

EDITORIAL

Wilderness Preventive Medicine

What causes injury in the wilderness?

What is the number 1 cause of injuries in wilderness activities? A quick browse through the pages of *Accidents in North American Mountaineering 2001* shows that the top 4 “contributory causes” to mountaineering accidents since 1951 are as follows: climbing unroped, exceeding abilities, having inadequate equipment, and being inadequately protected.¹ These causes seem like they could be easily avoided by the actions and decisions of the climbers themselves. Since they are not avoided, the categories suggest a common thread: many accidents occur when climbers put themselves in dangerous situations by making poor decisions such as foregoing protective measures and failing to allow an adequate margin of safety. More telling than the cold, hard statistics in *Accidents in North American Mountaineering* are the reports of how an accident unfolds. All too often, victims’ comments will include such statements as “We were moving anxiously and therefore not as safely, fighting daylight to reach the hut . . .” or “I clearly should have worn my helmet, especially while on lead.”

Avoidance of accidents and injuries is one of the most important aspects of wilderness medicine and is not exclusive to mountaineering. Given the complicating factors of the wilderness environment, such as a limitation of resources, an increased risk of infection, a difficult evacuation, and the risk of additional injury to both victim and rescuer, it is tremendously important that every effort be taken to prevent injury in the first place. Many accidents that occur during outdoor activities could have been prevented if the people involved had made better decisions. Therefore, I believe that the primary cause of accidents during wilderness activities is a clinical condition known as “acute bad judgment syndrome.” Avoiding a case of acute bad judgment syndrome is the cornerstone of wilderness preventive medicine. Before we go any further, let me point out that there are very few cases of “chronic bad judgment syndrome.” The wilderness environment is notoriously unforgiving, and people who make bad decisions on a regular basis don’t usually last very long.

Acute bad judgment syndrome is a very frustrating phenomenon. One of the most unfortunate aspects of the disorder is that it often strikes people who are otherwise intelligent and reasonable, with decent wilderness skills

and experience. This may be partly because climbers spend vast amounts of time preparing and training for a wilderness adventure with athletic conditioning, skills practice and equipment preparation, but we spend little time actually practicing one of the most important aspects of a wilderness event: preparing and practicing to make good decisions at the critical time.

The challenge of describing acute bad judgment syndrome is that, in any given situation, a decision is difficult to evaluate as “good” or “bad” until after the outcome has occurred. One of the classic examples of this problem is when climbers are trying to decide whether or not to go “fast and light” when making a summit bid. Let’s assume they decide to “go for it.” If they are able to bag the summit and be off the mountain before a storm rolls in, then they’ve made a good call. On the other hand, if they are caught in the storm with inadequate protection from the weather, they may find themselves in an emergency situation, perhaps facing injury from the effects of exposure. Consequently, the appropriateness of decision making with a blanket characterization cannot be determined. Conditions and circumstances are always variable, which makes it impossible simply to categorize a decision as right or wrong. Additionally, it is inappropriate to second-guess the decision of a victim of acute bad judgment syndrome in the comfort of our living rooms, with the luxury of our 20/20 hindsight. Usually, adventurers don’t set out to put themselves into a dangerous situation. It seems like many wilderness accidents begin with a clear blue sky and a strong, healthy, and motivated party. Because it is so difficult to characterize, acute bad judgment syndrome is also difficult to predict, identify, and prevent.

Causes of acute bad judgment syndrome

There are 2 primary causes of acute bad judgment syndrome. The first is when the parties involved do not truly understand the conditions or parameters of the circumstances of a decision. Naval aviators use the term “situational awareness” to describe an aircrewman’s perception of his current circumstances. The loss of situational awareness is particularly insidious, because the victims rarely realize their errors in perception until it is too late or at least until the situation has deteriorated

into a much more dangerous condition. In fact, a loss of situational awareness usually results in the victims thinking that they are making the correct decision throughout the major portion of the chain of events. The key phrases to look for in a postaccident investigation are things like “we didn’t think,” “we didn’t know,” and “we didn’t realize.” From *Accidents in North American Mountaineering* comes this statement: “The terrain that Ken was on was not an obvious avalanche path from our perspective.” A mix-up in direction and a misidentified landmark are also examples of a loss of situational awareness.

The overestimation of one’s own abilities is the second major cause of acute bad judgment syndrome. This can be considered a type of “personal” situational awareness. A climber may think that he has the skills and proficiency to lead a difficult rock-climbing route. Or, a hiker may consider herself strong enough to cover many miles in only a few hours. In both cases, individuals fail to match their own abilities with the degree of difficulty of the task before them. These examples fall into the type of contributory causes of accidents that stem from “exceeding abilities,” and they can be the direct cause of an injury, or they can create a situation in which an accident is likely. Experience and preparedness relate to the previous concepts. Neither of these factors is a direct “cause” itself, but each often contributes to the building of a general situational awareness and the assessment of one’s ability.

Even with a total loss of situational awareness or a gross overestimation of ability, a single event or judgment call does not always result in a wilderness accident or injury. Oftentimes, it is a series of small errors in decision making that compound to complicate a situation. Eventually, if the chain of events is not broken, a situation arises in which an injury or accident is unavoidable. An example from *Accidents in North American Mountaineering* describes an accident in the Rockies in which a pair of climbers, starting their climb late and facing impending darkness, find themselves off the route and, in their haste, put in place inadequate protection, which results in a failure during a fall. In the analysis, “There were a number of smaller factors coupled with relative inexperience of this party that led up to this accident.” Even if a series of decisions are not particularly dangerous when taken individually, the sequence has a tendency to accumulate risk factors that eventually reach a breaking point, and an injury is the result.

Prevention and diagnosis of acute bad judgment syndrome

Prevention of acute bad judgment syndrome is paramount. The only way to really prevent it is to recognize

when a questionable decision is about to be made and to take action to prevent it. This is essentially its diagnosis. The primary method for both prevention and diagnosis is to approach decision making in the wilderness in a careful and methodical way. This means evaluating a number of parameters regarding a situation and trying to establish the degree of risk and benefit associated with a particular choice. Through training and practice, an individual should be able to perform this task quickly but thoroughly and allow it to occur as a matter of course during a wilderness activity.

An additional facet of this process is to be alert for a situation in which acute bad judgment syndrome is about to occur. This is when the “voice of reason” needs to be heard, which, even if it is only for a second, causes everybody to stop, take a step back, and give a decision that last “sanity check” before it is implemented. This is a perfect role for a physician involved in a wilderness setting, where he or she may not be burdened with the responsibilities of the team leader but may still be able to contribute a respected opinion and recommendation. Furthermore, a physician will have the skill and experience to more quickly detect a physiological condition such as fatigue or dehydration that may contribute to a case of acute bad judgment syndrome.

Treatment of acute bad judgment syndrome

If a case of acute bad judgment syndrome has occurred, all is not lost. In fact, it is even more critical at this point to treat the condition and break the chain of events that may lead to a more serious situation. The options and alternatives may be different from those present when the first decision was made, but the slate is essentially wiped clean in terms of the approach to analyzing and addressing the next decision.

Practice

We train for outdoor events with physical conditioning, warm-ups, acclimatization, etc. We check our equipment against checklists and perform routine maintenance on it. It is equally important that time be spent on preparing and practicing for decision making in the wilderness. In *Wilderness Medicine: Management of Wilderness and Environmental Emergencies*, 4th edition, Marks’ excellent “Wilderness Injury Prevention” chapter focuses on skills and techniques to prevent injury in the wilderness.² This can form a solid foundation in terms of the preparation and experience that were described earlier, which contribute to situational awareness and assessment of ability. An additional step that can build on these skills is to get into the habit of continuously ana-

lyzing the current situation and considering options. For example, while hiking along an otherwise “easy” trail, take a few minutes to imagine a “what if” scenario: “What if . . . the weather suddenly deteriorated?”; “What if . . . one of our team members started to feel dizzy and nauseated?”; “What if . . . when we reach the upcoming stream crossing, the water is higher than we expected?” Continuous evaluation allows one to maintain situational awareness and to be more prepared to make better decisions when necessary.

Recommendations

Although *Accidents in North American Mountaineering* serves as a reference and provides good examples of acute bad judgment syndrome, the condition is not exclusive to “high-risk” activities such as mountaineering and rock climbing. Generally, mountaineers tend to be more experienced and physically fit than “average” hikers. If mountaineers sometimes make bad decisions, common sense tells us that hikers, campers, and backpackers are also likely to do so. Therefore, acute bad judgment syndrome is a condition that is almost certainly an issue that spans a variety of wilderness activities. However, acute bad judgment syndrome is only the manifestation of a shortcoming in education about preventive medicine in wilderness activities.

Preventive medicine is an absolutely critical part of wilderness medicine, but it is not adequately addressed in the *Wilderness Medical Society Practice Guidelines for Wilderness Emergency Care*.³ The purpose of the *Practice Guidelines* is “to propose appropriate prehospital medical management for a variety of environmental and traumatic injuries that might be encountered during various wilderness activities.” The first and best prehospital medical management for these injuries is to prevent them from happening at all. A specific chapter should

be incorporated into the *Practice Guidelines* that discusses preventive medicine in the wilderness.

In addition to a chapter in the *Practice Guidelines*, the Wilderness Medical Society and its members should strive to make sure that preventive medicine is a priority. This should be in the form of increased exposure through lectures and clinics during Wilderness Medical Society conferences as well as an emphasis in the Wilderness Medical Society members’ practices.

The last collection of abstracts from the Wilderness Medical Society’s annual scientific meeting is encouraging. Six abstracts directly addressed preparation, risk management, and predicting illness during wilderness activities.⁴ This is an indication that the wilderness medicine community is ready to take the steps necessary to highlight the importance of preventive medicine. Although we may never “eradicate” acute bad judgment syndrome, we may hope that by emphasizing the importance of wilderness preventive medicine, a safer and healthier wilderness experience for everyone will be achieved.

References

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3. Forgey WW, ed. *Wilderness Medical Society Practice Guidelines for Wilderness Emergency Care*. Guilford, CT: Wilderness Medical Society; 2001.
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