MACQUARIE FOOTBALL LIMITED A.C.N. 050 293 153

NEWCASTLE FOOTBALL LIMITED A.C.N. 052 054 163

HUNTER VALLEY FOOTBALL INCORPORATED

HOT WEATHER & HEAT STRESS POLICY

Issued by the Joint Board of Directors of Macquarie Football Limited, Newcastle Football Limited and Hunter Valley Football Incorporated.

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POLICY ON HOT WEATHER & HEAT STRESS

RATIONALE

With higher temperatures now occurring more frequently, consideration must be given to the effects of heat and humidity on personnel involved in vigorous exercise in football, particularly under adverse temperature and humidity conditions. This applies to all levels of football, all ages of participants and to all levels of involvement in the football activities. Action must be taken under adverse conditions to ensure the safety of all personnel by minimizing the risk of heat illness.

BACKGROUND

Vigorous exercise in football, whether in matchplay or training in any of the forms of football and involving any age group, places some persons at risk of **heat illness**. Even in cool weather, heat illness may occur in those exercising at high intensity for 45 minutes or more. Heat illness may also occur with prolonged exposure to hot weather even if activity is low intensity. Heat illness is not a trifling matter – if untreated it can lead to the rare but life-threatening condition of **heat stroke**. In hot weather football participants need to take more precautions, especially as the activity is needed for the person to stay healthy.

This document seeks to help recognition and management of potentially dangerous situations that may arise during participation in physical activity in hot conditions or where exertion levels are out of the ordinary. By understanding the causes of heat illness all participants in football activities can take common sense steps to enjoy the activities and minimize the extra risks arising during hot or humid weather.

POLICY AND RECOMMENDATIONS

1. Symptoms of Heat Illness

(a) The symptoms of heat illness may include any or all of the following:-

- Light headedness, dizziness
- Nausea
- Obvious fatigue
- Cessation of sweating
- Obvious loss of skill and coordination – clumsiness, unsteadiness
- Confusion
- Aggressive or irrational behavior
- Altered consciousness
- Collapse
- Ashen grey pale skin

(b) Heat illness in football and sport in general presents as **heat exhaustion** or **heat stroke.**

(c) **Heat exhaustion** is the more common football or sports in general related heat illness.
Participants who collapse **after** exercise are likely suffering from a post-exercise drop in blood pressure (postural hypotension) but some may have heat stroke.

(d) **Heat stroke** is rare, but it is a life-threatening condition.
Participants who show signs of altered mental function, loss of consciousness or collapse **during** physical exercise are likely suffering heat stroke. Participants

showing signs of confusion, loss of skill, loss of coordination or irrational behavior should be stopped and removed from the field immediately.

2. Factors that Increase the Risk of Heat Illness

Factors that increase the risk of heat illness include:-

- High exercise intensity eg exercising close to personal capacity
- Lack of fitness (due to insufficient training that includes some at competition intensity and duration)
- Previous history of heat illness or heat intolerance
- Aged over 65
- High air temperature and high humidity
- Low air movement or no wind
- Prolonged exposure to hot conditions
- Heavy clothing and protective equipment
- Lack of acclimatization (due to lack of recent training/playing in warm and humid conditions)
- Dehydration (inadequate water intake before activity and during activity longer than 60 minutes.
- Illness and medical conditions (current or recent infectious illness, chronic health disorders)

3. Steps to Minimise the Risk of Heat Illness

The following 8 areas show steps that can be taken to minimize the risk of heat illness:-

(a) **Acquiring training and competition intensity to conditions**
Excellent physical fitness arising from regular endurance training, and acclimatisation to heat from regular training in warm conditions, markedly increase heat tolerance.
Acclimatisation for football activities requires at least 5 days of training in hot and/or
humid conditions, progressing from moderate intensity and duration as acclimatisation develops; acclimatisation develops naturally as the weather becomes warmer and more humid.

(b) **Adjusting training and competition intensity to conditions**
Exercise intensity in training should be appropriate to current fitness and weather; for example, moderate intensity and duration for pre and early season training of unconditioned players in warm weather. In conditions of increased risk participants should be provided with opportunities to rest through eg use of player interchange. In moderate risk conditions players should be rested for at least 10 minutes per hour. In high risk conditions players should be rested for at least 15 minutes in an hour.
The benefits of rest breaks should be maximized by

- Reducing clothing and resting in shade provided by trees, buildings, portable structures
- Assisting evaporative cooling with fans; wetting the skin, applying ice packs to groin and armpits also assists
- Drinking cool water or sports drinks
- Withdrawing players who feel unusually fatigued or who appear distressed from the activity

(c) **Timing of games or activity**
Training and events involving moderate to high intensity exercise should be scheduled to avoid the hottest part of the day. Early morning or night exercise training can reduce the risk of encountering stressful conditions.

(d) **Clothing**
Clothing for strenuous exercise in warm conditions should allow easy evaporation of sweat from the skin; such clothing should be light coloured, light weight and loose fitting, and provide protection against the sun.

(e) **Modifying warm-up**
In hot conditions, the duration and intensity of a warm-up should be reduced to minimize the increase in body heat and temperature before the exercise event.

(f) **Drinking (Hydration)**
Substantial amounts of water are lost by sweating when exercising vigorously in the heat. During strenuous exercise persons will often replace only half their sweat losses, but they tolerate moderate levels of dehydration well.
To minimize dehydration, a participant needs to drink about two cups of water in the
2 hours preceding exercise activity. During exercise lasting 60 minutes or longer, 2-3
cups (500-750 mL) of cool water or sports drinks per hour are sufficient.
Dehydration is rarely the sole cause of heat illness,but maintaining an adequate water intake assists temperature control. Carbohydrates and electrolytes in sports drinks help to maintain performance.

(g) **Heat Waves, Unusually Hot Weather and Travelling**
Extra caution must be taken during unseasonal heat waves or unusually hot or humid weather, or if travelling from a cool district to a hot or humid district. In such circumstances participants lack acclimatisation and are at increased risk of heat illness if they exercise at cool climate intensity.

(h) **Other Considerations**
Age and medical conditions can result in heat illness:-

- A participant who has recently experienced a high temperature, infection, diarrhoea or vomiting should NOT take part in strenuous activity
- Participants over 65 or who suffer from a variety of medical conditions,are taking medication or who are pregnant may experience difficulties exercising in the heat. Examples include asthma, diabetes, heart conditions, epilepsy, overweight and obesity. If unsure, consult doctor or pharmacist.

(i) **Children and Heat Illness**
Children sweat less and get less evaporative cooling than adults.
In warm and humid weather children 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 do seem to be effective at 'listening to their bodies' and regulating their physical activity; for this reason children should be allowed to exercise at their preferred intensity. In warm or humid weather children should not be urged to exercise harder of be compelled to participate in strenuous activity. If children appear distressed or complain of feeling unwell, they should stop exercising.
In warm or humid weather, wet sponging will improve the comfort level of children.
Drinks should be available for children involved in football activities.

4. Treating Heat Illness

(a) **Heat Exhaustion**

Heat Exhaustion is characterized by low blood pressure at the cessation of exercise. Victims suffer a faint-like collapse with ashen grey skin. Participants with heat exhaustion usually recover rapidly on lying down with legs raised. Because the difference between simple heat exhaustion and the high risk of heat stroke is not always obvious, participants who have collapsed during strenuous exercise should be cooled as shown in part (c) below.

(b) **Heat Stroke**

Heat Stroke is a condition in which body temperature control is impaired. Heat stroke can lead to devastating injuries and is potentially fatal. The severity of complications of heat stroke increases with the duration of high body temperature. Immediate first aid is essential and life-saving; the aim is to rapidly lower the body temperature.

(c) **Actions to take for a participant exhibiting signs of heat illness**

Initial treatment (for **heat exhaustion**) involves the following:-

- Remove from the field of activity
- Lay the person down in a cool place
- Raise legs and pelvis to improve blood pressure
- Remove excess clothing
- Cool by wetting skin liberally and vigorous fanning (evaporative cooling)
- Apply ice packs to groin, armpits and neck
- Give cool water if conscious

Persons suffering from heat exhaustion usually recover quickly with this assistance.

If the participant remains seriously ill, confused, vomiting or showing signs of altered consciousness

- Call an ambulance immediately and seek medical help
- If in any doubt, treat for **heat stroke**

Treating for **heat stroke** involves the following (during and after medical help is sought)

- Continue cooling. If available, cool in a shallow plastic/canvas bath of iced water (for 5-10 minutes)
- If necessary cooling should continue during removal to hospital
- Note that body temperature following exercise can be reliably measured only in the rectum because the mouth and armpit seriously underestimate true body temperature. Rectal temperature greater than 41 degrees Celsius is dangerous. Rectal temperature should ONLY be measured by a doctor, nurse or other trained medical person.

5. Weather and Heat Illness

(a) **Air (Ambient) Temperature**

Air temperature at a venue to be used for strenuous football activity may be measured using a standard liquid-in-glass thermometer or taken from the more general local weather conditions reports that are regularly updated and available on websites for reading from mobile phones.

Lower temperature usually means more comfortable for strenuous activity; higher to extreme temperature usually means very uncomfortable conditions leading on to dangerous conditions for strenuous activity.

(b) **Relative Humidity**

Relative humidity is a comparison of the amount of water vapour in the air and the amount of water vapour required to saturate the air at that temperature. It can

be measured using a hygrometer (often the wet and dry bulb type). Relative humidity is measured on a scale between 0% (absolutely dry) and 100% (absolutely saturated).
Lower humidity usually means more comfortable for strenuous activity; higher humidity usually means very uncomfortable conditions for strenuous activity.

(c) **Mean Radiant Temperature**
The Mean Radiant Temperature (MRT) is defined as the uniform temperature of an imaginary enclosure in which the radiant heat transfer from the human body is equal to the radiant heat transfer in the actual non-uniform enclosure.
MRT is a concept arising from the fact that net exchange of radiant energy between two objects relates to their temperature difference and their ability to emit and absorb heat. MRT can be measured using a **black globe thermometer** which consists of a black globe in the centre of which is placed a temperature sensor such as the bulb
of a liquid in glass thermometer. The MRT can be calculated from a number of measurements including the globe temperature, globe diameter, air speed at globe
level and air temperature. The MRT value relates directly to physical comfort.

(d) **Wet Bulb Globe Temperature**
The wet bulb globe temperature (WBGT) is a composite temperature used to estimate the effect of temperature, humidity, wind speed (wind chill) and visible and infra-red radiation (usually sunlight) on humans
MRT and WBGT measurement is commonly used by industrial hygienists, elite sports and military bodies to determine appropriate exposure levels.

6. Risk Estimates and Management Guidelines

The following links Ambient Temperature and Relative Humidity to Risk of Heat Illness
and recommended management for strenuous activities.

(a)	Ambient Temperature	15 – 20 degrees Celsius
	Relative Humidity	any level
	Risk of Heat Illness	low
	Management	heat illness can still occur; caution over-motivation
(b)	Ambient Temperature	21 – 25 degrees Celsius
	Relative Humidity	exceeds 70%
	Risk of Heat Illness	low – moderate
	Management	increase vigilance; caution over-motivation
(c)	Ambient Temperature	26 – 30 degrees Celsius
	Relative Humidity	exceeds 60%
	Risk of Heat Illness	moderate – high
	Management	moderate early season activity; reduce intensity and duration of activity; take more breaks
(d)	Ambient Temperature	31 – 35 degrees Celsius
	Relative Humidity	exceeds 50%
	Risk of heat illness	high – very high
	Management	uncomfortable for most participants; limit intensity; take more breaks; limit duration to less than 60 minutes
(e)	Ambient Temperature	36 and above degrees Celsius
	Relative Humidity	exceeds 30%
	Risk of Heat Illness	extreme
	Management	Very stressful for most participants; postpone to cooler conditions (or cooler part of day); cancel

7. Recommended Cancellation Temperatures

To minimize the risk of heat illness, the following policy is to be implemented in all football activities taking place under the auspices of the three Zones – Macquarie Football, Newcastle Football and Hunter Valley Football – applicable to selection trials, trial games, training activities, clinics, scheduled matches – ALL strenuous activities.

(a) **The maximum temperature for cancellation or postponement of a football activity for ADULTS is 37 degrees Celsius.**
This is the maximum temperature before cancellation or postponement; it may be necessary to cancel / postpone at a lower temperature depending on the local conditions. For the purpose of this regulation an adult is aged 17 years or more.

(b) **The maximum temperature for cancellation or postponement of a football activity for CHILDREN is 32 degrees Celsius.**
This is the maximum temperature before cancellation or postponement; it may be necessary to cancel / postpone at a lower temperature depending on the local conditions. For the purpose of this regulation a child is aged up to and including 16 years

8. Heat Illness Prevention Checklist

This checklist is a starting point for developing heat illness guidelines for Clubs and Club Teams – some will be possible, others possibly not.

1. Scheduling/modifying Football Events in High Risk Conditions
    - Schedule events to minimize UV exposure and avoid high temperatures
    - Cancel events under high risk conditions
    - Limit warm-up activities in duration and intensity
    - Reduce the event duration
    - Start events earlier in the morning or later in the evening
    - Increase rest breaks and opportunities to seek shade and rehydrate
    - Rotate out of the sun more frequently than usual
    - Use interchange or substitution more frequently than usual
    - Hold activity at an alternative venue
    - Officials, coaches and senior personnel act as role models by being sun-safe
2. Shade Seeking
    - Conduct an assessment of shade at the event venue
    - Use shade from buildings, trees and structures for player marshalling
    - Players rest in shaded areas when not actively participating in the event
    - Use shaded areas for marshalling, interchange, presentation at the event
    - Rotate participants to cooler, shaded areas
    - Use temporary shade structures where the venue has no shade areas
3. Clothing
    - Use sun protective clothing on and off the field of play, where possible
    - Use tops made of UPF 50+ material, with long sleeves and collars
    - Use loose fitting and lightweight tops
    - Use wide-brimmed or legionnaire style hats whenever possible
    - Wear recommended wrap around sunglasses that meet Australian standards
    - Do not permit participants without appropriate protective clothing to spend extended periods exposed to UV levels of 3 and above
4. Sunscreen
    - Use SPF 30+ broad spectrum water resistant sunscreen

- Store sunscreen below 30oC and replace once past use-by date
- Participants apply sunscreen 20 minutes before event (and every 2 hours)
- For best protection, participants apply sunscreen generously at the equivalent of 1 teaspoon per limb

5 Air Flow
- Maximise air flow when participants are under cover at an event
- Use spaces with air-conditioning or fans when possible

6 Hydration
- Each participant must provide his/her own drink bottle
- Have cool water available for participants
- Make participants aware of the need to be well hydrated before activity
- Provide flexible drink breaks in hot and humid conditions
- Permit participants to drink between breaks at their own discretion
- Display the Smartplay's Drink Up fact sheet or poster

7 Education and Information
- Display UV exposure and heat illness guidelines on website
- Include links to Sunsmart (**sunsmart.com.au**) and Smartplay (**smartplay.com.au**) on website
- Notify participants that sun (UV) protection measures are required when UV
  Index levels reavh 3.0 and above
- Include heat illness messages in event programs and newsletters
- Use PA system to remind participants of key UV and heat illness prevention
  measures

8. First Aid
- Check first aid kit contains SPF 30+ broad spectrum water resistant sunscreen
- Trained first aid personnel attend events to manage heat illness
- Display contact details of closest medical assistance at event venue
- Trained safety personnel to monitor and evaluate any participant feeling discomfort or distress
- Have ice, fans, water spray bottles available as cooling aids

9. Individual Risk Factors
* Collect (according to privacy legislation) information on participants' medical
  conditions and medical history
- Keep a record of injuries (including heat illness)
- Age, fitness, skin characteristics, acclimatisation, gender and medical conditions are considered when making decisions
- If in any doubt, advise the individual to see a medical professional for clearance to participate

9. References for Further Information

Refer to the following websites for additional information

www.bom.gov.au - Bureau of Meteorology websites for forecasts, radar etc
www.sma.org.au - Sports Medicine Australia – various resources including Beat the Heat brochure
sunsmart.com.au - various resources
smartplay.com.au - various resources

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