GPS Tracker Enabled Rescue of a Lost Runner During a Wilderness Ultramarathon: A Case Report

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¹VA Northern California Health Care System and University of California Davis Medical Center ²Destination Trail

Disclosure: The contents presented herewith do not represent the views of the Department of Veterans Affairs or the US Government.
Yukon Arctic ultra-race under fire as Italian competitor awaits amputation of hands and feet

Roberto Zanda was one of only three competitors left on the 480 km course in February when he made a fateful decision to abandon his sled.
“When there are so many people ending up with frostbite, this is a sign of bad organization….. runners who participate in this type of race are looking for challenges in difficult areas, but expect the organizer to take care of safety — and create a safe framework for the participants along the way. That’s why we pay US$2,500 to enter.”

- Frode Lein

“I will lose something and maybe I will lose everything, but this doesn’t make me lose the will to love life even more.”

- Roberto Zanda
Who’s responsible?

Who do the participants think is responsible?
ULTRA Study 2018 Follow-up Survey Preliminary Results, n=882

Rate the importance of each individual or group in assuring participant safety during ultramarathons.

1=Very Important
2=Important
3=Moderately Important
4=Slightly Important
5=Not Important

Each race participant 1.3
The race and/or medical director 1.5
Local authorities 2.7
The organizing body for the sport 2.7
ULTRA Study 2018 Follow-up Survey Preliminary Results, n=882

Should a GPS tracking device be mandated for runners to carry at ultramarathons that are in remote environments and extend over multiple days?

Yes 49%
No 25%
Unsure 26%
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2Destination Trail, Bellingham, WA, USA
Event: 2017 Bigfoot 200 (332-km)
Temperature: Lows of ~4°C
Subject:
50 year-old man
Ultramarathon running for 10 years
  >200 ultramarathon finishes
  41 x 161-km ultramarathons
  16 x 217-km ultramarathons
  2 x 72-hour timed events (328-412 km)
Completed 161-km ultra 5 days earlier
## Timeline of Response and Rescue

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<td>Subject was located pacing back and forth ~190 m below and ~500 m off the course in very dense vegetation without obvious serious physical injuries, but indicating he had been seeing “gang signs on trees” and “burning piles of cell phones” as he pointed to pinecones on the ground.</td>
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<td>Rescue team and subject arrived at 311-km aid station.</td>
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Why did the runner go off course?
What would the outcome have been without the GPS data?
Limitations of GPS Tracking

• Missed points / stray points
• Orientation of GPS unit is important
• Battery supply may fail
• Added cost
• Altered behavior from greater sense of security?
Conclusions

• We suggest that wilderness endurance event organizers consider requiring their participants to carry a GPS tracking device, especially when the event extends over multiple days.

• A system should be in place to monitor for athletes who stray off course.