IN MEMORIUM: ANDY TYSON

BY MOLLY TYSON

This spring Andy Tyson, along with three other men, died in a plane crash. In addition to running a successful renewable energy business, Tyson was an accomplished mountain guide, educator and talented all-around outdoorsman known for his humility; ability to suffer with a smile and love for adventure in remote mountain ranges around the world.

Andy's outdoor career began at Wittenburg University, then with NOLS where he led mountaineering, climbing, backcountry skiing, sailing, caving and hiking courses in the Rocky Mountains, Pacific Northwest, Alaska, British Columbia, India and Patagonia. Tyson was recognized as a NOLS "Instructor of the Year" and spent time as a Program Supervisor in the Pacific Northwest and Wyoming. Tyson's work as Expedition Manager for Alpine Ascents International and later with Antarctic Logistics and Expeditions, took him the high peaks of Antarctica, the Andes, Tibet and Nepal. In 2014, he was poised to guide on Everest and was among first on scene with rescue and recovery efforts when a massive avalanche struck the Khumbu Icefall. Tyson authored two how-to-books on climbing and mountaineering: "Climbing Self Rescue" (with Molly Loomis) and "Glacier Mountaineering."

Andy was equally passionate about the wilderness's potential as a classroom as he was for exploring those places. As he said in a recent presentation, "Succeeding on a problem is rewarding but finite. We should try another problem and build upon the experience….Unless we challenge ourselves we go nowhere." Remote, wild places were where Andy loved to challenge himself and recent personal expeditions included trips to Oman, Kyrgyzstan, the Arctic, India, Tibet and many others including multiple first ascents in China's Genyen Massif and Alaska. In 2013, Tyson led an American-Burmese team that made the first ascent of Gamlang Razi (19, 258 and possibly SE Asia's highest peak.)

When the crash occurred, Tyson was flying into a remote job site with a team from Creative Energies, the renewable energy company that he co-founded in 2001. Through Creative Energies, Andy strove to find innovative ways to build a sustainable energy future for our world. In supporting this vision, he was involved in organizations such the Charture Institute; the Idaho Clean Energy Association; chairman of Idaho Strategic Energy Alliance's Solar Task Force, Teton Valley Recycling; the Jackson Eco-Fair; Tetons for Tomorrow and One Percent for the Tetons. Andy volunteered to teach climbers in Myanmar and most recently, Nepal, at the Khumbu Climbing School.

Andy was known for his physical strength, stamina, grit and determination, but more importantly to his friends and family, he was loved for his kindness, curiosity, energy and willingness to try whatever was thrown at him. He could jump off the couch and run 20-plus miles through the mountains, make a difficult climb look easy, fly a kite, ski a steep couloir, longboard twisty roads and build or fix just about anything. Yet he carried himself with humility and relished in others' successes. He made the people he touched better people. He was a rare mix of intelligence, kindness, mischief and playfulness. He loved his family, community and dog tremendously and often spoke of how lucky he was to live in such a place among such people. We miss him tremendously. ▲

Andy was infinitely curious; here he investigates a chunk of wind slab in China.

In his honor, The Andy Tyson Memorial Fund has been created to develop and support outdoor leaders in the developing world. The fund will provide resources for expeditions, training in mountain skills and match outside expertise with local interest. To learn more and to contribute lease visit: www.AndyTysonMemorialFund.org

ELECTROMAGNETIC INTERFERENCE FROM ELECTRONIC DEVICES USED IN THE MANAGEMENT OF TYPE 1 DIABETES CAN IMPAIR THE PERFORMANCE OF AN AVALANCHE TRANSCEIVER IN SEARCH MODE

PREPARED BY DALE ATKINS, RECCO AB.

From the journal of Wilderness & Environmental Medicine, a synopsis of current literature. (Wilderness Environ Med. 2015 Jun;26(2):232-5) S Miller.

Many type 1 diabetes sufferers use small electronic blood sugar monitors and insulin pumps to dispense insulin automatically. With type 1 diabetes one's pancreas no longer makes insulin, a hormone that allows the body to use sugar for energy. The monitoring devices, called Continuous Glucose Monitoring (CGM), measure blood sugar levels in real-time throughout the day and night, and provide valuable information about one's levels and the directions those levels are going. This is especially important for those times before and during exercise. For those who require insulin therapy, a glucose monitor can be combined with insulin pump technology for real-time control of blood sugar levels. Being electronic appliances these devices have the potential to adversely affect avalanche rescue transceivers, yet their influence was unknown. The purpose of this study was to investigate the influence of electromagnetic interference from electronic diabetes devices on an avalanche rescue transceiver in SEARCH mode.

New Zealand endocrinologist Dr. Steven Miller evaluated two avalanche transceivers — Arva 3 Axes and Mammut Pulse Barryvox — with the Dexcom G4, Medtronic Guardian CGM, and Animas Vibe insulin pump in close proximity — within 30cm. He also checked for the effect of three other portable electronic devices — Baofeng UV-5R two-way radio, iPhone 4 and iPhone 5.

In SEARCH mode the ability of each transceiver to determine the proximity and direction was checked at set distances of 1, 5, 10, 15, 30 and 45 meters. Miller recorded the most distant point where the receiving transceiver could accurately determine both direction and distance to a transmitting transceiver. Then the electronic medical devices and portable electronic devices were held below either receiving or transmitting transceivers and the effect assessed.

There was no interference observed when any electronic device was used within 30cm of a transmitting transceiver or when more than 30cm from a searching transceiver. Results were identical with both transceivers in SEND and SEARCH modes.

However, when the electronic devices were held within 30cm of the searching transceiver the receiving range was reduced. The effect depended on the device used. Each device was tried three times and the mean distance reported. The Animas Vibe, iPhones reduced the receiving range to 5m. The Medtronic Guardian fell to 10m, and the Baofeng radio to 15m. The Dexcom G4 did not produce any apparent interference. The results were the same regardless of which transceiver was transmitting or receiving, and no effect was observed when the device was more than 30cm from the receiving transceiver. While the medical devices did affect the performance of the transceivers, the transceivers did not affect the medical devices.

While Miller looked only at the affect of a single electronic device on a transceiver, he suggested an interesting point for future research. Is potential electromagnetic interference additive when carrying multiple devices (insulin pump and CGM along with cell phone, radio, gps, action camera, etc.)? In other words, does carrying multiple devices enhance interference?

While this study was limited by small sample size, the findings were similar to those observed with other small consumer electronic devices. As interference was experienced when the electronic diabetes device was held within 30cm of a searching transceiver, the results were also in line with current recommendations to separate electronic devices from transceivers (20 to 50cm). The effects of electromagnetic interference are fickle. Not all electronic devices interfere (e.g., the Dexcom G4 did not cause interference) and if they do, the interference effects are not always identical.

While it is unknown how many people with glucose monitoring systems and insulin pumps use transceivers this study showed the adverse effect can be significant, which could cause delay for a buried victim. Avalanche educators should also include mention of electronic medical devices as potential sources of interference when teaching or reviewing transceivers. From the results of his study, Miller recommends that all electronic diabetes devices not be used within 30cm of an avalanche transceiver. His recommendation can be expanded to say that all electronic devices be kept as far away as possible from an avalanche transceiver. ▲