



Lightning Strikes Guidelines

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1 Introduction

1.1 In statistical terms, lightning poses a greater threat to individuals than almost any other natural hazard in Australia, accounting for five to ten lives and well over 100 injuries annually. These figures are likely to increase in line with the growing proportion of people who are engaging in outdoor recreational activities.

1.2 Lightning can cause injuries or death in several ways, including:

- Direct strike – when a person is directly struck by lightning;
- Contact voltage – when a person is in direct contact with a conductor that has been struck by lightning, either inside or outside a structure, or dugout;
- Side flash – when a person is struck by an arc or flash from a conductor carrying a lightning strike near the person; and
- Ground current – injuries can occur when standing in the area of a lightning strike as the current can flow through the ground and enter and exit the body through the feet.

Lightning can also travel long distances in electrical conducting materials such as metal wires, fences, pipes, plumbing or other metal surfaces. Metal does not attract lightning, but it provides a path for the lightning to follow. Whether inside or outside, contact with metal wires, electrical appliances, pipes, plumbing, landline telephones, windows and doors should be avoided.

2 Overview

2.1 The observation of approaching storm clouds from the first flash of lightning or clap of thunder, no matter how far away, should heighten lightning awareness. The level of risk depends on one's location (direction and distance) relative to the storm cell and the direction in which the storm system is traveling.

2.2 A simple method of determining the distance to the storm cell is to measure the time elapsed from when the lightning flash is observed and when the associated clap of thunder is heard.

2.3 Light travels faster than sound. If the light from the flash reaches the observer instantaneously, and knowing that sound takes approximately three seconds to travel one kilometre, the distance can be determined by using the following rule:

Distance (in Km) = Time from observing the flash to hearing thunder (in three seconds)

2.4 It is important to remember that lightning may be obscured by clouds so it must be assumed that when thunder is heard, lightning is in the vicinity. In such cases, careful judgment must be used to determine whether a threat exists.



3 Procedure

Access to Bureau of Meteorology

- 3.1 An official monitor should be assigned to monitor and advise on the weather, especially the possibility of thunderstorms. Local knowledge would be considered preferable.
- 3.2 In the lead up to the game, it is recommended that a designated official monitor weather forecasts on the Bureau of Meteorology (BOM) website (<http://www.bom.gov.au/>). This can assist with the direction of the storm and warnings.
- 3.3 If the weather patterns show a storm is imminent a decision to start or not start should be considered by the Tournament Management Committee in consultation with the designated official weather monitor.
- 3.4 After a game has started the 30/30 rule is recommended along with monitoring of the BOM website.
- 3.5 If access to BOM is not available on the day, the 30/30 rule is recommended.
- 3.6 The first part of the 30/30 rules is a guide to the **postponement** or **suspension** of games. During a thunderstorm, a 'flash-to-bang' count of 30 seconds indicates that the lightning is 10km away (1km per three seconds) and the chances of being struck by lightning is high. This indicates a potential for significant risk and the plate umpire should suspend the game.
- 3.7 The second part of the 30/30 rule provides a guide to the **resumption** of games. It is recommended that a period of 30 minutes should elapse after the last sight of lightning or the sound of thunder before resuming the game.

Note: blue sky and lack of rainfall is not a reason to breach the 30 minute return-to-activity rule. 'Australia Wide First Aid' encourages you to find solid shelter during a storm. This does not include a tree or a dugout. Try and find shelter within a building, bus shelter or car and avoid water and objects that conduct electricity. Substantial buildings with wiring and plumbing to dissipate the charge provides the greatest amount of protection.

If you're unable to find safe shelter, crouch down in the open, feet together with your head tucked down towards your chest. You should aim to make yourself as small as you can. Laying down flat on the ground increases your total body surface area, which also increases your chance of getting struck by lightning. You should wait approximately 30 minutes after the last flash of lightning before you leave your shelter. More than half of lightning deaths occur once the storm has passed.

Unsafe locations and situations

- 3.8 Avoid:
 - 3.8.1 Open field
 - 3.8.2 Close vicinity to the tallest structure (eg tree, light pole)
 - 3.8.3 Small structures (eg rain/picnic shelters, tents, lightweight dugouts)



3.8.4 Umbrellas, bats or other objects that increase an individual's height

3.9 Avoid the use of portable radios, mobile and landline telephones, fax machines, computers and other electrical equipment. If emergency calls are required, keep them brief.

4 Game responsibilities

4.1 The plate umpire is responsible for suspending games, The Tournament Chief Umpire /Tournament Management Committee (TMC) may also suspend games.

4.2 Once a game is suspended, the plate umpire hands responsibility to the TMC. The TMC consists of:

- Tournament Chief Umpire
- Softball Australia Technical Delegate
- Tournament Convenor
- Tournament Chief Statistician

4.3 The TMC must ensure all participants convene to a safe area (eg club house, 'hard top' vehicle etc).

4.4 The TMC is responsible for notifying all team managers of the situation.

4.5 Team managers are responsible for notifying their own team personnel of the situation.

4.6 The TMC is responsible at all times for keeping team managers informed.

4.7 The TMC is responsible for deciding if and when the game will resume and will not do so unless 30 minutes has elapsed after the last sight of lightning or sound of thunder.

4.8 The Weather Monitor should also be consulted if not on the TMC.

4.9 Once the game resumes, the Tournament Chief Umpire will hand over responsibility to the Plate Umpire for the game to recommence.

5 First aid

5.1 If someone is struck by lightning, get medical attention as quickly as possible.

5.2 Ensure the rescuer is in no danger of being struck by lightning. If the patient is not breathing commence resuscitation immediately.

5.3 Check for burns in two places – the injured person may be burned, both where they were struck and where the electricity left their body. Being struck by lightning can also cause nervous system damage, broken bones, and loss of hearing or eyesight.

5.4 Be aware that *the victim will not retain an electrical charge, so it is safe to touch them.*



6 References

- BOM website: <http://www.bom.gov.au/weather-services/severe-weather-knowledge-centre/safety.shtml>
- www.australiawidefirstaid.com.au/lightning-strikes
- AFL extreme weather policy 2017. <https://aflvic.com.au/wp-content/uploads/2018/02/AFL-Victoria-Extreme-Weather-Policy.pdf>
- WBSC Umpire Manual
- Australian Lightning Standards AS/NZS 1768-2007



Document control

Ownership and Approval	
Responsible Officer:	Softball Australia CEO
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Version History				
Version	Release Date	Amendment Summary	Author	Approval
1	Nov 11	Template developed		
2	Mar 16	Clause 2.3: (1km per 3 seconds) and the chances of being struck by lightning is high.		
		<p>Clause 2.5: removed and replaced with a note:</p> <p>Note: blue sky and lack of rainfall is not a reason to breach the 30 minimum return-to-activity rule. 'Australia Wide First Aid' encourages you to find solid shelter during a storm. This does not include a tree. Try and find shelter within a building, bus shelter or car and avoid water and objects that conduct electricity. If you're unable to find safe shelter, crouch down in the open, feet together with your head tucked down towards your chest. You should aim to make yourself as small as you can. Laying down flat on the ground increases your total body surface area, which also increases your chance of getting struck by lightning. You should wait approximately 30 minutes after the last flash of lightning before you leave your shelter. More than half of lightning deaths occur once the storm has passed.</p>		
		Clause 2.5.3: Small structures (eg rain/picnic shelters, tents, lightweight dugouts		
		Clause 3.1: The plate umpire is responsible for suspending games. The TCU/TMC may also suspend games.		
		Clause 4.4: Be aware that <i>the victim will not retain an electrical charge, so it is safe to touch them.</i>		
		Reference: inclusion Link to		



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Version	Release Date	Amendment Summary		Author	Approval
		https://www.australiawidefirstaid.com.au/lightning-strikes/ 2014			
3	Sept 19	1.2	<p>Lightning can cause injuries or death in several ways, including:</p> <ul style="list-style-type: none"> • Direct strike – when a person is directly struck by lightning; • Contact voltage – when a person is in direct contact with a conductor that has been struck by lightning, either inside or outside a structure, or dugout; • Side flash – when a person is struck by an arc or flash from a conductor carrying a lightning strike near the person; and • Ground current – injuries can occur when standing in the area of a lightning strike as the current can flow through the ground and enter and exit the body through the feet. <p>Lightning can also travel long distances in electrical conducting materials such as metal wires, fences, pipes, plumbing or other metal surfaces. Metal does not attract lightning, but it provides a path for the lightning to follow. Whether inside or outside, contact with metal wires, electrical appliances, pipes, plumbing, landline telephones, windows and doors should be avoided.</p>	Chet Gray	CEO (David Pryles)
		2.1	<p>The observation of approaching storm clouds from the first flash of lightning or clap of thunder, no matter how far away, should heighten lightning awareness. The level of risk depends on one's location (direction and distance) relative to the storm cell and the direction in which the storm system</p>		



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		<p>is traveling.</p> <p>2.2 A simple method of determining the distance to the storm cell is to measure the time elapsed from when the lightning flash is observed and when the associated clap of thunder is heard.</p> <p>2.3 Light travels faster than sound. If the light from the flash reaches the observer instantaneously, and knowing that sound takes approximately three seconds to travel one kilometre, the distance can be determined by using the following rule:</p> <p>Distance (in Km) = Time from observing the flash to hearing thunder (in three seconds)</p> <p>2.4 It is important to remember that lightning may be obscured by clouds so it must be assumed that when thunder is heard, lightning is in the vicinity. In such cases, careful judgment must be used to determine whether a threat exists.</p>		
		<p>3.1 An official monitor should be assigned to monitor and advise on the Weather, especially the possibility of thunderstorms. Local knowledge would be considered preferable.</p> <p>3.2 In the lead up to the game, it is recommended that a designated official monitor weather forecasts on the Bureau of Meteorology (BOM) website (http://www.bom.gov.au/). This can assist with the direction of the storm and warnings.</p> <p>3.3 If the weather patterns show a storm is imminent a decision to start or not start should be considered by the Tournament Management Committee (TMC) in consultation with the designated official weather monitor. Using a 45/45 rule dependant on the direction of the storm.</p>		



Version History				
Version	Release Date	Amendment Summary	Author	Approval
		2.13.4 After a game has started the 30/30 rule is recommended along with monitoring of the BOM website.		
		4.2 add Tournament Chief Statistician		
		4.8 The Weather Monitor should also be consulted if not on the TMC.		
		Reference update BOM website: http://www.bom.gov.au/weather-services/severe-weather-knowledge-centre/safety.shtml www.australiawidefirstaid.com.au/lightning-strikes AFL extreme weather policy 2014. WBSC Umpire Manual. Australian Lightning Standards AS/NZS 1768-2007		
4	Nov 2020	Inserted address details on front page	Reviewed by Leigh Evans and Chet Gray	(CEO) David Pryles

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2	Mar 2016	Helen Davis	Website
3	Dec 2019	Helen Davis	Website
4	Nov 2020	Helen Davis	Website