and endurance fitness.
- In endurance events an accomplished yet non-elite runner, striving to exceed their performance may suffer from heat stress. The potential for heat related illnesses would be exacerbated if they have not acclimatized to the conditions and have failed to hydrate correctly.
- An overweight and unconditioned athlete, referee, official and volunteer will generally be susceptible to heat stress.

5. Age and Gender of Participant

- Female participants may suffer more during exercise in the heat, due to their greater percentage of body fat.
- Young children are especially at risk in the heat. Prior to puberty, the sweating mechanism, essential for effective cooling, is poorly developed. The ratio between weight and surface area in the child is also such that the body absorbs heat rapidly in hot conditions.
- In practical terms, child athletes must be protected from over-exertion in hot climates, especially when required to exercise for 30 minutes or longer.
- Although children can acclimatize to exercise in the heat, they take longer to do so than adults. Coaches should be aware of this and limit training from non-acclimatized children during exposure to hot environments.
- Veteran participants may also cope less well with exercise in the heat. Reduced cardiac function is thought to be responsible for this effect.



6. Rules of the Game (Hydration Opportunities)

- Will your players and officials be able to consume enough water during the event?
- To avoid excessive dehydration during exercise in the heat, fluid (preferably water) should be consumed before, during and after exercise.
- Even a small degree of dehydration will cause a decrease in performance.
- Associations may consider dividing games into shorter playing periods rather than halves to allow for extra breaks.
- Coaches may consider alternative training times and venues during hot weather.

7. Time of Day

- Avoid the hottest part of the day (usually 11:00am – 3:00pm). Scheduling events outside of this time should be a consideration throughout any summer competition, training or event, regardless of temperature

8. Surface Type

- A shaded / protected grass exercise surface does not attract and retain as much heat as other surfaces (e.g. solid black asphalt). The exercise surface type and the amount of direct sunlight vary significantly with different sporting activities and therefore must be analyzed for each individual sport.

9. Venue of an Event

- An air-conditioned indoor venue will provide less of a problem whilst a hot indoor venue or an outside venue without shade cannot constitute an acceptable environment.
- Airflow should be considered, including fans in change rooms or appropriately placed.

10. Predisposed Medical Conditions

- It is important to know if any of your athletes, officials or volunteers have a medical condition or are taking medication that may predispose them to Heat Illness.
- Examples of illnesses that will put the participant or official at a high risk of Heat Illness include: asthma, diabetes, pregnancy, heart conditions and epilepsy. Some medications and conditions may need special allowances.
- Participants and officials who present with an illness such as a virus, flu, gastro, or feeling unwell are at an extreme risk of Heat Illness if exercising in moderate to hot weather.
- Participants or officials who may be affected by drugs or alcohol may be at an extreme risk of Heat Illness if exercising in moderate to hot weather.



11. Other Factors to Consider

- Preventative measures can be undertaken to minimize heat injuries. Examples include the provision of shade, hats, appropriate sunscreen, spray bottles and drinking water.
- It is important to have trained personnel available to manage heat injuries.
- In situations where heat problems may be expected, an experienced medical practitioner should be present.
- Heat stroke is potentially life threatening. Any indication of this condition should be immediately referred for medical assessment.

Disclaimer: The information in this article is of a general nature. Individual circumstances may require modification of general advice from an appropriate health professional e.g. doctor, physiotherapist, Podiatrist or Dietician.

Reference: Sports Medicine Australia – South Australian Branch, Hot Weather Guidelines www.smasa.asn.au



CHECK LIST

Determine the point score for each item. (Some categories may not be exactly to your needs so you will need to use common sense, if in doubt choose higher value in order to err on the side of caution.)

1. Temperature		7. Time between available drinks	
<u>Ambient Temperature</u>		Less than 15 minutes	2
< 25 degrees	2	15 to 25 minutes	4
25 – 31 degrees	10	25 to 35 minutes	6
32 – 37 degrees	14	35 to 45 minutes	8
38 degrees and above	20	45 minutes plus	10
Your Score		Your Score	
Or <u>WBGT</u>		8. Time of the event	
< 23 degrees	2	Before 9am	2
23 – 27 degrees	10	After dark	2
28 – 29 degrees	14	9am til 11am	5
30 degrees and above	20	3pm til sunset	5
Your Score		11am til 3pm	10
2. Overall duration of event		Your Score	
Less than 30 minutes	2	9. Surface Type	
30 to 60 minutes	4	Water	1
60 mins to 2 hours	6	Grass	2
Greater than 2 hours	8	Boards	4
Your Score		Sand	6
3. Individual Intensity during the event		Synthetic surface	6
Easy pace throughout	2	Asphalt	8
Moderate pace, breaks in intensity	4	Your Score	
Moderate pace throughout	6	10. Venue	
Sustained effort with some breaks	8	Indoor air conditioning	1
Sustained effort throughout	10	Indoor no air conditioning	4
Your Score		Outdoor	8
4. Acclimatisation of Participants		Your Score	
Used to hot weather conditions	2		
Used to warm weather	5	Score Total	
Used to cool/cold conditions	8		
Your Score			
5. Athletic ability of individuals		Other Factors To Consider	
Elite fitness levels	2		
Good fitness levels	6	Predisposed medical conditions of individual participants:	
Moderate fitness levels	6		
Low fitness levels	8	Asthma, diabetes, heart condition, pregnancy, etc.	High
Your Score		Virus, flu, gastro, etc.	Extreme
6. Age of Participants			
18 to 30	2	Shade available during breaks	Yes / No
13 to 17	5	Water freely available at venue	Yes / No
30 to 40	5	Sports Trainer/First Aid person on site	Yes / No
Over 40	8	Individual body fat of participants	High/Low
Under 13	8		
Your Score			

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RECOMMENDED GUIDELINES FOR SPORT

Above 75	Recommended that you cancel your event, training and physical activity
66 to 74	Recommended that you cancel or reschedule your event, training or physical activity if <ul style="list-style-type: none">▪ The WBGT is above 30 or▪ The ambient temperature is above 38.▪ The age of participants (inc. officials) gets a point value of 8 (Children & Veterans) If this is not the case and the event goes on then: <ul style="list-style-type: none">▪ Extra breaks should be allowed.▪ Shade should be provided.▪ Airflow should be considered, including fans in change rooms or placed appropriately. Promotion of fluid replacement should be actively encouraged, (e.g. through announcements or via officials)
56 to 65	Recommended that play may go ahead, BUT <ul style="list-style-type: none">▪ Extra breaks should be allowed.▪ Shade should be provided.▪ Airflow should be considered, including fans in change rooms or placed appropriately. Promotion of fluid replacement should be actively encouraged, (e.g. through announcements or via officials).
55 and below	Recommend play with usual fluid replacement measures in place.
	Sporting groups and individuals should note that cancellation of events or withdrawal from participation may be appropriate even in circumstances falling outside of these recommendations.

The information in this guideline is of a general nature. Individual circumstances may require modification of general advice from an appropriate health professional e.g. doctor, physiotherapist, Podiatrist or Dietician.

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