

Hot Weather and Sun Protection Guidelines

July 2020

Triathlon Australia (TA) has a duty of care not to expose TA staff, officials, volunteers, and competitors, to situations where hot weather and high UV rays may affect their health and safety. The intent of this document is to outline guidelines and how to act responsibly when faced with hot weather.

These are not binding guidelines, as all parties must be reminded to act responsibly. A common-sense approach and consideration of comfort and well-being of all individuals including competitors and officials.

Modification or cancellation of events may be appropriate, even in circumstances falling outside these recommendations. There are many factors to be considered when contemplating modifying, postponing, or cancelling an event. At any time, high intensity exercise in a hot environment, with the associated elevation of body temperature, can lead to heat illness. Heat illness in sport presents as **heat exhaustion** or the more severe **heatstroke**.

Heat exhaustion:

- Characterised by a high heart rate, dizziness, headache, loss of endurance/skill/confusion and nausea
- The skin may still be cooling/sweating, but there will be signs of developing vasoconstriction (e.g. pale colour)
- The rectal temperature may be up to 40C and the athlete may collapse on stopping activity. Rectal temperature should only be measured by a doctor or nurse

Heatstroke:

- Characteristics are similar to heat exhaustion but with dry skin, confusion, and collapse
- Heatstroke may arise in an individual who has not been identified as suffering from heat exhaustion and has persisted in further activity.
- Core temperature measured in the rectum is the only reliable diagnosis of a collapsed individual to determine heatstroke

This is a potentially fatal condition and must be treated immediately. It should be assumed that any collapsed individual is at danger of heatstroke. The best first aid measures are 'Strip/Soak/Fan':

- Strip of any excess clothing
- Soak with water
- Fan
- Ice placed in groin and armpits is also helpful

The aim is to reduce body temperature as quickly as possible. The individual should immediately be referred for treatment by a medical professional

Important: heat exhaustion/stroke can still occur even in the presence of good hydration

Dehydration

Dehydration is fluid loss which 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 heatstroke.

To avoid dehydration, Sport Medicine Australia (SMA) recommends that:

- Athletes drink approximately 500mls (2 glasses) in the 2hrs prior to exercise
- During exercise longer than 60minutes, 2-3 cups (500-750ml) of cool water or sports drink
- After exercise, replenish your fluid deficit to ensure that you are fully rehydrated, but not over hydrated

Points to consider:

- Will competitors and officials be able to consume enough water during events?
- Even a small degree of dehydration will cause a decrease in performance
- Take care not to over hydrate. Drinking too much fluid can lead to a dangerous condition known as hyponatraemia (low blood sodium). Aim to drink enough to replace lost fluids, but not more than that.

Factors to consider before cancelling or modifying an event

This information relates not only to competitors, but to TA staff, officials, and volunteers. The following tables provide estimates of risk related to the weather and also guidelines to managing activity in order to minimise heat stress.

Environmental factors

1. Temperature

Ambient temperature is the most easily understood guide available, and is most useful on hot, dry days

Ambient temperature	Relative Humidity	Risk of Heat Illness	Possible management for sustained physical activity
15-20°C		Low	Heat illness can occur in distance running. Caution over-motivation.
21-25°C	Exceeds 70%	Low-Moderate	Increase vigilance. Caution over-motivation
26-30°C	Exceeds 60%	Moderate	Moderate early pre-season training. Reduce intensity and duration. Take more breaks
31-35°C	Exceeds 50%	High-Very High	Uncomfortable for most people. Limit intensity, take more breaks. Limit duration to less than 60 minutes per session
36°C and above	Exceeds 30%	Extreme	Very stressful for most people. Postpone to cooler conditions (or cooler part of the day) or cancellation

Wet Bulb Globe Temperature (WBGT) index

Further guidance might be gained from what is known as the Wet Bulb Globe Temperature (WBGT) index. The WBGT is useful when humidity is high.

WBGT	Risk of thermal injury	Possible modifying action for vigorous sustained activity
<20	Low	Heat illness can occur in distance running. Caution over-motivation
21-25	Moderate – High	Increase vigilance. Caution over motivation. Moderate intensity and duration. Take more breaks.

26-29	High – Very High	Limit intensity. Limit duration to less than 60min per session.
30 and above	Extreme	Consider postponement to a cooler part of the day or cancellation (allow swimming)

The Bureau of Meteorology (BOM) produces ambient and WBGT readings for many locations in Australia. You can check these readings and a guide for the relative risk for your location at www.bom.gov.au/info/thermal_stress/index.shtml

N.B. It is important to watch for unusual ‘Heatwave’ conditions or variations from the average temperature for the time of year. This is one situation where there may be a greater danger of heat illness.

Heat stress increases with air temperature but be aware that there are not clear demarcations in risk between temperature ranges. At relative humidity levels above those indicated in the tables above, stress increases markedly.

2. Duration and intensity of an event

- The combination of extreme environmental conditions and sustained vigorous exercise is particularly hazardous for the athlete. The greater the intensity of the exercise, the greater the risk of heat related symptoms; e.g. endurance events increase the rate of heat illnesses more than stop-start team events
- Reducing the distance of event and placing more water stations throughout the course would help safeguard the health of competitors
- Provision of extra water for wetting face, clothes and hair at the finish line is also important
- A fan to enhance air movement would be beneficial

3. Conduct of competition and training (hydration and interchange opportunities)

- Remember, even 5 minutes rest can cause a significant reduction in core temperatures

4. Time of Day

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

5. Local Environment

- Radiant heat from surfaces such as black asphalt or concrete can exacerbate hot conditions

Remember, air movement decreases heat stress. However, a following wind can increase problems for runners or cyclists by actually reducing air movement.

Host Personal Factors

1. Clothing

- Type of clothing is vital in minimising health risks associated with exercise in heat
- Fabrics that minimise heat storage and enhance sweat evaporation should be selected
- Light weight, light coloured, 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

complement the existing practices in Australia that protect the skin against permanent damage from the sun

If clothing is worn for protective reasons, ensure that it is worn only while training and competing in hot weather. Some examples include leathers in motorcycling and mountain biking. Remove non-breathable clothing as soon as possible if the participant or official is feeling unwell in hot conditions. Start cooling the body immediately via ventilation and/or a cool spray such as a soaker hose or a hand-held spray and a fan.

2. Acclimatisation of the competitor

- Preparation for exercise under hot conditions should include a period of acclimatisation to those conditions, especially if the athlete is travelling from a cool temperature climate to compete in hot/humid conditions. Regular exercise in hot conditions will facilitate adaptation to help prevent performance deteriorating, or the athlete suffering from heat illness during later competitions. Sixty minutes of acclimatised activity each day for 7-10 days provides substantial preparation for safe exercise in the heat

3. Fitness levels/athletic ability of competitor

- 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
- Overweight and unconditioned competitors, staff, officials, and volunteers will generally also be susceptible to heat stress

4. Age and gender of participant

- Female participants may suffer more during exercise in the heat because of 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

NB: Children tend to have a more 'common sense' approach to heat illness than adults. They 'listen to their bodies' more and will usually slow down or stop playing if they feel distressed in the heat. On no account should children be forced to continue sport or exercise if they appear distressed or complain about feeling unwell.

- Veteran participants may also cope less with exercise in the heat. Reduced cardiac function is thought to be responsible for this effect

5. Predisposed medical conditions

- It is important to know if athletes, staff, officials or volunteers have a medical condition or take medication that may predispose them to heat illness
- Examples of illnesses that will put the competitor or official at a high risk of heat illness include asthma, diabetes, pregnancy, heat conditions and epilepsy. Some medications and conditions may need special allowances
- Competitors and officials who present with an illness such as a virus, flu or gastro or who are feeling unwell are at an extreme risk of heat illness if exercising in moderate to hot weather
- Competitors 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

6. Other factors to consider

- Preventative measures can be undertaken to minimise 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 and designated recovery areas for patients
- In situations where heat problems may be expected, an experienced medical practitioner should be present

SUN PROTECTION POLICY

Triathlon Australia recognises that exposure to ultraviolet (UV) radiation has potential negative health effects and will therefore support sun safe practices and introduce measures to minimise exposure.

Ultraviolet (UV) radiation damages the DNA in skin cells. Damage to the skin can result in the increased risk of developing skin cancer. Australia has one of the highest levels of UV exposure and highest rates of skin cancer in the world. UV levels peak in the middle of the day when the sun is directly overhead. UV radiation cannot be seen or felt and is different to infra-red radiation (heat), therefore UV levels are not directly related to temperature. The following measures should take place to avoid the risk of prolonged exposure to high UV levels:

- Where possible, outdoor activities will be conducted before 10.00am or after 3.00pm to avoid peak UV times;
- Shade (natural, built or temporary) will be available to protect participants and spectators where possible. When permanent shade is not available, the event organiser should supply and erect portable shade structures; an adequate shade structure for the Penalty Box for officials should also be provided;
- Staff, officials, and members representing Triathlon Australia will always act as positive role models by adopting sun protection behaviours such as wearing hats, long sleeved shirts, extra length shorts, sunglasses and sunscreen;
- Technical delegates to educate technical officials on the importance of sun protection and highlight any deficiencies in sun protection in the post event report
- All uniforms and clothing provided for officials will comply with the design and fabric standards recommended by The Cancer Council. This includes long-sleeve shirts with a collar, and wide brimmed hats.
- Sunscreen (SPF 30+, broad spectrum water resistant) will be made available to officials, participants and spectators. However, when this is not possible these parties will be encouraged to bring their own.

You can [check the predicted UV Index](#) for you location and times of the day that sun protection is required.

REFERENCES

<http://sma.org.au>

<http://www.bom.gov.au/uv/index.shtml>

<https://www.cancer.org.au/>