

[Editorial]

Pushing the Envelope

I think most of us have fond memories of an outdoor venture that we did as kids that send chills down our spine as adults. It may have gotten us into trouble with parents or teachers and resulted in warranted disciplinary action with promises to never do that again, or it may have resulted in injuries that taught us valuable lessons after a trip to the emergency room. Hopefully, none ended in tragedy leaving scars for life, such as a youngster that dives into a shallow lake or river resulting in a cervical spine fracture and resulting quadriplegia, or worse. Life is full of inviting open doors that lead to excitement, intrigue, or adventure. Unfortunately, most kids do not recognize the potential risks and dangers because life's experiences thus far have been limited and children have not learned those difficult life lessons yet. As we grow older, it is the collective effect of those lessons and/or bad memories—our own, that of our friends, and sometimes from our environment—that sway our choices for fun and adventure.

For myself, white water rafting has always been fascinating and a lifelong desirable activity, having rocketed down several rivers while getting tossed about like a toy. The “shotgun” on the Salmon River in Idaho was my favorite! The beautiful surrounding landscape was always a welcomed feature. Regrettably, but fortunately, I have grown more cautious since those early trips on the white water. Looking back, there was one day on a family vacation in Costa Rica that I got talked into some rafting by my college-aged children. I'm pretty surprised that I did not carefully consider some of the dangers of the river with its hidden obstacles submerged below the surface that could crush body parts and threaten livelihood. While I had a lot of previous experience with fairly calm trips down rivers interspersed with rapids, I had not been subjected to hours of roller coaster-type white water punctuated by only brief 20- to 30-second rests between rapids. What a ride that was! I knew we were in trouble when my wife managed to stay in the raft for less than 2 minutes from the start of the trip. I wasn't much better! I got a pretty good view of the depths of the river by getting thrown out and briefly trapped underneath the raft as we raced through raging rapids. The submerged boulders that I saw jetting by me while I was caught below the surface were impressive but quite scary. Questions of what level of trauma care was available in the villages along the river streamed

through my mind as I struggled to get back into the raft. Those recurring questions strengthened my resolve to stay in the raft for the rest of the trip down the river. Needless to say, it was an educational experience. One that I had not expected! If I recognized some of the potential dangers before agreeing to the challenges of my kids, I probably would have rationalized what a problem a concussion or a fractured tibia would have been and where the medical care might be delivered. To be honest, I probably would have made other activity choices that day had I fully evaluated the risks and potential consequences.

Clearly, we're never too old to learn from our mistakes and short sightedness! For those of us who love the outdoors in this beautiful world in which we live, there is plenty to experience and enjoy as long as we are adequately prepared for what we may encounter along the way.

For outdoor enthusiasts of all types, avoiding serious medical problems and injuries is the key to lifelong enjoyment of these opportunities. To help us stay out of trouble, there are several feature articles in this issue of *Sports Health* that should be of interest to outdoor men and women. “Athletes at High Altitude” is a concise overview of all of the problems that can be encountered not only by athletes but physically active people as they bike, jog, hike, or hunt above 2500 meters.⁸ While the title says “high altitude,” 2500 meters really isn't that uncommon for a lot of activities in many regions of our mountainous states. As the oxygen concentration and barometric pressure decreases with altitude, physiologic changes occur in our bodies. Knowing which ones are indicators of serious consequence is of utmost importance. Slow ascent is the guideline but many people disregard safety guidelines. Once above 2500 meters, altitude should be increased at the rate of only 600 to 1200 meters per 24 hours.⁷ Adequate rest and recovery is also essential. Physically demanding activities depend on good restful sleep, but sleep patterns are often altered at high altitude.^{2,3} Without restful sleep, irritability and poor decision making can result in making many mountain adventures more difficult and possibly risky. While we usually associate children with sleep issues, they may be better suited than adults for altitude endeavors.⁸ Unfortunately, pregnant women may be the ones most at risk.⁴ Anyone who has spent some time in the mountains knows how quickly weather conditions can change as you gain

altitude. Many a backpacker has gotten into trouble starting off on a sunny warm day in light clothing and being ill prepared for the drastic drop in temperature as winds increase and cloud cover produces rain, sleet, or snow. Adequate clothing is essential, including moisture-wicking layers at the skin surface. There is good justification for the adage that “cotton kills.” Those trips can turn tragic rapidly. Therefore, being well aware of the essentials in “Exercise in the Cold”⁵ is a must to survive and enjoy the trip when weather takes a turn for the worse. Hypothermia can be quite dangerous when it affects the nervous system, and subsequently, our decision-making skills. Clear thinking will often be the determining factor when faced with hazardous weather conditions.

At the other extreme of weather conditions, dehydration and exertional heat stroke associated with endurance exercise and physical pursuits in hot weather can be just as dangerous. Multisystem illness is likely when core body temperature exceeds 104°F.¹ Many endurance events occur in the summer heat and demand acclimatization to be safe. The pitfalls and guidelines for exercising in the heat are well described by Asplund and O’Connor¹ in this issue.

Last in this issue’s features on outdoor activities is an excellent review on the otologic hazards of scuba diving.⁶ More than once I’ve been tempted to take the 4-hour course at one of several local venues to get certified to dive. Many friends have described the inviting features of the deep, especially the fish life. After reading the review on the otologic hazards of scuba diving, I wonder how well the swimming pool courses prepare divers for the hazards. I think I’d now opt for a more extensive certification program if I were going to dive or just stick with snorkeling. Irreparable hearing loss wasn’t something that I’d associated previously with scuba diving.

I hope all of you who love the outdoors as I do have time to enjoy these 4 feature articles on altitude, cold, heat, and diving. I found them very educational. I sincerely hope that these features will not dissuade anyone from enjoying our magnificent outdoor world but rather encourage a little more caution and preparation for the unexpected. I do hope that these features help us protect children and all those entrusted to our care on these adventures. Hopefully, these will help avoid unnecessary injury, illness, accidents, or tragedies. For me, the next time I depart on my annual bear hunting/fishing adventure in the wilderness of Manitoba, I will recheck my first aid kit and make sure that our guide’s satellite phone is in good working order. Safe travels!

—Edward M. Wojtys, MD
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