

Idita-Vation – Innovation on the Iditarod Trail

Build a Better Drop Bag



Each musher can ship up to three bags that weigh up to 50 pounds each to most checkpoints. Mushers are given white sacks that have the name of the checkpoint on it. Mushers must decide how to pack and close the bags. They must label them with their name and identify which bags need to be kept frozen.

Drop bags are dropped off in Anchorage to be shipped out on the trail where they wait for the mushers to arrive. More details can be found here:

<http://www.thealaskalife.com/outdoors/6-things-you-may-not-have-known-about-iditarod-food-drops/>

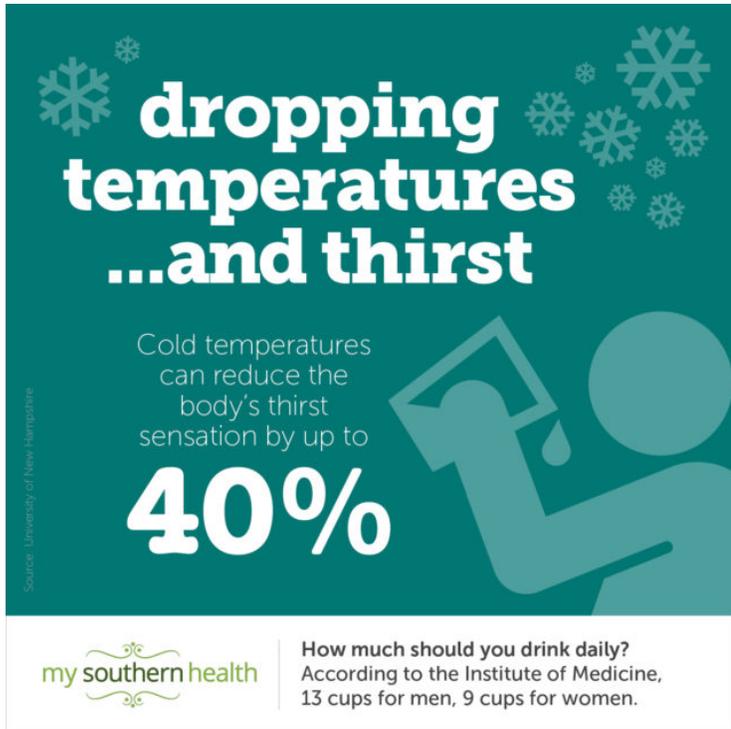
If mushers are staying at the checkpoint, they will grab their bags and take them to their parking spots to unpack and sort through. If they are just passing through, they still need to go through the bags and decide what they will take with them and what they will ship home via the return bags.

Two mushers have expressed complications with the drop bags. Monica Zappa expressed concern that to find anything in her bags she has to dump them out on the ground and then search through the contents. Imagine dropping close to 150 pounds of stuff out on the ground to find what you are looking for. Recently, musher Laura Neese, was forced to drop out of the Yukon Quest when the supplies in her drop bag thawed after being shipped.

Can you design a better drop bag to help Monica and Laura with both of their concerns?

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Build a Better Water Bottle



The infographic features a teal background with white snowflakes. The main text reads 'dropping temperatures ...and thirst'. Below this, it states 'Cold temperatures can reduce the body's thirst sensation by up to 40%'. At the bottom, there is a logo for 'my southern health' and a quote from the Institute of Medicine: 'How much should you drink daily? According to the Institute of Medicine, 13 cups for men, 9 cups for women.' A faint illustration of a person holding a water bottle is visible in the background.

dropping temperatures ...and thirst

Cold temperatures can reduce the body's thirst sensation by up to **40%**

Source: University of New Hampshire

my southern health

How much should you drink daily?
According to the Institute of Medicine,
13 cups for men, 9 cups for women.

It may be hard to believe that mushers have to worry about staying hydrated in the freezing temperatures they face on a regular basis, but in fact, becoming dehydrated is a very real concern. For more information about the concerns around this issue, read the following article:

<http://www.mana.md/what-you-should-know-about-winter-dehydration/>

Obviously, being on the Iditarod Trail, on the back of a sled, in a race makes the challenge of staying hydrated even more complex. Mushers have to carry liquids with them in temperatures that fall well below the freezing temperatures of water. They need to keep both their hands on the sled handlebars at all times. They

may not be at a checkpoint to refill their drink container. They can't even really stop if they drop their water bottle! Not to mention the fact that cold weather makes people not WANT to drink!

Can you design a way for mushers to approach this concern?

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Build a Better Trail Marker



In the 2018 Iditarod, Nicolas Petit came in second place after his team lost the trail on the Norton Sound. For more information on this particular event read the article found here:

<http://www.ktuu.com/content/news/Iditarod-musher--477030893.html>

The Iditarod Trail Committee places thousands of trail markers each year to mark the trail. The trail markers are wooden stakes that are painted a bright color and marked with reflective tape and colored flagging.

These markers are placed before the race begins by trail crews who travel the trail by snow machines. Many problems could have befallen the markers by the time the mushers pass them. They can be blown over by storms, particularly on the coast. People using the trail sometimes collect markers. Racers in the dark can confuse markers from multiple races.

Can you design a better way to mark the trail for the Trail Crew?

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Build a Better Dog Coat



When mushers arrive at checkpoints, one of their main goals is to get the dogs fed, bedded down, and resting as soon as possible. While the dogs running Iditarod are all Arctic breeds that have two coats of fur, different dogs tolerate the cold differently. When camping along the trail or in a checkpoint, mushers will bed the dogs down on straw and sometimes provide the dogs with dog

coats to help keep their muscles warm and loose after running. These coats are either carried on the sled, or shipped out to key checkpoints via drop bags. In either case, they need to be lightweight and sturdy.

Left on their own, sled dogs will curl up in a ball, curling their tail over their nose to preserve their body heat. This motion also causes their muscles to shorten and tense up. If sled dogs could sleep stretched out and stay warm, this may help their muscle recovery and help them be even more ready to run when the time is right.

To this end, musher Vern Halter designed special dog coats (see photo), which have special pockets in them. The pockets are the right size in which to put chemical heat warmers. The pockets are strategically placed to keep extra warmth over the dogs' key shoulder and back muscles. For each dog, multiple chemical hand warmers need to be opened, activated, and placed in the pockets before the jacket is put on the dog. The jackets are kept closed with two bands of Velcro, one at the neck and one across the belly.

Can you design a better sled dog jacket to help Vern get the dogs settled at the checkpoints even faster?