



# STRESS INJURY AND SKI PATROL

BY ERYKA THORLEY

It's a bluebird powder day. The ski resort is mostly quiet, and morning openings were uneventful. After a few glorious runs, you are ready for a rest in the patrol shack. As you enter, your fellow patrollers are eager to hear about the conditions and share a story or two from their own start to the day.

As you sit down with a cup of freshly brewed coffee and leftover pizza, you can't help but feel a moment of gratitude. This is one of the big reasons you patrol: the skiing, the glorious fresh tracks on a powder day.

As you indulge in your first bite of pizza, the radio crackles. "Dispatch has a report of a 10-50 in the natural half-pipe." You quickly put down your pizza and make brief eye contact with other patrollers in the room, sizing up their readiness as they assess their own. Dispatch continues, "This incident involved a skier versus tree, and bystanders report the patient was unconscious for an unknown amount of time and is now experiencing labored breathing. Who is in a position to respond?"

If this call sends your heart racing or your thoughts to a previous event that you assisted with or even experienced yourself, you're likely a patroller or emergency medical services (EMS) provider, and you're not alone. A physiological and/or emotional response to a potentially stressful stimulus is a totally normal human response (especially for EMS responders) and is ultimately meant to prepare us and propel us into action. The challenge with this physiological response, however, is that over time this

“stress response” can wear on our emotional and physical well-being. Over the course of an EMS responder’s career, it can reduce or take away satisfaction from things we’ve enjoyed all our lives or pull us into isolation and even depression.

Recognizing this, Eldora Mountain Resort started a pilot program this past season (2018-19) to help patrollers better react to stressful events. The ultimate goal in exploring this pilot program and related topics is to better recognize stress injuries and treat them before they become debilitating or change the path of someone’s life. We want to support patrollers in continuing to love what they do for the entirety of their career.

### WHAT IS A STRESS INJURY?

A stress injury is the term used by the U.S. military to describe occupational exposure to stress in an operational setting (*Combat and Operational Stress First Aid*, 2010). It can be the result of a single traumatic event or multiple events, but the defining element is that the stress of the trauma overwhelms a person’s ability to cope or integrate the event(s) into their everyday lives. A person’s ability to cope varies depending on a number of things, including the event itself, one’s resources, the culture in which they operate, and their own overall stress resiliency or where they are on the stress continuum given the time of the event(s).

They key to managing a stress injury is recognition and early intervention. As with any serious injury or trauma, there are various signs and symptoms that an individual can exhibit. Stress injuries demonstrate early and late changes to vital signs that are easier to recognize the more we communicate about their patterns and teach each other and the responder community about the impacts of stress. We need to integrate this education into standard EMS training.

### ELDORA’S STRESS RESILIENCE PILOT PROGRAM

Eldora Mountain Resort is a cozy, community-supported resort located almost 50 miles northwest of Denver. Its latest campaign slogan is “Closer to you,” but in the past it’s boasted taglines such as “Friends don’t let friends drive I-70,” since Eldora is the closest ski resort to Denver that doesn’t necessitate driving this busy interstate corridor. Eldora’s proximity to Denver sees a lot of skier traffic and the need for medical response.

Eldora Ski Patrol first met Laura McGladrey in 2017 during its annual EMT continuing education event. She introduced psychological first aid during her presentation. At the time, this was (and still is) not a common topic

for Outdoor Emergency Care providers. After regularly referencing her talk throughout the 2017-18 season, the idea was raised to train our entire patrol in psychological first aid skills at the 2018 refresher. During a summer brainstorming session, the idea for a pilot program was conceived and, a few months later, approved by upper management under the guise of employee retention. Luckily, the idea was supported by Eldora Ski Patrol Director Travis Brock.

“I did my research, crunched the numbers, and formulated a proposal that allowed me to justify the expense (to management), and in the end the process justified the means,” states Brock. “I did have astounding support from Eldora management for this program.”

During the refresher, the entire patrol was introduced to McGladrey. Laura, or “Glad,” as she is appropriately called, is a thoughtful and well-spoken force for good. She is a family and psychiatric nurse practitioner with a background in emergency, wilderness, and humanitarian medicine. She has worked in the emergency department and the START Center (Stress and Trauma Adversity Research and Treatment) at the University of Colorado and works with other groups such as law enforcement, fire, and EMS to mitigate stress injuries all over the country.

Even more relevant to her ski patrol work, she has taught National Outdoor Leadership School Wilderness Medicine for decades, works with rescue groups, national parks, and outdoor organizations, is a member of Portland Mountain Rescue, and is an advanced life support volunteer with the Monarch Ski Patrol in Colorado. This combined experience means she understands emergency medical care issues, and she’s made it her mission to share

stress resiliency concepts with rescue groups all over the country, including a new pilot program around the use of the stress continuum with Yosemite Search and Rescue.

At the refresher, the Eldora Ski Patrol began stress injury training with a four-hour presentation on psychological first aid (PFA) and the stress continuum from McGladrey. PFA is a natural introduction to stress injuries, as it initiates discussion around techniques that many patrollers already employ to help mitigate psychological injury for their patients. Instinctively, this topic can lead to a responder questioning their own stress injury prevention (not just their patients), and it was no surprise this happened at Eldora during our first group discussion.

After a few hours of presentation focused on the basics of psychological response to trauma and first aid techniques to mitigate its impacts, patrollers began brainstorming on techniques to better care for themselves based on their job exposure. It included an anonymous individual assessment regarding each patroller’s PFA and stress resiliency understanding at the start of the season, an establishment of each patroller’s own stress continuum (what these stages look like for them individually), the establishment of “green” choices, and tools for staying in the “green” for each individual. Most importantly, a shift in patrol culture was initiated that brought greater awareness of stress injury formation, a destigmatizing of mental illness, and related tools and resources.

### A QUICK REWIND — PSYCHOLOGICAL FIRST AID

McGladrey explains, “PFA was developed in the middle 2000s when a panel of world experts sought to introduce practical,

READY	REACTING	INJURED	ILL
<p>Let's shred. I love this job. Smiling, joking, staying light-hearted. Let's get some good observations to CAIC. I do uphill laps before work. Stoked to pick up shifts. I'm coming back next year. I love working lower mountain, people are nice.</p>	<p>Sundance coverage sucks. My co-workers are annoying. Dreading the cold. Not stoked to come to work. Cutting corners. Something hurts, I'm working anyway. My weekend was not long enough. Others aren't pulling their weight. I'm not picking up anything extra.</p>	<p>Lack of motivation for off work skiing. Lack of snow nerd desire. Drinking to forget or feel numb. Dealing with early uphill Call dodging. Eating too much. Showing up late or not at all. Stressed out watching people ski from the lift. Too tired to play. Confrontational approach to everyone.</p>	<p>I don't want to ski. Going through the motions with no emotion. Doing nothing outside work. Every call reminds you of past call. Drinking when it's dangerous. Insomnia or dreams about last call. Work projects to avoid patient care. Going through the motions without emotion. Lack of fear of dying. Scared to ski.</p>

McGladrey 2018

Adapted by Laura McGladrey from COSFA, created by Eldora Ski Patrol



A morning patrol meeting at Eldora Mountain Resort. Photo by Tom Winter.

reproducible tools that would address trauma formation in real time, by responders and lay folk alike, rather than waiting for the experts to perform Critical Incident Stress Debriefs (CISD). The idea behind PFA is to help the survival mechanism designed to watch for ongoing danger register that the danger has passed and fire an ‘all clear’ signal.

“Stress injuries occur when a patient or rescuer interprets an event as overwhelming or a threat to life, especially in the presence of helplessness or watching the event or series of events happen to someone close to them or someone in their care. The goal of PFA is to reverse the process, using the five elements (Safety, Calm, Engagement, Connection, and Hope), to involve the person in their own rescue, sound the ‘all-clear’ signal, and use connection and a sense of future to re-establish that survival was achieved and the event is over. This allows folks to continue with life as usual, rather than forming a mechanism to shift priorities to constant surveillance at the cost of enjoying life and connections.”

More detail on the five key tools of PFA, along with specific tools, is available at <https://blog.nols.edu/2017/05/22/5-components-psychological-first-aid>. (Please note that ski patrol-specific techniques were developed by Eldora Ski Patrol during continuing education events in the 2018-19 ski patrol season. If you want more information on how Eldora adopted these techniques for patrolling, please email [editor@nsp.org](mailto:editor@nsp.org).)

It is not new, but many EMS professionals aren’t taught PFA during their initial medical training. Luckily, we’ve learned and documented that although stress injuries are not always alleviated by single interventions, first responders can begin to mitigate stress injury formation for a patient (and others involved) by utilizing the above PFA toolkit.

## INNOVATIVE PFA TECHNIQUES FOR THE SKI PATROL ENVIRONMENT

As ski patrols begin to intentionally integrate PFA techniques into their practice, new methods are emerging. One novel concept is dispatching two or more patrollers to a scene if there is a potential stress injury to a bystander or other person involved. For example, if there is a parent injured on the slopes and their child witnessed the accident, the child could be very concerned about their parent and in a heightened stress response as a result. Dispatching two patrollers allows one responder to assist and treat the injured parent while the second patroller can calm and connect with the child to ideally create a sense of calm in their brain and nervous system and ultimately begin the return process toward green.

Another novel concept is to integrate PFA into regular medical reports. If there is a “sick and sad” child (as we refer to them at Eldora) that enters the first aid room with a benign injury, we can instead recognize that treatment should return them to a sense

of calm through various PFA techniques instead of simply stating that no treatment was administered. EMS providers recognize that “no medical care” isn’t the case; in fact, recognizing and recording the treatment administered (PFA) will bring greater awareness to patient PFA care as well as the responders’ care for themselves.

## STRESS CONTINUUM SCALE

The stress continuum is a guideline to behaviors and feelings that an individual is likely to experience as they become more vulnerable to a stress injury. It can look very different, depending on the organization and overall culture of your patrol. At Eldora, a specific stress continuum was adapted that outlines specific behaviors, depending on resiliency levels and where individuals or the group are along this continuum. This scale provides a quick reference to where an individual (or group) may be given their behaviors and attitude and the appropriate interventions to escort and support the individual or group back to green.

## BACK TO ELDORA

Eldora’s 2018 patrol refresher launched several new stress injury prevention initiatives. The days following the refresher included a discussion on where to house the new stress injury prevention group and specific goals for the season. This discussion sparked the



Eldora Ski Patrol Director Travis Brock and his son, Emory, at the base of Eldora. Photo by Mark Griffin.

“Stress injury prevention is as much about recognition as it is about resources, and one person on your patrol can begin to shift the culture toward more awareness.”

current medical team to lead this charge, including the goal of five presentations during the season on the main tools of PFA and how they pertain to ski patrolling. Additional topics focused on emphasizing green choices, including family dinner community events, reformatting the traditional after-action review template, and creating more common emphasis on the employee assistance program (EAP) and other outside resources available for the integration of traumatic events.

While actively working on the above concepts, Eldora implemented a daily stress continuum check-in during morning meeting. The request was to write down your current location on the stress continuum (green, yellow, orange, or red) and where you could be the most at risk given the day. This personal risk assessment was intended to bring awareness to an individual’s current stress status and ideally reduce their exposure to new injury for that day. This daily check-in remained independent and personal, but did keep the concept of stress injury and vulnerability to such an injury at the forefront of everyone’s minds throughout the season.

### HOW TO START A PROGRAM AT YOUR AREA

The first step is to have a conversation with your fellow patrollers. Once you have a few people on board, bring it to your management and see if patrol-wide training is possible. If it is, get in touch with Responder Alliance at

[responderalliance.com](http://responderalliance.com). If it isn’t yet time for a patrol-wide stress injury mitigation initiative at your resort, start exploring resources on your own. Stress injury prevention is as much about recognition as it is about resources, and one person on your patrol can begin to shift the culture toward more awareness.

Have a conversation about employee assistance programs available through your employer. What are the local crisis prevention resources available near your resort? Publishing these resources in a visible location in your locker room or duty stations can start to change the stigma around mental health as well. Talk about stress, check-in with your coworkers, and above all start to expand your own stress resilience network. Where are you on the stress continuum scale? How can you move yourself more toward green?

McGladrey summarized the importance of instituting stress resilience techniques beautifully, stating, “Most patrollers recognize the importance of stretching for resiliency and injury prevention at the beginning of each patrol day. We are trying to make stress injury prevention as understood and acceptable as stretching at morning meeting.”

Just as if you show up on a double black with your knee hurting from an injury the week prior and need to pull a toboggan you’re likely going to get hurt without stretching, if you’re not taking care of your own mental health and utilizing appropriate

resources to keep yourself in the green you’re very likely going to get hurt during your next high-stress exposure.

### STRESS INJURY VERSUS POST-TRAUMATIC STRESS DISORDER (PTSD)

In a presentation given to EMS providers in 2018, McGladrey explained that PTSD was first identified in postwar Vietnam veterans and survivors of sexual assault in the late ‘70s and ‘80s based on a pattern of behaviors and symptoms. The challenge with PTSD is that

### STRESS INJURY — EARLY AND LATE CHANGING VITAL SIGNS

Laura McGladrey, 2018

Early Changing:

- Loss of vitality/creativity
- Dreading work
- Criticism
- Avoidance
- Lack of motivation

Late Changing

- Sleep disturbances
- Substance use/abuse
- Anxiety
- Isolation
- Hopelessness
- Depression
- Suicidal thoughts of intention

we are using it to recognize an injury type in a rescuer population that doesn't fit the original population of returning Vietnam veterans or survivors of sexual assault. This new group includes search and rescue responders, ski patrollers, firefighters, and many other types of first responders.

McGladrey explains, "PTSD is a late-change effect of stress exposure. It's actually the most adaptive response of our lives, meant to keep us alive. It certainly can make it very hard to live our lives to the fullest, but I'm not sure 'disorder' is the best way to describe it."

### STRESS RESILIENCE ON THE MOUNTAIN

After speaking with several ski patrollers, the feedback was overwhelmingly positive for Eldora's stress resilience pilot program this past season. When asked about it, Abby, a part-time paramedic at Eldora, responded, "I think this program opens the door to make talking about any of the issues someone may have more accessible. If you are establishing

that our mental well-being is something that we take pride in and is something that is an important aspect of our ability to work and play and live our lives, then if anything does come up people are more willing to reach out if they need help. They are more willing to take control of their own well-being before it even becomes a larger issue."

Brock also felt the program was valuable, stating, "I've seen the destigmatizing of mental health by people openly discussing challenges they've had with calls and stress injury as they've learned about it. Our staff are openly discussing their responses to trauma, and I've seen the establishment of a better peer-to-peer support network. This has in turn influenced morale from my perspective, which also improves retention and lowers rookie training costs.

"Our biggest successes this year were the introduction of the concept and the destigmatizing of mental health. The daily check-in and stress injury assessment and the dissemination of the employee assistance program

(EAP) program was huge, as was the educational piece from the medical team that taught these concepts to our staff. It was powerful to teach the psychological first aid topics in-house."

There were numerous points of intervention throughout the season, including a large family dinner following a difficult call in early December and the conversations that Abby references above for daily mental health care. Despite these tangible improvements, it will remain difficult to quantify the results of this program until a few years have passed. Next season, returning patrollers will provide an idea of its retention impacts, but this could also be a cyclical pattern based on incoming rookie numbers or other areas of influence.

Eldora performed a postseason individual evaluation that was identical to the preseason one. These numbers are not yet finalized but can be shared with other patrols once they are. This data will provide concrete numbers on the impact of the pilot program and changes in an individual's awareness and understanding of stress injury formation and their own PFA confidence.

Brock hopes to grow the program this coming season and feels it is a valuable concept for other patrols to pursue, stating, "First of all, it's worth it. We need to take care of our people, and it requires leadership but it's also very important for the program to grow legs from below. I'd encourage certain patrollers to pursue continuing education on stress resiliency for the group and allow space in a daily meeting for the topic. For example, we did our continuum snapshot on a daily basis, and I thought that was a huge part of our success this year. It allowed people to recognize where they are at on any given day and adjust their mindset given the day's operations. I think that daily check-in was probably the most powerful tool that we utilized this year.

"Prior to starting this program, I was aware of the national conversation emerging around stigmatization and resiliency around EMS and law enforcement work and how it relates to seasonal responders that are exposed to risk all the time from personal injury or traumatic injuries in high-stress environments. My experience in wilderness medicine is that there isn't much discussion, and I feel like this program was a good way to introduce this conversation and further integrate it into the ski patrolling culture at Eldora and beyond." +

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# IN STEPS WITH “GLAD”

Laura McGladrey, a Colorado Front Range local, joined our patrol during the 2018-19 season, offering an incredible opportunity for Eldora to begin the stress resilience pilot program under her expertise and guidance. Early on, it was decided she would become the stress and resilience adviser for the patrol, which was a resource position, not a therapist. McGladrey participated on the mountain about two days every month or every other week. She was a calming presence for everyone on the patrol and provided resources to individuals when appropriate.

In January 2019, I sat down with her to explore several aspects specific to stress injury formation and Eldora’s pilot program.

**Eryka: Why is this work so important to you?**

**Glad:** In all the settings I’ve worked in with first responders and humanitarians, I’ve seen consistent patterns of people whose lives become more narrow and limited after a traumatic experience. I’m passionate about this work because we lose these people to leadership positions. When someone starts avoiding rescues or calls, they may eventually not want to come to work again. I don’t think it’s fair to talk about other injury types (trauma, medical, etc.) and yet no one ever receives fair warning that stress injuries can hurt you. It’s actually one of the most likely injury types we’ll all encounter in our careers. We know that smoke inhalation can hurt you on the job as a firefighter, but if no one ever told you that and you ended up with cancer at the end of your career, that’s not fair.

Another example is a rock climber who falls and suffers physical injury as a result. They will receive medical care and likely get back on the rock relatively quickly. Another person in the same incident may not be physically injured but is exposed to a stress injury. If they don’t receive care, they may never rock climb again. We realized that we needed to go back upstream and figure out what happened in these two scenarios.

**Eryka: What can we do to better recognize and treat stress injuries?**

**Glad:** I think we need to recognize that a stress injury is an exposure injury that happens over time and needs to be mitigated. These are physical injuries as a result of stress and hormone secretion, and they have early and late vital signs that can be mitigated with early detection. It’s also important to recognize that stress injuries occur when there is a state of stress, and the more in the “red” (referring to the stress continuum) you are, the more likely you are to get hurt. We are trying to move the entire individual and team to more resources and pre-injury support so that the stress injuries are not as significant and difficult to recover from.

We’re talking about gravity. If you get the sexiest job of your life as a climbing guide in the Alps and someone asks you to respond to an avalanche rescue and you’re in the red, even if you are excited or motivated to work, you might get hurt. It’s like if you are immunocompromised when you’re deployed, you might get sick.

**Eryka: After working with Eldora last season, have you noticed a shift in their patrol culture?**

**Glad:** I walked into PHQ last week and one of the patrollers immediately said, “Did you see that?” referring to a recent in-bounds avalanche accident at another ski resort. And we just sat for a while and held space for how hard that was for them. We felt the weight on the shoulder of the forecaster I was talking to. It opened the conversation. I felt that was really powerful, to be able to sit there. People have also come to me and said, “Are you keeping an eye on so and so? They were on an intense scene, and I’m worried about them.” That’s a huge

culture shift.

Some of the changes are going to be difficult to measure, specifically where our capacity and ability to sustain trauma has increased. We will not be able to shift our rudder overnight, but the national conversation in rescue is changing. It’s good to see patrol leading this. Just having a goal of ending the season with more vitality and connection this year brings a new option to the conversation. In my generation, folks just expected to end their seasons burned out.

**Eryka: Thanks to yours and others’ hard work, NOLS recently classified stress injuries as a specific injury type next to other traditional injuries like head or spinal; why is this important?**

**Glad:** We were really intentional about taking stress injuries out of the back of the book where mental illness exists in wilderness medicine. It’s such a barrier to people approaching this topic if it’s stigmatized as a mental illness, and so often it occurs hand in hand with physical injury formation. Again, that climber doesn’t suffer a physical injury, but never gets back on the rock after seeing their friend’s accident or near miss. If we don’t call it an injury, we can’t support them.

**Eryka: If you are in the red, what do you do?**

**Glad:** I don’t have an easy answer. It’s based on combat emergency stress first aid techniques. If you are in the green or yellow, the support systems are in place to help you like your family, your team, making more space for greener choices. These connections with family and others make space for real closing and integration or time to heal. If you’re in the red, the support of a professional is likely a strong step.

If you are in the orange or red, you likely need outside help to get you back to a place where you can regenerate. First and foremost is connection to someone you care about that knows what’s going on with you. This could be a therapist or crisis support, but it’s important to realize that you find yourself in deeper water, and you can’t get out on your own. The more you get in the red, the more likely you experience isolation, less options, and less resources. It’s about resourcing the person and the team, and you can only do that when you recognize where you are.

Ultimately, the unrelenting effects of stress on the body can lead to physical injuries and illnesses and even fatalities. For some, a lack of hope that things will change can and does lead to suicide. The resounding message, now that we understand this, is we can support patrollers and move toward doing what we love for all of our lives. There’s lots of reason for hope. +

