

Rapid Lesson Sharing

Event Type: Rhabdomyolysis

Date: May 4, 2017

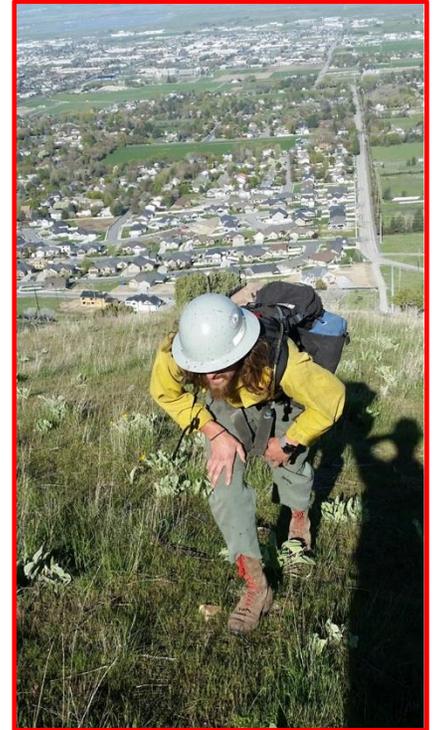
Location: Utah

If Ricky had not called his Supervisor the doctors say that he could have ended up in the hospital for much longer, done permanent damage to his kidneys/liver—or possibly died.

Creatine phosphokinase is a specific enzyme found primarily in the heart, skeletal muscle, and brain tissues. Normal levels are 39 to 308 U/L. Ricky's levels were at 77,830 U/L. His kidneys were shutting down and functioning at 50 percent.

“My own personal irrational reasoning and denial almost convinced me to wait to go to the ER the next morning. My take-away from this experience is that sometimes you get hurt and the tough thing to do is admit that.”

Ricky, Rhabdomyolysis Survivor



Logan IHC Crewmember does the “Fire Shelter Hill Hike” that is approximately 0.20 miles with a 400-foot elevation climb, followed by a slightly longer hike back down to the trucks. Ricky completed this PT hike in under 14 minutes the afternoon prior to the day he experienced his Rhabdo symptoms. For a complete itinerary of the crew’s PT sessions for the four days prior to Ricky’s Rhabdo episode, see page 2.

Narrative

At the beginning of May, during the first week of critical training with the Logan Interagency Hotshot Crew, Ricky (not the employee’s actual name) was diagnosed with Rhabdomyolysis. He was subsequently hospitalized for eight days.

This is Ricky’s fourth season with the Logan IHC. He is 30 years old.

Ricky started training with the crew on May 1 at 0800. He reported to the Emergency Room at Ogden Regional Hospital at approximately 1800 on Thursday May 4.

In March—before arriving for the first day of critical training—Ricky had contacted the crew Superintendent to express concern about his physical fitness training during the off-season due to a hip strain he suffered while skiing.

Even though when Ricky reported for duty on May 1 he appeared to be in strong physical shape, the Superintendent did not have Ricky complete the “Matrix Physical Fitness Test” with the others on their first hour of day one. On this first day, Ricky was utilized as a “Grader” for this physical fitness test. This is a tough test that has several events that are measured. (A detailed description of this test can be found on the [Boise IHC Forest Service Web page.](#))

Ricky's Physical Training Activities

Listed below is the documentation of all physical training/tests in which Ricky participated, leading up to the day he was hospitalized. Time in between these PT activities between May 1 and May 4 was either spent in the classroom or off work.

1. Monday, May 1 – 1500, Green Canyon Ridge Hike

Approximately 1.25 miles and 1,000-foot elevation climb (completed by Ricky in under 30 minutes). Followed by hike back down to trucks.

2. Tuesday, May 2 – 0800, Pack Test at Utah State University Track

3 miles with 45-pound pack.

3. Tuesday, May 2 – 1530, Pull-Ups, Push-Ups, Sit-Ups

As many repetitions as possible for 20 minutes, with a partner, resting while partner works: 5 pull-ups, 10 push-ups, and 10 Sit-ups.

4. Wednesday, May 3 – 0800, Fire Shelter Hill Hike

Approximately 0.20 miles and 400-foot elevation climb (completed by Ricky in under 14 minutes). Followed by a slightly longer hike back down to trucks.

5. Wednesday, May 3 – 1530, Wellsville Mountains Run

Approximately 2 miles roundtrip and 200-foot elevation climb.

6. Thursday, May 4 – 0700, Quad Workout at Old Main Utah State University Campus

3 repetitions of running Old Main stairs up and down, with 3 repetitions of 15 “box jumps” and 15 “chair dips” every time you hit the top of the stairs. Followed by a backwards run up Old Main hill and a sprint to the University Quad. Once at the Quad, a “walking lunge” is performed across it for approximately 100 yards, followed by 4 rounds of 15 “burpees” and 30 “butterfly” sit-ups.

7. Thursday, May 4 – 1530, Pull-up, toes to bar, Kettle bell push press, pyramid

Starting at 1 repetition working up to 6 repetitions of each exercise and back down to 1, resting while your partner works.

Pre and Post PT Session Activity, Weather Temps, Rhabdo Training

Ricky completed all the crew's physical training for four days, from May 1 through May 4, (listed above).

Each PT session was preceded by a light warmup of either jogging or jumping Jacks, 5 or 6 dynamic stretching/drill, and 15 to 20 static stretches. At the completion of each training session, 15 to 20 static stretches were also completed.

Temperatures during this time period ranged from a maximum of 62 degrees on Monday to a maximum of 77 degrees on Thursday, the day of Ricky's incident. While not incredibly warm, it was one the warmest days this area had experienced so far this spring.

At the beginning of the week a Job Hazard Analysis was completed and discussed with the crew for PT and the Pack Test. Rhabdomyolysis was covered during this discussion. On May 4 at 1000, the crew was taught a basic First Aid class, during which Rhabdomyolysis was discussed once again.

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Ricky

Ricky Struggles to Complete Pull-Ups

On the afternoon of May 4, during the last workout, the pull-up pyramid, Ricky’s partner noticed that Ricky was struggling to complete the amount of pull-ups. This was unusual because this has always been one of Ricky’s strongest events and this number of repetitions would not normally tax him.

One of Ricky’s supervisors noticed that Ricky had swelling in his arms. (Later on, after Ricky was hospitalized, he stated that *“in hind sight, there were probably symptoms that were obvious [muscle pain and fatigue]. But due to my previous work ethic, it created a form of denial—and became something that wasn't anything I didn't think I couldn't work through. I pride myself as being capable, as do most firefighters.”*) The crew was released for the day at 1600.

“It wasn't until I noticed the blood in my urine that the alarm bells started going off in my head. My urine wasn't the obvious telltale dark color that is taught. It was a hydrated looking urine with a faint tint of brown. But still enough to grab my attention.”

Ricky

Urine Color Prompts Call to Supervisor

Ricky travelled to his home, located approximately one hour south in Ogden. Once at home, Ricky started having a hard time extending his arms completely. He also noted that his urine was a light brown tea color. Having recently reviewed the symptoms of Rhabdomyolysis, Ricky became concerned and called his Supervisor.

Ricky said: *“It wasn't until I noticed the blood in my urine that the alarm bells started going off in my head.”* He went on to say that his urine *“was not the obvious telltale dark color that is taught. It was a hydrated looking urine with a faint tint of brown. But still enough to grab my attention.”*

“Previous FLAs that I found on a quick Google search helped me make my decision to go to the ER. They were a good resource.”

Ricky

His supervisor discussed Ricky’s symptoms with his wife, a Registered Nurse. She called a doctor and it was determined that Ricky should be tested at the hospital.

During this time, Ricky was doing his own research. He explains: *“Previous FLAs that I found on a quick Google search helped me make my decision to go to the ER. They were a good resource.”* Ricky cites the following document—created for Crew Leaders to carry with them and take to the hospital when presenting someone with a potential case of Rhabdomyolysis—as being especially helpful in his case:

<https://www.wildfirelessons.net/HigherLogic/System/DownloadDocumentFile.ashx?DocumentFileKey=44ba643c-f226-e25c-5572-84976d390ff3&forceDialog=0>

Quick Medical Intervention Saves Ricky’s Kidneys

Ricky reported to the Ogden Regional Hospital at approximately 1800. He had printed out the document referenced above and presented it to the Emergency Room personnel. The hospital completed a creatine phosphokinase test. This test measures the amount of creatine phosphokinase (CPK) present in the blood.

Creatine phosphokinase is a specific enzyme found primarily in the heart, skeletal muscle, and brain tissues. Normal levels are 39 to 308 U/L. Ricky’s levels were at 77,830 U/L. His kidneys were shutting down and functioning at 50 percent. Ricky commented: *“My own personal irrational reasoning and denial almost convinced me to wait to go to the ER the next morning. My take-away from this experience is that sometimes you get hurt and the tough thing to do is admit that.”*

Due to the quick medical intervention and sodium bicarbonate IVs, by the next day, Ricky’s kidney function was back to 100 percent and no permanent damage was been reported. But, for the next week, his CPK level remained significantly higher than normal.

This resulted in an extended eight-day hospital stay.

Lessons

1. Listen to Your Body. Speak Up.

Listen to your body and speak up if you are experiencing more than just normal fatigue during physical training or work.

If Ricky had not called his Supervisor the doctors say that he could have ended up in the hospital for much longer, done permanent damage to his kidneys/liver—or possibly died. Ricky stated: *“I also took away that if you are hurt the best thing to do is to get a professional opinion. Either they’re going to tell you that you’re fine—or, if you’re not, you’re already in the right place to start getting treatment.”*

2. Rhabdomyolysis Education and Knowledge: Essential.

In this case, the education of the crew was essential. Without this education and knowledge, Ricky may have not realized that he was experiencing symptoms of Rhabdomyolysis and the severity of his condition. Ricky’s obvious key symptoms were: the muscle cramps in his arms, less than ordinary physical ability, and his tea-colored brown urine.

3. Rhabdomyolysis can Strike Anyone.

Rhabdomyolysis can strike anyone. Supervisors need to closely monitor all of their employees during physical training. This was Ricky’s 4th year completing these events. He has always come in strong at the beginning of each season. While Ricky had a setback with his sprained hip this winter, his PT test scores during the first three days showed that Ricky was performing much better than his normal high level of fitness.

Ricky: *“The doctor thought that, in my case, due to my conditioning and prior experience with this critical training that my Rhabdo was possibly caused by the accumulation and alignment of a series of small things—rather than a glaring lack of one thing or another. The doctor actually stated that he thought that with the information available, my Rhabdo experience could be chalked-up to a case of bad luck.”*

4. Heat and Dehydration.

The afternoon temperature during the last workout Ricky completed was at least 20 degrees warmer than the weather he had been experiencing in Northern Utah during the previous several weeks. Therefore, heat and dehydration may have been a factor in his case.

This RLS was submitted by:

Crew Leader

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