



## Lightning and the Law: Lessons from a Soccer Game

by Ruth Wahl<sup>1</sup> and Kelly Friedman<sup>2</sup>

In Canada, lightning takes up to ten lives each year and causes serious enough injury to require about 125 people to be hospitalized. The number of strikes is highest in southern Ontario. Among Canadian cities, Windsor receives the most lightning strikes, followed by Toronto.<sup>3</sup>

Last summer, southern Ontario saw an unusually high volume of lightning activity.<sup>4</sup> Our story begins on July 8, 2008, the night of a severe thunderstorm in Toronto. Before the storm struck, children were playing soccer games in many Toronto parks and fields. One game involved two U-11 girls' rep teams from competing soccer clubs.

Seventeen minutes into the game, with the away team leading 2-0, the referee suspended play when lightning struck the ground nearby. Fifteen minutes later, the referee decided that conditions were safe enough to resume the game. There was no rain and he could not see any more lightning.

The away team returned to the field. The home team coach, however, was uneasy. He insisted that they should wait thirty minutes to make sure it was safe to resume the game. Then he heard rumbling thunder. The coach refused to field his team and the referee was forced to abandon the game.

Even before all the players and families had packed up and left the field, a fierce thunder storm erupted. Parents of the players were shaken when they later heard that a young man had been killed by lightning in another Toronto park at about the same time.

Under Toronto Soccer Association (TSA) rules, the referee determines whether conditions are safe to play. No one can disregard a referee's decision to stop, start or resume a game. Refusing to comply with the referee's decision is a disciplinary offence. If the referee files a report about non-compliance, the matter must be referred to a discipline hearing. These rules are typical for competitive soccer, as the referee is the only impartial authority on the field.

The home team's coach was charged with a disciplinary offence for his action in that game. We were involved in defending the coach at the hearing.

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<sup>3</sup> Toronto Star, Leslie Scrivener, *Where Will Lightning Strike Next?*, August 3, 2008, quoting David Phillips, a senior climatologist with Environment Canada.

<sup>4</sup> The Toronto Star (see footnote 3) reported that lightning activity in the summer of 2008 was four times greater than usual.



In preparing for the hearing, we found that the TSA rules also contain a simple, but not very common, rule that eliminates referee discretion in the case of lightning. It states: “If lightning is present the referee shall follow OSA guidelines on adverse weather conditions.” These guidelines set out the “30-30 rule”. The first “30” refers to the flash-to-bang method. If lightning is followed by thunder within thirty seconds, everyone should evacuate the field immediately and seek shelter. The second “30” refers to game resumption. The players should not return to the field until thirty minutes after the last clap of thunder is heard or the last flash of lightning is seen.

This “30-30 rule” is a minimum standard which is widely applied in Canada and the United States. In Canada, the Sport Information Resource Centre (SIRC), in a joint initiative with Environment Canada, publishes wallet-sized cards with a reminder about the 30-30 rule for sports officials to carry with them at games.<sup>5</sup>

There are some initiatives to make the standard even stricter. The U.S. National Weather Service recommends seeking shelter at the first clap of thunder and not going back outside until thirty minutes after the last clap of thunder. This is because lightning can be heard approximately 16 km away and has been known to strike 16 km (and in rare cases more) from a storm cloud.

Regardless of the standard adopted, the recommended approach for resuming play is to wait thirty minutes after lightning and thunder have stopped. During a suspended game, this feels like a very long wait. But the recommendation is not arbitrary. Experts believe that thirty minutes allow the thunderstorm to be about 16 to 19 km from the area. This minimizes the risk of a nearby, dangerous lightning strike. In comparing data at the time of lightning death or injury, researchers have found that the end of the storm, when lightning frequency declines, is as deadly as the middle of the storm. Their theory is that once there appears to be less lightning, people do not perceive the danger and are struck when they return outdoors too early.<sup>6</sup>

Given the clear TSA rule about lightning, we did not have to argue the merits of the thirty-minute wait. Our task was to prove that lightning and thunder were present during and immediately after the game. In addition to interviewing witnesses, we discovered that it is now easy to obtain lightning data.

Environment Canada’s lightning detection service measures cloud-to-ground lightning strikes across Canada. Current reports can be viewed on the Lightning Detection Network website of Environment Canada.

The data are maintained in an archive by a company named Vaisala Inc. which provides lightning verification services. Vaisala can quickly generate a detailed report of lightning strikes at a specific location on a specific day. Our report from Vaisala showed that from shortly before game stoppage until the game was reluctantly abandoned about half an hour later, there were 110 ground strikes within a 16 km radius of the field. The closest one was 0.6 km away.

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<sup>5</sup> These cards are available at the following online site: [http://www.sirc.ca/online\\_resources/weather.cfm](http://www.sirc.ca/online_resources/weather.cfm). Click the relevant link under the heading “30-30 Rule”.

<sup>6</sup> Walsh *et al.*, “National Athletic Trainers’ Association Position Statement: Lightning Safety for Athletics and Recreation”, *Journal of Athletic Training*, 2000: 35(4):471-477, at page 475.



The TSA had no difficulty finding that the coach had acted appropriately in this case. This was the correct decision which was compelled by the evidence and the TSA's clear lightning rule.

Many other soccer associations do not have such a clear rule. Referees and coaches are left to deal with mere "guidelines" that leave room for discretion. Many coaches would feel pressured to field their teams in similar circumstances, and the rules do not make it clear that they could refuse to do so if they were concerned about lightning safety.<sup>7</sup> We also have heard of instances where players, parents and coaches urge the referee to resume the game because weather conditions appear to be improving and it is difficult to reschedule and travel to another match.

No referee or coach wants to be responsible for the injury or death of any child in their charge. Quite apart from the devastating emotional impact of such an event, legal consequences could follow. These could include civil lawsuits and even, depending on the circumstances, a police investigation and charges of criminal negligence. Potential defendants could include not only coaches and referees, but also sports organizations and their directors and officers.

It obviously is crucial that all coaches, referees and other game officials be educated and reminded about lightning risks and safety precautions. Given common misconceptions about lightning detection and the terrible consequences of a mistake, we also favour imposing a minimum, mandatory standard of conduct which leaves no room for discretion.

We urge sports organizations to ponder whether they could take more precautions than they are already taking. In the U.S., the National Athletic Trainer's Association has published recommendations<sup>8</sup> which include the following:

- developing and implementing a formal, comprehensive and proactive lightning safety action plan;
- designating a "weather watcher" to focus on that task alone;
- monitoring local weather forecasts and warnings;
- identifying safe locations in the event of lightning hazard;
- using specific criteria for suspending and resuming play;
- developing an emergency rescue plan; and
- giving all individuals the right to leave an athletic site or activity, without fear of repercussion or penalty, to seek a safe location if they feel they are in danger from lightning.

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<sup>7</sup> This issue is not isolated to the case in which we were involved; we have come across lively debates in cyberspace about similar dilemmas faced by parents, coaches and referees in other areas.

<sup>8</sup> For a full set of recommendations, see Walsh *et al.*, "National Athletic Trainers' Association Position Statement: Lightning Safety for Athletics and Recreation", *Journal of Athletic Training*, 2000: 35(4):471-477, at page 472.



The last recommendation generates the most controversy. There is concern that partisan players, parents or coaches will manipulate game results if they can stop a game because of perceived lightning risk. Others feel that lightning hazard is so severe that it is worth making this one exception to the referee's exclusive control over the game. We favour the latter view, but we are aware of the continuing debate.

There are now affordable portable personal lightning detection devices on the market. As technology improves, officials may find themselves able to assess lightning risk more proactively on the field even before lightning is visible or audible.

The 2009 summer amateur sports season has begun. Now is the time to remind sports organizations, referees, coaches, players and parents about basic lightning safety and to enforce it with vigilance.