

COLD WEATHER FOOD GUIDE

BY JERRY KOBALENKO



Food in the Cold

What you eat on a winter expedition depends not only on personal taste but on how suitable the food is in the cold. The colder it is, the more calories you need. On the coldest journeys, where -40 is common, I bring 2.7 lbs/person-day. (I used to bring 3 lbs, but my metabolism is slower than it was in my 20s and early 30s.)

The 2.7 lbs adds up to about 6000 calories. On a spring High Arctic expedition (April-May), temperatures begin around -25C or -30C and go up from there as the weeks advance. In this slightly milder weather, 2.4 lbs/day, which amounts to 5,000 calories, will suffice. Contrast this with summer expeditions, where 1.8 lbs/day is plenty. My wife, who weighs 120 lbs to my 175 lbs, needs only 1.5 lbs/day in summer.

Summer food is all about energy; you don't need it for warmth, as you do in winter. When it's very cold, the furnace has to be fully stoked all the time. This is one of the disadvantages of putting on weight before an expedition to lessen the amount of food you're carrying. Yes, your body will feed on itself and it's theoretically possible to come back around your normal weight. But you'll feel colder on the expedition, because tapping into fat reserves does not generate the same metabolic warmth as a full belly. Also, once created, fat cells do not vanish, they just shrink; and it becomes easier to put back excess weight in future.



Specific Foods

Chocolate: Tastes great in the cold. High in fat (about 30%) and calories. A pound of chocolate is 2,400 calories. On a hard expedition, it's easy to nibble through a pound a day. I use Lindt, which is good quality and inexpensive when bought in big bars (about \$6 for 300gm). I've brought high-end chocolate as treats in the past, but the cold strips it of its delicate taste. Also, I originally used Toblerone bars, but the odd shape has two disadvantages: first, the gap between the triangles creates wasted space; second, with larger bars, it's hard to break off chewable pieces near the thick base of a triangle, so you end up gnawing at it like a rodent. Finally, white chocolate becomes pasty in the cold and sticks to the roof of your mouth. Use only dark or milk chocolate.

Jerky: At -40, jerky becomes so stiff that it's like chewing razor blades. It'll slice your gums open.

Sausage: Summer or winter, landjaeger sausage gives a good hit of salt and fat for those who crave meat. Recently, I brought hot dogs and threw two per person into the soup pot. Great treat! The hot dogs steam furiously in the cold tent air. We ate them with bare fingers and it was like we were smoking cigars.

Cashews, macademias: good in calories, but tasteless in the cold.

Fudge: Basically sugar and butter, an ideal combination in the cold. As with all food suggestions, start by bringing a little (e.g. 2 lbs), just to see if it works for you. If so, ramp up the weight for subsequent expeditions. However, one of the odd and frustrating things about expedition food: a treat that's a runaway hit on one trip -where you wish you had brought three times as much -is sometimes inexplicably a dud on the next.

Miscellaneous nibbles: Bring these in small amounts: I've found it impossible to predict what will appeal from one trip to the next. If it doesn't tantalise, you tend not to eat it, or to save it until there's nothing else left. Nibbles can include licorice, hard candies, Smarties, raisins, butter tarts, brownies, caramels, etc.



Trail mix: Don't like it, so I never bring it. But plenty caloric.

Hot chocolate: I drink coffee at home but since it adds no calories, I avoid it on expeditions except as a treat. Instead, I bring Ghirardelli hot chocolate powder, which is available in big tins from Amazon. Two heaping tablespoons per half-liter cup (the cup is insulated, of course), plus one level tbsp of whole milk powder. Again, the idea in winter is to maximize calories. Whole milk powder is not easy to find in North America but is available at some health food stores.

Striving to save time out on the land, I premix the milk powder and cocoa at home and carry it in double Ziploc bags. On a 50-day expedition, you need 6 lbs of hot chocolate mix per person. Note: because of the whole milk powder, you first add a small amount of cool water to the powder in the cup to make a slurry, then add the boiling water to that. Otherwise, the cocoa won't mix properly.

Granola: Peanut butter works for breakfast as well as lunch, but two giant sandwiches per day is a little much. Granola premixed with whole milk powder is a good alternative. Mostly, I've brought Quaker Harvest Crunch. A big 250gm bowl (the right size for expedition appetites) is about 1,000 calories. The added water should be boiling or almost; if not, the wet granola freezes by the time you get to the bottom of the bowl, which takes about 15 minutes. One of my past partners called eating this massive breakfast "amiably taxing".

In recent years, however, two events have turned me off this familiar brand. In 2012, when Noah Nochasak and I skied 550km from his hometown of Nain, Labrador to Kangiqsualujjuaq in northern Quebec, I was ill for four days in the middle of the trip. I had the runs and couldn't eat. The thought of granola disgusted me for some reason. I was able to travel for the first two days, but for the last two days, I just lay in the tent and waited to get better.

I'd never had this before and wondered if I'd come down with giardia, because we drank from an open stream a day earlier. Giardia does exist in northern Quebec. But I later read that the giardia cysts lie on the stream bed, and I just dipped from the surface.



Then in 2015, my partner James McKinnon suggested that one or more of the nuts in the granola must have gone bad. "I didn't know that nuts could go bad," I told him.

"Definitely," replied the author of *The 100-Mile Diet*. "And when even the thought of granola turns your stomach, that strengthens the theory. The body is very good at identifying which food made you ill."

This was entirely possible, because I often kept leftover Harvest Crunch for years, repurposing it for subsequent expeditions. It smelled and tasted fine and had never made me sick before. Not Quaker's fault, just my ignorance about granola storage.

The second event that led me away from commercial granola is discovering how much better the homemade stuff tastes. And it doesn't turn to mush when you add hot water.

Homemade granola takes time to make -- cooking 20 or 40 pounds of it easily requires a couple of full days -- and the ingredients aren't cheap. Here is a recipe for 2 quarts:



Granola

4.5 cups oat flakes
1/2 cup oat bran
1 cup unsweetened coconut
1/2 tsp salt
1 cup hazelnuts
1/2 cup pumpkin seeds
1/2 cup sunflower seeds
1/2 vegetable oil
1/4 cup water
2/3 cup maple syrup, honey, or combination
1 tsp vanilla
1 cup dried cranberries
1/2 cup dried blueberries

Other seed/nut/fruit combos:

- * pecans, flax seeds, dried mango, dried pineapple
- * walnuts, dried apricots

Combine first 7 ingredients. In a separate bowl, whisk together oil, water, syrup/honey and vanilla. Combine the wet and dry mixtures and stir thoroughly. Spread in a lasagna pan to a depth up to about 2". Bake at 300 F, stirring every 10 mins. Remove from oven when golden brown (30 minutes or more). Cool, then stir in the dried fruit.

Peanut butter: Overpowering at room temperature, peanut butter becomes almost delicate in the cold. However, it also turns as hard and brittle as taffy. It's important to make all the sandwiches a day or two before the expedition begins. Frozen, they'll stay fine for weeks. But try to put together a sandwich at -30 or -40, as I did on my first expedition, and you'll be hacking away at frozen peanut butter with an ice ax or knife and laying the shards on the bread. Very inefficient.

A 1,000-calorie sandwich uses 100gm peanut butter and 55 gm butter (eight sandwiches per pound of butter). The peanut butter is troweled on 1/4" to 1/2" thick. Sculpt a little holding tank in the center for a dollop of jam. The jam helps the peanut butter slide down, and the storage tank keeps the jam from leaking out the sides of the sandwich in transport and making the bread mushy over time.

These sandwiches are hard to eat -- they're so cold and so big -- but nothing else gives this much energy during the sledding day. It's like vegetarian seal blubber. Around late midday, when sugary snacks lose their effectiveness (you can feel it when you're sugared out), one of these fuels the legs for another three hours.

Freeze-dried meals: Freeze-dried food is not particularly caloric, although Expedition Foods in the UK makes ideal 1,000-calorie meals. You can also preface the meal with soup and further bolster the calories by adding sausage, butter or powdered shortening.

On my expeditions, one in every three dinners is freeze-dried. Each meal should weigh, dried, between 6.5 and 8 oz/person. Eight ounces is almost too much, even for expedition appetites.

Needless to say, "serves two" in freeze-dried lingo means "may serve one". Perhaps to stay within a certain price point, the "two-person" entrees of many companies are less than 6.5 ounces. These may be fine on weekend trips, but avoid them on winter expeditions. I mainly use a Canadian company called **Harvest Foodworks**, (www.harvestfoodworks.com) whose meals are bigger than most. Their Alfredo Primavera and Strogonoff meals are favorites.



The peanut butter & butter sandwich, with a dab of jam to lubricate swallowing all that pb.



Harvest Foodworks also makes some unique accessories: Powdered shortening is 100% fat with the moisture removed. The white powder melts in the pan or in a warm meal. It's tasteless and can be added to everything for more calories.

They also offer maple syrup crystals, for pancake breakfasts during layover days. Their pancake mix is very good, and so is the scrambled egg powder, which has come a long way since its original use in World War II, when it reputedly tasted like a mix of flour and sulphur.

Homemade dinners: A couple of years ago, I skied around Mount Logan with two mountaineers from here in the Rockies. One of them brought the best outdoor meals I've ever tasted. He dried the ingredients at home with a dehydrator. But his elaborate meals took a long time to make, and while his preparations worked after short travel days in mild May weather, they would have been problematic at 30 or 40 below, when you only have an hour before you need to get to sleep to recharge for the following long day. In short, expedition dinners need to balance taste and calories with minimal prep time.

Potato gruel is a classic expedition meal. It's too heavy for a weekend trip. The gruel is really just a carrier for the fatty cheese. It tastes okay, but the meal becomes more popular over time, as the body recognizes just how filling it is. Everyone sleeps contentedly after a gruel dinner. Once every three days is ideal.

POTATO GRUEL

Serves 18, or one person 18 times

INGREDIENTS:

11 cups whole milk powder	
10 cups potato flakes	
45 tblsp whole wheat flour	2.5cups +5 tblsp
23 tblsp onion flakes	1.25C +3 tblsp
23 tblsp garlic powder	1.25C +3 tblsp
23 tblsp wheat germ (optional)	1.25C +3 tblsp
23 tsp parsley flakes	1.25C +3 tblsp
23 tsp dill weed	1.25C +3 tblsp
23 tsp oregano	1.25C +3 tblsp
11 tsp salt	
dash of pepper & nutmeg	
powdered shortening or	
margarine for extra calories (optional)	

6+ lbs cheese

Note: 16 tblsp = 1 cup approx

PREPARATION:

I carry the gruel in medium Ziplocs. 1.4 lbs of gruel mix = 4 servings. My preferred cheese, for its calorie/weight ratio, is a Swiss raclette with 48% fat, available at a local deli. (Supermarket cheeses are typically only around 25% fat.)

For cold-weather expeditions, I ask them to remove the rind, cut the cheese in 1" cubes, then vacuum-pack it for freshness in 2-lb bricks. The cubing is important, because otherwise you'll be whaling away with an ice ax at cheese frozen hard as cement. That takes forever, and you lose a lot of cheese splinters that way. You need 1/3 lb per person-day of cheese. As a treat, budget for a little more after a particularly long day, somewhere between 1/3 and 1/2 lb per person. This is a monster bowl, for trenchermen only. Note that the rind does not count in cheese weights.

COOKING:

Add 1/3 lb gruel mix per person to enough cold water to make a thickish soup. (As with the cocoa, whole milk powder doesn't mix well with hot water.) Heat over medium heat, stirring constantly. As the gruel nears boiling, it will thicken. The final gruel consistency should resemble a medium porridge. Hitting this ideal balance is just trial and error.

Potato Gruel, cont...

Add the chunks of cheese when the gruel is almost boiling, and stir constantly over low heat, if your camp stove allows such a refined setting, until some of the cheese has melted in but you still have enough chunks for several good cheese hits. Add some powdered shortening, margarine or sausage, if desired, to further increase calories.

One disadvantage of this recipe: No matter how diligent the stirrer, the pot bottom will inevitably be messy with burned-on gruel. Scrape it off with the screwdriver piece on a multi-tool.

Black Bean Chili is a successful new item. Like the gruel, its core caloric ingredient is cheese, but the chili base is more flavorful than the gruel's potato/milk powder/spice mix. And the two taste very different from each other. If you're eating them once every three days for 50 days, this is an important consideration.

BLACK BEAN CHILI

(by percentage of total weight)

60% minute rice

30% dehydrated black bean flakes

7% very dry sun-dried tomatoes

2% good chili powder

1% salt

+ equivalent total weight in Monterey Jack cheese



Cheese cut into 1-inch cubes, vacuum-sealed in 2-lb pkgs

Pemmican: Some people hanker for meat more than others. This classic voyageurs' food combines dried lean meat, berries, rendered fat, etc. Never had it, but carnivores should experiment with pemmican recipes as a dinner option.

Vitamins: Use vitamins if you like -- they don't weigh much -- but I've never bothered. Despite its history, scurvy, in particular, is not an issue in modern polar travel. The body doesn't store Vitamin C well, but a person does hold at least three months' worth. With those old explorers, scurvy never set in till late winter or spring, after almost half a year of processed food.

Sample expedition menu

Food is very personal; I like sweets, so my menus are heavy on chocolate, brownies, shortbread cookies, etc. Some prefer trail mix or sausage. The key is to pick items with a lot of fat. In many ways, it's the opposite of how we think of eating at home. Fat gives more than twice the amount of calories than the equivalent weight of protein or carbohydrates.

You might ask: why then not save weight by eating mostly fat? Because no matter how active you are, the body can process only a certain ratio of fat vs the other two food groups. More than that, and you suffer digestive problems. This happened on the Steger expedition across Antarctica years ago. Much as you might like to minimize weight, you just can't live on butter and olive oil.



Grave of Niels Petersen, last member of a British arctic expedition to die of scurvy. 1876. Floeberg Beach, Ellesmere Island.



Sample Menu, 50-days

This was the food for a 600km solo winter expedition across Labrador in January and February, the coldest time of year. One night in three was -40 or colder; there was also a lot of wind and common daytime temperatures of -25C.

3 lbs fruitcake
10 lbs O'Henry bars
22.3 lbs milk chocolate
2 lbs Smarties
2 lbs chocolate peanuts
7.9 lbs potato gruel (25 dinners)
25 freeze-dried dinners = 11.5 lbs
13 lbs peanut butter
4 lbs strawberry jam
6.5 loaves of bread for 50 sandwiches = 6.5 lbs
6.25 lbs butter for sandwiches
2.2 lbs Knorr soups
3 pancake breakfasts + 1 omelette breakfast = 3 lbs
3 lbs powdered shortening to add to breakfasts, soups, dinner
1/2 lbs margarine for the pancakes
6 lbs Gatorade to flavor the day's drinking water.
6 lbs hot chocolate
19 lbs granola with whole milk powder

8 lbs Swiss raclette cheese for the potato gruel. Rind is removed and cheese is pre-cut in 1" cubes, then vacuum-packed in .9 kg bags. The cubes freeze together, but it's possible to pry them apart, with muscle and sometimes the end of a Swiss Army knife.

TOTAL: 136 lbs = 2.7 lbs/day for 50 days

To make this diet less monotonous, I add small amounts of various treats that seem appealing -- banana bread, fudge, hard candies, brownies, butter tarts, whatever.

Once all the food has been prepped, weigh it on a medical-quality scale. (I use a Lifesource precision scale, which is accurate to 1/10 lb. The scale is also perfect for maxxing out checked baggage on flights north.) Typically your food will be several pounds too much. Don't monkey with breakfasts or dinners, but edit your snacks until you're within a pound or two of your target.



Fruit cake mix

Take all the cereal, chocolate bars, etc. out of their boxes ahead of time and put them in large Ziplocs. I've shared a hotel in Resolute with lots of other expeditions, and many of them seem to prep it only after they've arrived in town. This makes no economic sense, because you're paying a lot to ship that extra weight and bulk, plus you're spending an extra couple of days at a pricey High Arctic hotel organizing your food. And you won't have a scale to check the weight, either. Once everything is de-packaged, you are carrying virtually no garbage, except Ziploc bags. The photo at right shows two men's accumulated garbage after 46 days.

For cooking, I bring two stoves -- an MSR XGK and a Whisperlite -- and three stove pumps. Pumps often leak at -40 or -50, as the O-ring gets stiff. (MSR currently makes Arctic pumps with special polar O-rings.) One of the three pumps tends to work okay. To avoid confiscation while flying to the starting point, I wash my fuel bottles and pumps until the smell of gas disappears. I leave the bottles open, keeping the stoppers elsewhere. This may be unnecessary, but I feel it makes the bottles look more innocuous on an X-ray.

For one or two people, bring two pots -- a 1.5 liter pot just for melting water, and a 2- or 3-liter pot for cooking. There's no reason to wash the cooking pot, except an aesthetic one. Any little scrapings freeze solidly until the next meal. I use the bigger pot in MSR's Titan 2-pot set, plus a third-party pot in which the MSR pot nests. MSR's Heat Exchanger, right, is an accessory that saves fuel. I use light titanium pots. Their only disadvantage, apart from expense, is that they dent more easily than other pots.

Once you have the food weight/day, then putting together an expedition menu is just arithmetic and personal taste. Fuel is likewise just arithmetic: .2 liters/person-day is plenty, unless you or one of your partners sweats a lot. Even then, .25 liters/person-day would suffice, unless you want to keep the stove going after cooking to warm the tent. This is not necessary with good camp clothing. Note that I cook either in the tent or in the vestibule, out of the wind.

