

Rapid Lesson Sharing

Event Type: Foot Blister/Infection

Date: July 8, 2023 (When firefighter is admitted to hospital)

Location: Three Lakes Fire
Kaibab National Forest, Arizona

"If I only got it checked a day earlier maybe I wouldn't be in the hospital, or I would've only had to spend a day here instead of a week."

Injured Firefighter

A Small Boot Blister that Became Infected that Required a Weeklong Hospitalization

On July 8, a wildland firefighter assigned to the Three Lakes Fire on the Kaibab National Forest, was admitted to the hospital with a foot infection. The origin of the infection was an initial small blister in the ankle area on his left foot.



The firefighter's ankle blister on the day he was admitted to the hospital.

T I M E L I N E: Progression from a Small Blister to a Weeklong Hospitalization

- 7/4** • On Day 8 of a fire assignment, the firefighter notices a small blister in the ankle area on his left foot.
- 7/5** • He treats the blister with his personal first aid kit and continues working.
- 7/6** • He's walking with a slight limp in the morning. Has low fever/minor cold symptoms (attributed to working in smoke and known camp crud going around).
• Supervisor notices the limp and asks if he wants to get checked out, he replies: "No".
- 7/7** • Little more sick in the morning. The ankle hurt, but loosened up as the day went on. Supervisors checked in. Firefighter said it was a blister, but he was managing. Had a long shift on the fire, got back to hotel at 11 p.m. Had a fever and ankle was red and swollen. At 4 a.m. he hopped to bathroom.
- 7/8** • Difficult to walk and can't put on boot in the morning. Seen by Fire Medic. Gets sent to the local Emergency Room. Receiving Doctor states: *"It's infected, close to being serious, almost septic."*
- 7/9** • In hospital receiving treatment--not getting better, not getting worse.
- 7/10** • In hospital receiving treatment--still not getting better, not getting worse. Multiple people involved express concern and wonder if he should be transferred to a larger hospital with more capability.
- 7/11** • Employee requests transfer to larger medical facility. Other hospital declines transfer stating condition isn't serious enough for transfer.
- 7/12** • New treatment started in afternoon, seems to be effective.
- 7/13** • Feeling better, swelling and fever are going down.
- 7/14** • Released from hospital, sent home with antibiotics to rest and recover.

After talking with everyone involved,
all three members of the RLS Team agreed:

“It easily could’ve been one of us, we’ve all had blisters and made very similar decisions based off the situation and available information at that moment.”

Thoughts from Those Involved

Everything you do in fire, you do on your feet, take care of your feet.

- “Don’t be stubborn. And don’t try to fix things on your own. Seek help early.” – **Injured Firefighter**
- “The IAP Med Plan was missing some information. While it didn’t have a negative outcome on this incident it could have. Outside resources rely on accurate information to make decisions. We need to make sure that the info we’re giving them is complete and accurate.” – **Host Forest**
- “Prevention starts during the preseason at the home unit. New employees should receive training on how to break in boots, how to treat blisters/wounds, and when to seek care.” – **Fireline Medic**
- “A clear chain-of-command is important when there’s lots of communication happening. Who’s involved, who’s doing what, and who is the expert when I have a process question. As the supervisor and it’s your employee who is injured, it’s hard to sleep at night when you’re not sure if he’s going to get better, and don’t know who’s doing what to make sure he’s being taken care of.” – **Supervisor**
- “When I hear: ‘Taking care of the injured is the most important thing and the paperwork doesn’t matter, we’ll do it later,’ I disagree. Paperwork does matter. If it can lead to issues with payment or delays in the process, then it does matter and we should have the resources or contact info to get it done right the first time.” – **Supervisor**

Lessons Learned

It’s surprising how quickly things can take a turn for the worst.

*Up until Friday it just seemed like a blister that hurt
and wasn’t really changing that much. Saturday morning, he was in the hospital.*

- If you haven’t fully broken in your new boots, bring your old ones. In this incident, the firefighter’s boots were relatively new. He almost brought his old boots as a backup, but decided at the last minute to just leave them behind.
- See the medic or seek treatment early. Early intervention keeps you on the fireline; late intervention can send you to the hospital.
- It was the correct decision to get the injured firefighter to the closest Emergency Room. Don’t try to base the decision off the capabilities and size of the hospitals listed in the IAP Med Plan. The priority is getting the injured into the closest hospital. A transfer can happen later if needed.
- There was a lot of good communication on this incident with the host Forest and the home Forest having good robust dialogue. A couple times, folks were unsure what exactly was happening and who was doing what. Establishing a clear chain-of-command and who’s doing what is important on a long-duration incident.
- The U.S. Forest Service’s online medical incident reporting system, eSafety, and the claims process can be confusing. Crew supervisors shouldn’t memorize the eSafety/comp/claim process. All they need is a quick reference guide (*2021 FS Employee Injury and Illness Guide* or something similar) and know who their local expert is to call for help.

Resources

How to Break in Your Boots

Wildland firefighters make their living on their feet. Breaking in your boots before you are dispatched to a fire is a must. There are various ways and opinions on how to break in your boots. Talk to more experienced firefighters and learn how they break in their boots.

Here are some links from various wildland boot manufactures on how to break in and maintain your boots in the best condition possible:

- <https://nicksboots.com/blog/post/how-do-you-break-in-firefighter-boots/>
- [What-s-the-best-way-to-break-in-my-new-boots-Danner](#)
- [JK Boots - Boot Care](#)
- [SupplyCache The Total Guide To Break in Your Wildland Firefighting Gear](#)

Preventing and Taking Care of Blisters

Prevention Measures

1. Make sure boots fit correctly and are properly broke in. You should not be putting new boots on for the first time as you show up to work, let alone on a fire assignment.
2. Use moisture-wicking socks to help mitigate the hot moist environment in which bacteria thrive, and change your socks frequently.
3. To prevent hotspots from initially forming, attach moleskin or KT style tape to areas that you suspect may rub and create friction.



4. Check your feet! Even after doing everything possible, you can still get a blister—this is where the following blister care steps (below) really matter.

Intact Blister Care

Keeping the blister intact may provide a natural barrier to bacteria and decrease risk of infection.

If you wish to keep the blister intact use these steps:

1. Wash the blister with soap and water.
2. Use a KT style tape to cover the blister and the surrounding area, trying to have as few sharp edges and creases as possible.
3. Keep it clean and monitor over the days for infection.



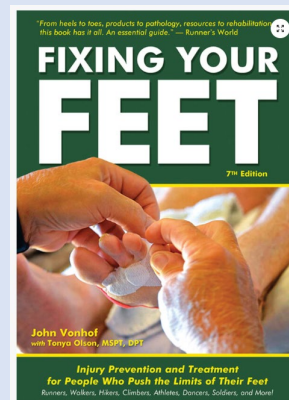
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Ruptured Blister Care – Priority 1: Prevent Infection

1. Clean hands and the blister area, remove any debris of any sort and rinse with saline/soapy water/or just water if that's all you have.
2. Apply antiseptic or antibiotic ointment and dress with a sterile dressing.
3. Tape as identified above. Depending on the specific area, you can also reference the book: *Fixing Your Feet: Injury Prevention and Treatment for Athletes* by Wilderness Press. (See sidebar on right.)
4. Keep it clean and change the dressing as needed and monitor for infection.

How do you tell if your blister is infected?

1. Increased redness, warmth, swelling, or tenderness near the blister.
2. Red streaks around the blister.
3. Pus or other fluids draining from the blister.
4. An unpleasant odor emitting from the blister.
5. A fever.
6. Chills.
7. Swollen lymph nodes.



Fixing Your Feet: Injury Prevention and Treatment for Athletes
Wilderness Press



Example of an infected blister



Example of a healthy ruptured blister

Additional Links for More In-depth Information

1. National Outdoor Leadership School; How to Prevent and Treat Blisters
<https://blog.nols.edu/2015/07/21/how-to-prevent-and-treat-blisters-video>
2. Blister-Prevention <https://www.blister-prevention.com>
3. Mayo Clinic; Blister First-Aid
<https://www.mayoclinic.org/first-aid/first-aid-blisters/basics/art-20056691>

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