

POLICY



Lightning Safety

04/01

The weather conditions experienced in Australia, together with events on the South Coast of NSW when a cricketer was killed, led to the development of this Policy based on information primarily supplied by the Centre of Sports Medicine Research and Education and the Commonwealth Bureau of Meteorology.

Whilst lightning may be fascinating to watch, it is also extremely dangerous and underrated. During the past 30 years, based on documented cases, lightning has killed an average of 73 people per year in the United States. In Australia, there has been an increase in the number of casualties resulting from outdoor sport and recreational activities. On average, in Australia, 10 people a year die from lightning strikes. Statistics show that around 25% of people killed by lightning are playing sports such as golf, cricket or hockey. Several years ago in a park at Merrylands, five children were struck by lightning while playing football.

An average lightning bolt carries 10,000 to 30,000 amps – an average radiator draws 10 amps!

Thunderstorms are most likely to develop on warm summer days and will go through various stages of growth, development and dissipation. During the thunderstorm, each flash of 'cloud to ground' lightning is potentially lethal. Lightning can travel 80km before it strikes something. If a person is in the path of that lightning discharge, it could prove deadly as the current associated with the visible flash travels along the ground. Although some victims are directly struck by the main lightning stroke, many victims are hit as the current moves in, and along the ground. The ground emits charges that shoot up to meet the leading strikes and the high voltage gradients cause currents to flow in concentrated channels on the surface or within the soil. It is therefore evident that the potential exists for a large number of people to be struck by lightning as they leave themselves vulnerable due to inadequate protective action.

Contrary to popular belief, lightning does not always strike tall objects – it can strike anywhere and can strike repeatedly. Metal objects do not attract lightning, although they may channel it if the strike is already a few metres away. There is clearly a need for all clubs and associations to implement an action plan, and adopt all precautionary methods available, to prevent any casualties.

A designated person should be responsible for monitoring the weather conditions in the area at which the ground is located, to provide awareness at individual club level. Where possible, the person should attempt to ensure that all players, officials and spectators are moved to safe areas.

The monitoring should begin the day before a scheduled match to confirm whether or not thunderstorm warnings have been given by the weather forecasters. If so, increased awareness of possible lightning strikes should continue on the day of the match until the game is over and any crowds have dispersed.

30 – 30 Lightning Rule

Should thunderstorms be prevalent on match day, the '30-30' rule is to be used in order to determine whether a game should be suspended (to include delaying the commencement of the game) and when it is safe to resume play (to be determined by the Referee).

When lightning is sighted, count the time until thunder is heard. If that time is 30 seconds or less, the thunderstorm is within 10km and is dangerous. As most experts believe that the 'safe' distance is no less than 10km, all people at risk should be seeking, or already inside safe shelters. This is the time at which matches should be suspended.

This rule is one of the most practical techniques for estimating the distance to lightning activity and is based on the fact that light travels faster than sound. As sound travels at a speed of around 1km every 3 seconds, the time that elapses between the flash of lightning and clap of thunder can be divided by 3 to give a measure, in kilometres, of how far away the storm is.

The threat of lightning continues for a much longer period than most people realise. It is imperative to point out that sunshine or blue sky should not fool anybody into thinking that it is safe, and you should remain alert to the possible return of the storm.

Using the '30-30' rule, the distance of the storm should be estimated before allowing play to continue.

There is not a place absolutely safe from the lightning threat, however some places are safer than others and, where practicable, people should be moved to a safe structure as soon as possible. The best option is a large building with electric and telephone wiring and plumbing to provide a safe pathway for the current to the ground. Once inside, stay away from corded telephones, electrical appliances, lighting fixtures, radios or microphones and electric sockets and plumbing. Mobile or cordless telephones are a safe option if the person and antenna are located within a safe structure. Do not watch lightning from open windows or doorways. Inner rooms are preferable.

A solid building or a hard top (metal bodied) vehicle (including buses) that guides the lightning current around the passengers, is an alternative. Shelter should **NEVER** be sought under a small group (or single) of trees, in an open field or in small open structures such as rain/picnic shelters. People should stay away from metal poles, fences, clothes lines etc and should not use umbrellas or mobile telephones. Metal is not to be touched.

If located at a ground far removed from a safe shelter, preventative measures can still be taken. If lightning is about to strike, it may provide a very few seconds of warning. If hair stands on end, the skin tingles and a 'buzzing' is heard from nearby rocks or light metal objects, lightning may be about to strike and a crouching position should be assumed (alone, feet together, squat down with head tucked and ears covered). When the immediate threat of lightning has passed, safe shelter should be sought.

If the worst case scenario occurs and a person is struck by lightning, there are key first aid guidelines to follow. Medical care may be needed immediately to save a persons life. If at all possible, call '000' at once. As all deaths from lightning arise from cardiac arrest and/or stopping of breathing, it is imperative that treatment is commenced as soon as possible. CPR or mouth-to-mouth resuscitation is the respective recommended first aid. If proper treatment is administered, most victims survive a lightning strike.

Another myth is that strike victims retain electricity – they do not! However, lightning victims do often suffer severe, long-term debilitation. The most common symptoms are memory deficit, sleep disturbance, chronic pain, dizziness and chronic fatigue which may not be evident until some time after the injury, perhaps months later. It is therefore preferable that a qualified first-aider be present at games.

Where possible, everybody present on a match day should be warned of the potential dangers of lightning so that all can be made aware of the safety procedures in operation. It is recommended that, where feasible, notices and safety instructions be placed in programs and on walls where clearly visible and obvious. It is recognised that a majority of grounds being used in NSW may be local government owned and that the individual council policies may assist, or preclude, such actions. Clubs and associations are encouraged to discuss this policy with ground owners in an attempt to gain signage approval.

No lightning safety plan or policy will provide 100% guaranteed total safety, but every effort can be made to ensure that all preventative steps are taken.

Summary of Procedures

- Nominate a person to be responsible for monitoring the weather conditions in your area. This may be the association secretary, club secretary or other nominated person;
- Monitor the weather both the day before, and the day of, the match;
- If thunderstorms occur, use the '30-30' rule to determine the distance of the storm and take appropriate action to suspend play if less than 10km away;
- Play can resume when the '30-30' rule has been satisfied;
- Where practicable, ensure that all present are relocated, if necessary, to a safe shelter;
- It is preferable that a qualified first-aider is present at matches;
- Should a person be struck by lightning, ensure that immediate action is taken; and
- Provide warnings to all of potential dangers caused by lightning and indicate safety guidelines clearly.

Bibliography:

1. *Makdissi, Michael & Brukner, Peter. Centre for Sports Medicine Research and Education, School of Physiology, Faculty of Medicine, Dentistry and Health Sciences – University of Melbourne, Victoria. (2002). Recommendations for Lightning Protection in Sport. The Medical Journal of Australia.*
2. *American Meteorological Society.(2002) Recommendations for Lightning Safety. The National Weather Service.*
3. *Commonwealth Bureau of Meteorology. Severe Storms – Facts, Warnings and Protection..*
4. *National Weather Service. (2003). Lightning –The Underrated Killer.*
5. *Benson, Simon. (2003). Playing it Safe When the Skies Flash Danger. The Daily Telegraph.*