

Tech Tip - Alpine - Lightning aversion

By Ty Milford
Illustrations by Mike Clelland

Lightning aversion — avoiding the big shock

As you lead out from the belay on the last pitch of the Petit Grepon in Rocky Mountain National Park, you notice a menacing, inky black cloud clawing its way over the 13,500-foot summit. With no place to go but up, you silently curse yourself for not getting a proper alpine start to avoid the inevitable afternoon thunderheads.

Lightning-related accidents kill approximately 200 people each year. Those who spend their time in high, exposed terrain are at a greater risk — especially climbers and mountaineers carrying metal gear. With a basic understanding of lightning-related dangers, you can become adept at managing this potentially deadly hazard.

Start smart. Bone up on local knowledge about the weather patterns of your destination and take note of the time that cumulonimbus clouds (the dark, anvil-headed demons that sprout lightning) develop. Place your camp in a location that minimizes your exposure, and plan an itinerary that allows you to be through high-risk zones, such as peaks and high passes, early in the day. On your ascent, note possible escape routes, constantly watch for building weather, and set a turn-around time to ensure safe retreat.

Sniff out the strike. Signs of imminent strike include a crackling noise in the air, a burning odor in the air, your hair standing on end, and metal objects emitting a bluish glow known as St. Elmo's Fire. If you see any of these signs or if the "flash-to-crash" interval (the time between lightning and thunder) is 15 seconds or less — indicating a strike fewer than three miles away — leave the area immediately.

Seek safe terrain. Stay focused and brainstorm a plan for retreating or getting to a safe place on the route. Don't think twice about leaving gear behind for a bomber anchor and rapping to safety. Look for large ledges where you can unrope and ditch your climbing rack. When possible seek lower, protected terrain such as a talus field or an area of small trees amidst larger ones. Ground currents tend to follow the path of least resistance, so avoid wet, lichen-covered rock; drainages; standing directly under tall trees; water-filled cracks; shallow caves; and being connected to wet ropes and metal climbing gear.

Assume the position. If you are pinned down by a sudden storm, try first to get off of the route. If that isn't possible, seek out a ledge and squat or sit (but do not lie down) on some sort of insulative material such as a sleeping pad, rope, or pack (without metal framing), and keep your hands off the ground and apart from each other. This will decrease the chance of your body becoming a conductor and protect your vital organs from having an electrical current pass through them. When possible, spread out members of your party by at least 15 feet; if one person is struck, the others will have a chance to resuscitate him or her. Put on your rain gear to protect yourself from hypothermia and stay in the protective position until the flash-to-crash duration increases, indicating that the storm is retreating.

Be ready for the worst. If someone is struck, the most significant danger is cardiopulmonary arrest. A victim's airway, breathing, and circulation should be assessed immediately. Know CPR and institute it if necessary, then get the victim to a medical facility ASAP for evaluation.



A few simple steps can be your key to avoiding a ride on the lightning express.