Backcountry Fuel Guide

A performance-focused nutrition plan for backcountry hunting.

We, at Exo Mountain Gear, have partnered with Kyle Kamp, a professional Dietitian and owner of Valley to Peak Nutrition, to bring you this free nutritional guide. The purpose of this guide is to help you make nutritional decisions that will fuel performance for demanding backcountry pursuits.

For more information about the science of nutrition, and the background that went into the recommendations in this guide, listen to our interview with Kyle on Episode 124 of the Hunt Backcountry Podcast and visit V2Pnutrition.com

Before we dive into the guide, let's clarify a few things…

- First, the nutrition recommendations below are backed by Kyle's years of study, research, and professional experience.
- Second, although these recommendations are scientifically-backed, we also understand that individuals vary; use these recommendations as a guide and experiment with what works optimally for you.
- Finally, the content contained within this guide is for informational purposes only, and is not prescribed as medical advice, nor makes any claims to diagnose or treat any medical conditions. (The lawyers want us to make sure we're clear on that.)

OVERVIEW

The meal plan in this guide is based on the needs of a 5'10", 200lb, 40-year-old male without any standing medical history, food allergies, etc. It is likely that you will have different energy needs based upon your weight, height, and age. You will also notice that there are numerous instances where recommendations are made as a ratio of bodyweight, which will allow you to determine what amounts you need personally.

In addition to your "stats", it is also important to note that the activity level of your pursuit will determine your overall caloric needs and optimal macronutrient (carbohydrate, fat, protein) ratio. For example, a high-output day — such as packing camp into the backcountry, actively pursuing game over mountainous terrain, or packing a heavy load of meat out of the backcountry after a successful hunt, will require a higher number of total calories, and should be fueled by a higher ratio of carbohydrate for the most efficient supply of energy.

A lower-output day, such a high-country mule deer hunt in which you spend most of the day glassing, will require a fewer number of total calories and the ratio of carbohydrate can be lower, allowing you to fuel with a higher ratio of calorie-dense (and weight-efficient) fat sources.

We will continue to explain this further as we dive deeper into understanding calories and macronutrients.

HOW MANY CALORIES DO I NEED?

Without getting too scientific and losing you in algorithms, here is a good general rule of thumb to determine your daily calorie needs:

Determine your weight in kilograms (which is pounds divided by 2.2), and multiply that by 24. This number is close to your "Basal Metabolic Rate" (BMR). A BMR number does not account for any physical activity and is simply what your body needs to simply stay alive and operate essential body functions if you were to lay in bed or sit on the couch all day.

Our example 200lb male has a bodyweight of 91kg. (Remember, kilograms equal pounds divided by 2.2.) To calculate his BMR, we take 91kg and multiply by 24, which gives us 2180 calories.

Because the BMR does not account for activity, we need to determine the number calories needed for different levels of output.

For a general day at the office with low-level activity, multiply your BMR calories by 1.2.

For an active day, account for the activity by multiplying the BMR and low-level activity by and *additional* 1.5-2.0, depending on the level of activity. For example, 91kg multiplied by 24 gives you a BMR of 2180 calories. 2180 calories multiplied 1.2 for general day-to-day movement yields ~2600 calories. 2600 calories multiplied by an activity factor of 1.5 for a tough day of hunting brings you to 3900 calories.

Because hiking in the mountains and chasing big game on a backcountry hunt is most often an active pursuit, we want to be at the high end of that 1.5-2.0 range, which means that our 200lb male is going to need anywhere from 3,900-4,300 calories — *or more!*

At this point, we need to make a ***VERY*** important clarification: It is incorrect to operate under the simple assumption that more calories provide more energy. While the total number of calories is important, where those calories come from matters a great deal when it comes to optimally fueling for strenuous physical activity. If you are exerting yourself beyond the point where you can casually keep a conversation and experience any shortness of breath, your body is burning more carbohydrate than fat, and should to be fueled accordingly for optimal performance.

So, let's talk a bit about carbs…

CARBOHYDRATE

Carbohydrate intake is particularly important on high-output days. On such days, an amount of 6-10g of carbohydrate per gram of body weight is ideal. (Remember, your weight in kg is your weight in pounds divided by 2.2)

For our 200lb male (91kg), we built the daily meal plan to include 6 grams of carbohydrate per kilogram of bodyweight: 91kg x 6g = ~550g of carbohydrate for an active day.

This is toward the low-end of the spectrum for high-output days, but it is still higher than what most people think they need. We can stay toward the low-end of the spectrum for “high-output” days, because most hunters don't spend the entire day hiking — they hike a little, rest, hike more, rest again, etc.

If you are truly active for the majority of the day, or are hiking with a greater intensity, then the calorie and carbohydrate requirements can increase substantially. In that situation, you'd be hard pressed to "overdo it” with fast-digesting carbohydrate sources.

PROTEIN

Recommended protein intake for athletes ranges from 1.2-2.0 grams per kilogram of bodyweight. The high end (2.0) is recommended for athletes who do resistance training, and the lower end (1.2) is sufficient for athletes focused on endurance or aerobic-type fitness.

Our plan recommends 1.4g/kg for the high-output day to fuel endurance, and 1.8g/kg for the lower-output day to fuel recovery.

Our plan prescribes that the evening meal for a high-output day has the greatest amount of protein. This nightly intake will repair muscles while you sleep and prepare you for another day of hard hunting.

It is also worth mentioning that our menu has more than 30g of protein at most meals, despite the fact that the body can only absorb about 30g protein every few hours over the course of a day. This creates a positive nitrogen balance, which ensures the protein is being used to repair worn out tissues and not just calorie intake.

FAT

We have not prescribed specific quantities of fat that you should consume. In general, fat calories can be used to “fill in” any calories needed to meet your overall caloric intake once the required levels of carbohydrate and protein are met. The great thing about fats is that they are weight-efficient; more on that on a minute.

Additionally, on a lower-output day, such one spent mostly glassing and not intensely hiking, the nutrition strategy can include less carb, more fat, and more protein. The body burns more

fat than carb at rest, so you can eliminate some of the high-carb snacks and hydration supplements listed in the meal plan below for low-output days.

Keep in mind though, that if you are glassing, then you are likely at a higher elevation, which means you likely spent the day(s) beforehand climbing up to elevation. Because this lower-output glassing day has been preceded by a higher-output hiking day, moderate carbohydrate intake is still needed to restore muscle glycogen from the previous day(s) effort and repair those quads and calves that hauled your body and gear up the mountain. Moderate carbohydrate intake on a glassing day can help you recover from previous days of high-output activity.

HYDRATION

Hydration is critical, especially in the mountains. Checking your urine is a good way to verify your level of hydration (or dehydration). You are looking for a straw color. If your urine is darker than that, you are not hydrated properly.

It is usually sufficient to hydrate with plain water on lower-output days. As your level of activity increases, however, you need to think about getting more nutrients from your hydration strategy. There are numerous ways to add needed electrolytes to your water in the form of tablets, powders, and even pills.

On the plan for high-output days, we recommend fueling with a supplement like Tailwind Endurance Fuel, which provides needed electrolytes and is an excellent carbohydrate source. These carbohydrates are a mix of both glucose and sucrose — a combination that been studied and proven to increase absorption in the body, when compared to intake of a single type of simple carbohydrate. The density of carbohydrate per ounce is also an ideal percentage that refuels lost glycogen, without overloading the system with carbohydrate that will result in an upset stomach. The added sodium also helps to replace what is lost when sweating, further making it an ideal supplement to include in your food bag. As an alternative to Tailwind, you could pack powdered Gatorade for a similar benefit.

BUT, WEIGHT!

Most backcountry hunters are very critical of the weight they carry on their backs. And, yes, a higher carbohydrate meal plan will weigh more than a meal plan that is higher in fat. This is an unavoidable fact, because there are more calories per gram of fat, than there are calories per gram of carbohydrate. (There are 9 calories per gram of fat, whereas both carbohydrate and protein have 4 calories per gram.)

We recommend a higher carbohydrate diet for active backcountry pursuits because that is what fuels optimal performance, not because it offers the lightest pack weight.

Our example 200lb male that is trying to reach upwards of 4,000+ calories and fuel with sufficient carbohydrate and protein on high-output days will be carrying up to 3lbs of food per

day — depending upon exact food choices, packaging, and other variables. That is not "ultralight" by any means; but remember saving weight is only possible when you substantially increase fat and decrease the amount of carbs and/or protein.

Loading up on fat will "work", but it won't provide the body with the most efficient fuel source, nor will it result in the best performance for high-output activity. Ask yourself, *"Do I want to save ounces, or do I want to perform at my highest potential?"*

SUMMARY

For a high-output day, our 200lb (91kg) male is going to need:

- Calories: 4,000+ (91kg * 24 [BMR] * 1.2 [Day-to-Day Activity] * 1.5-2.0 [Activity Multiplier])
- Carbohydrate: 550+ Grams (91kg * 6+)
- Protein: 130 Grams (91kg * 1.4)
- Fats: As-needed to reach calorie goals, after meeting carb and protein requirements.

For comparison, a 160lb (73kg) male, would need around 3,250+ calories, consisting of around 450g of Carbohydrate, 105g of Protein, and adequate fats to meet calorie goals.

A PLAN

This guide has given you the information you need to understand the overall caloric needs for your backcountry pursuits, as well as what specific carbohydrate, protein, and fat composition you should strive for.

We have not, however, told you *WHAT* to eat to achieve these goals. Obviously, personal preference plays an important role in food choice; you need to be able to enjoy — or at the very least, tolerate — the food that you pack into the backcountry. Beyond personal preference, there are also the variables of cost, availability, and other logistics like equipment needed to prepare the food.

To give you an idea of a *very* simple, *very* accessible way that the calorie goals can be met, without the need for any special foods (except the hydration supplement), consider the plan below for a high-output day, which meets our calorie and macro-nutrient goals:

	Calories	Carbohydrate (g)	Protein (g)	Fat (g)
BREAKFAST	***580***	***86***	***17***	***21***
2 Packs Instant Oatmeal	320	64	8	5
Some "Mix-Ins" (Raisins, Dried Cranberries, Blueberries, etc)	60	16	1	0
2TB Nut Butter	200	6	8	16

Coffee	0	0	0	0
LUNCH	**906**	**117**	**25.5**	**37**
Bagel	300	60	10	2
2oz Salami	146	0	8	13
1 Cheez-It Packet	210	24	5	11
5 Chips Ahoy Cookies	250	33	2.5	11
DINNER	***695***	***71***	***39***	***26***
"DIY Backcountry Chicken Curry Cous Cous"				
1/2 Cup Dry Couscous	325	65	11	0
1 Serving Mountain House Freeze-Dried Chicken	170	0	25	7
1/2oz Cashews	80	6	3	5
1tsp Curry Powder	0	0	0	0
1 Chicken Bouillon Cube	0	0	0	0
1TB Olive Oil	120	0	0	14
SNACKS	***1220***	***218***	***50***	***16***
Trail Mix (Recipe Below)	720	144	10	16
Haribo Gummy Bears (2 Servings)	280	66	0	0
2oz Jerky	220	8	40	0
FLUID & ELECTROLYTES	***500***	***100***	***0***	***0***
Tailwind Endurance Fuel (5 Servings)	500	100	0	0
	Calories	**Carbohydrate (g)**	**Protein (g)**	**Fat (g)**
TOTAL	**3901**	**592**	**131.5**	**100**

Here's an example of another plan with similar caloric and macronutrient goals for a high-output day. This plan, however, relies much more on common packaged foods that are common for hunters, hikers, and outdoor pursuits.

	Calories	Carbohydrate (g)	Protein (g)	Fat (g)
BREAKFAST	**470**	**83**	**7**	**12**
Bobo's Bar	360	58	6	12
1/4 Cup Mixed Dried Fruit	110	25	1	0
Coffee	0	0	0	0
LUNCH	**640**	**51**	**50**	**24**

Belvita Crackers	230	35	4	8
Justin's Nut Butter	190	8	6	16
2oz Jerky	220	8	40	0
DINNER	**870**	**102.5**	**55**	**29**
Mountain House - Lasagna with Meat Sauce	600	72.5	35	20
Clif Builder Bar	270	30	20	9
SNACKS	**1440**	**242**	**19**	**49**
Trail Mix (Recipe Below)	720	144	10	16
Snickers	250	33	4	12
Nature Valley Granola Bar	170	29	3	7
2 Honey Stinger Waffles	300	42	2	14
FLUID & ELECTROLYTES	**500**	**100**	**0**	**0**
Tailwind Endurance Fuel (5 Servings)	500	100	0	0
	Calories	**Carbohydrate (g)**	**Protein (g)**	**Fat (g)**
TOTAL	**3920**	**584.5**	**131**	**114**

RECIPES

Trail-mix for High-Output Days

- 2 oz pretzels (or Goldfish, Chex Mix, etc)
- 1/2 cup dry fruit
- 1/4 cup chocolate chips

Trail-mix Variation for Low-Output Days

- 1/2 cup salted nuts
- 1/4 cup dry fruit
- 1/4 cup chocolate chips

Backcountry Curried Chicken CousCous

- Bring water to boil in your cooking stove
- Mix all ingredients, except cashews and oil, with boiling water — either by adding ingredients into the stove pot, or by adding the boiling water into a separate cooking container
- Remove from or reduce heat and allow to cook covered for 9-10 minutes.
- Mix well and ensure ingredients are cooked through.
- Mix in cashews, olive oil, and enjoy!