

# Ketogenic Program Guide



Genetic Potential Through Nutrition

# You're Starting a Ketogenic Diet—Now What?

Congratulations on taking charge of your health and wellness by choosing to start a ketogenic (keto) diet. While you may know that a ketogenic diet is a low-carbohydrate way of eating, there is much to learn about how it works and what you can do to successfully follow it.

## What is a ketogenic diet?

A ketogenic diet is a very low-carbohydrate way of eating that delivers moderate amounts of high-quality dietary protein and high amounts of healthy dietary fat. This reduction in carbohydrate intake helps the body shift toward a state that promotes the breakdown of fats (from the diet and your body) to produce ketone bodies and enter a state known as “ketosis.”

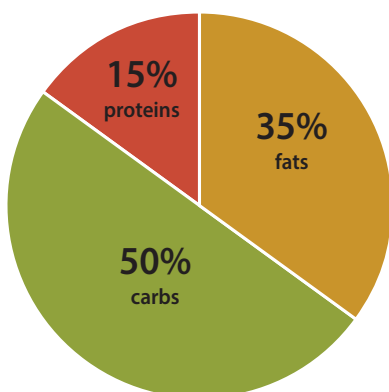
When following a ketogenic diet, your brain, as well as other organs, depends on ketones as an energy source. Ketones are produced in the body once you have reached a state of ketosis and can be measured in the blood and urine to ensure that you stay in ketosis during the keto diet.

## What does a healthy ketogenic meal look like?

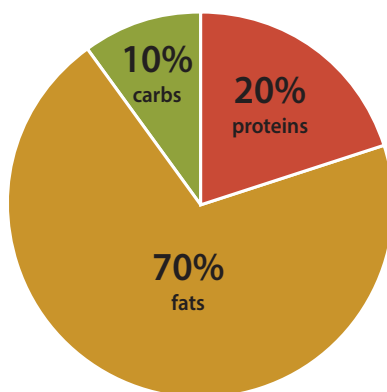
A ketogenic meal is comprised of approximately 10% of calories coming from healthy carbohydrates such as leafy greens, nonstarchy vegetables, and limited amounts of legumes and berries; 20% of calories coming from proteins such as omega-3-rich fish and grass-fed animal protein; and ~70% of calories coming from high-quality fats such as avocado, unsaturated and medium-chain triglyceride oils, nuts and seeds, and coconut.

This 10/20/70 ratio is a guideline for the macronutrient distribution for a given day, including meals, snacks, and beverages. Your practitioner may recommend a slightly modified ratio based on your physical activity and personal health goals. The diagram below highlights how the calories provided from carbohydrate, protein, and fat differs between a standard American diet and a typical ketogenic diet.

Standard American Diet<sup>1</sup>  
(as % of total kcal)



Typical Ketogenic Diet<sup>2</sup>  
(as % of total kcal)



## What are the benefits of a ketogenic diet?

The benefits of following a ketogenic diet may include weight loss, an increase in cognitive performance, balanced blood sugar, and improved cardiovascular health.<sup>3-8</sup>

**Mental focus**—With a ketogenic diet, the brain utilizes ketone bodies instead of glucose as its primary fuel source. This switch can encourage more nerve growth factors and synaptic connections between brain cells<sup>3</sup> and result in increased mental alertness, sharper focus, and improved cognitive capabilities.<sup>4</sup>

**Blood sugar management**—Studies have shown that low-carbohydrate diets help support insulin metabolism in the body. This is because the absence of carbohydrates from the diet helps your body maintain blood glucose levels by breaking down fats and proteins.<sup>5</sup>

**Weight loss**—A reduced calorie ketogenic diet encourages the utilization of body fat as fuel, and clinical studies support its use for weight management. Additionally, a ketogenic diet may help to suppress appetite and reduce cravings.<sup>9</sup>

**Increased energy**—Carbohydrates only go so far to sustain energy throughout the day, and especially during a workout. In ketosis, your body uses fat as fuel instead of glucose, to provide the brain with a consistent supply of the ketone bodies necessary to sustain physical performance.<sup>10</sup>

**Cardiovascular and metabolic health**—A ketogenic diet has been shown to help support blood lipid and fatty acid metabolism.<sup>11</sup>



# Getting Started

When following a ketogenic diet, you will want to keep your total carbohydrate intake **below 50 g per day**. This can be quite a change, depending on what types of foods you are currently eating. The information in the following sections will help you to plan your meals and snacks so that you can keep carbohydrates low while eating enough protein and fat. Your practitioner can help you with recommendations for daily servings in each of the following categories.

## Foods to Enjoy

### Nonstarchy Vegetables

\_\_\_\_\_servings/day

**Serving size:**

**Leafy greens: Approximately 2–3 cups, raw**

**All others: ½ cup cooked or 1 cup raw**

**1 serving = approx. 25 calories**

**C = 5 g, P = 1-2 g, F = 0 g**

- Artichoke
- Asparagus
- Bamboo shoots
- Bean sprouts
- Bitter melon
- Bottle gourd
- Broccoli
- Brussels sprouts
- Cabbage (bok choy, green, nappa, red, savoy)
- Cactus (nopales)
- Cauliflower
- Celery
- Celery root
- Chayote
- Cucumber
- Eggplant
- Green or string beans
- Hearts of palm
- Jerusalem artichoke
- Jicama
- Kimchi
- Kohlrabi
- Leeks
- Leafy greens (arugula, beet, collard, dandelion, endive, escarole, kale, spinach, Swiss chard, radicchio, watercress)

- Lettuce (Boston bibb, butter, frisee, green leaf, red leaf, romaine)
- Mushrooms
- Okra
- Onions (green, brown, red, scallions, shallot, spring, white, yellow)
- Peppers (bell, jalapeño, poblano, sweet)
- Radishes (daikon, cherry belle, white icicle, watermelon)
- Rutabaga
- Sauerkraut
- Sea plants (aramé, dulse, kombu, kelp, nori)
- Sprouts
- Sugar snap peas, snow peas
- Summer squash (crookneck, delicata, yellow, spaghetti, zucchini, patty pan)
- Tomatoes
- Turnips
- Water chestnuts

### Dairy

\_\_\_\_\_servings/day

**Serving size: As indicated**

**1 serving = approx. 100-150 calories,**

**C = 12 g, P = 8 g, F = 5-8 g**

- Kefir, plain: 1 cup
- Milk: 1 cup
- Yogurt, plain, full-fat/whole milk, Greek: ½ cup

#### **Note:**

Full-fat dairy products recommended

## **P** Protein

\_\_\_\_\_servings/day

**Serving size: As indicated**

**1 serving = approx. 150 calories,**

**C = 0 g, P = 14-28 g, F = 1-9 g**

- Bacon: 2 slices
- Beef
  - All cuts: 3 oz.
  - Buffalo: 3 oz.
- Cheese
  - Cottage: ¾ cup
  - Feta: 2 oz.
  - Goat: 2 oz.
  - Mozzarella: 2 oz. or ½ cup shredded
  - Ricotta: 1/3 cup
- Chicken, white or dark meat: 3 oz.
- Cornish hen: 4 oz.
- Eggs, whole: 2
- Egg whites: 1 cup
- Elk: 3 oz.
- Fish
  - Salmon
    - Canned: 3 oz.
    - Fresh: 3 oz.
    - Smoked: 3 oz.
  - Herring: 3 oz.
  - Mackerel: 2 oz.
  - Sardines (in water or oil): 3 oz.
  - Trout: 4 oz.
  - Tuna
    - Canned, chunk light or solid light (in water or oil): 4 oz.
    - Skipjack: 4 oz.
    - Yellowtail: 4 oz.
- Lamb, leg, chop, or lean roast: 3 oz.
- Liver: 3 oz.
- Pork, tenderloin: 3 oz.
- Sausage: varies
- Shellfish (shrimp, crab, lobster, clams, mussels, oysters, scallops): 4-5 oz.
- Turkey, white or dark meat: 3 oz.
- Venison: 3 oz.

## **F** Oils & Fats

\_\_\_\_\_servings/day

**Serving size: As indicated**

**1 serving = approx. 45 calories**

**C = 0 g, P = 0 g, F = 5 g**

- Avocado: 2 Tbsp.
- Avocado oil: 1 tsp.
- Butter: 1 tsp.
- Canola: 1 tsp.
- Coconut milk
  - Light, canned: 3 Tbsp.
  - Regular, canned: 1.5 Tbsp.
- Coconut oil: 1 tsp.
- Coconut spread: 1.5 tsp.
- Cream: 1 tsp.
- Cream cheese: 1 Tbsp.
- Flaxseed oil: 1 tsp.
- Ghee/clarified butter: 1 tsp.
- Grapeseed oil: 1 tsp.
- High-oleic safflower oil: 1 tsp.
- High-oleic sunflower oil: 1 tsp.
- Mayonnaise, unsweetened (made with avocado, grapeseed, or olive oil): 1 Tbsp.
- Medium-chain triglyceride oil: 1 tsp.
- Medium-chain triglyceride powder: ½ Tbsp.
- Olive oil, extra virgin: 1 tsp.
- Olives: 8-10 medium
- Sesame oil: 1 tsp.
- Sour cream: 2 Tbsp.

**C** = Carbohydrate

**P** = Protein

**F** = Fat

**O** = Other

**Total Calories/Day** \_\_\_\_\_

## **F** Nuts & Seeds

\_\_\_\_\_servings/day

**Serving size: As indicated**

**1 serving = approx. 45 calories**

**C = 0 g, P = 1 g, F = 5 g**

- Almonds: 6
- Almond butter: 1½ tsp.
- Brazil: 2
- Cashews: 6
- Cashew butter: 1½ tsp.
- Chia seeds: 1 Tbsp.
- Coconut, unsweetened, shredded: 1½ Tbsp.
- Flaxseed, ground: 1½ Tbsp.
- Hazelnuts: 5
- Hemp seeds: 2 tsp.
- Macadamia: 3
- Pecans: 4 halves
- Pine nuts: 1 Tbsp.
- Pistachios: 12
- Pumpkin seeds: 1 Tbsp.
- Sesame seeds: 1 Tbsp.
- Soy nuts, roasted: 2 Tbsp.
- Sunflower seeds: 1 Tbsp.
- Tahini: 1½ tsp.
- Walnuts: 4 halves

## **O** Beverages

**Unlimited servings/day**

- Coffee/espresso
- Green tea, rooibos tea (unsweetened)
- Noncaffeinated herbal teas (mint, chamomile, hibiscus, etc.)
- Mineral water (still or carbonated)
- Sparkling water (free from sodium and artificial flavors)
- Water (ideally filtered)

## **O** Condiments, Herbs, & Spices

**Unlimited servings/day**

- Cacao (powder/nibs)
- Carob
- Blackstrap molasses
- Bone broth
- Flavored extracts (ex. almond, vanilla)
- Garlic
- Ginger
- Herbs, all, fresh or dried (ex. dill, basil, chives, cilantro, mint, oregano, rosemary, sage, thyme, etc.)
- Horseradish
- Hot sauce
- Lemon
- Lime
- Liquid amino acid
- Miso
- Mustard
- Salsa, unsweetened
- Soy sauce/tamari
- Spices, all, fresh or dried (ex. chili powder, cardamom, cinnamon, cumin, curry, garlic powder, ginger powder, onion powder, paprika, pepper, turmeric, etc.)
- Tomato sauce, unsweetened
- Vinegars, unsweetened, organic apple cider, balsamic, red wine, white wine

## **O** Allowable Sweeteners

**Recommend limiting to 1–2 servings per day to reduce cravings for sweet-tasting food**

- Luo han guo (monkfruit extract)
- Stevia

## Foods to Enjoy Occasionally

### **C** **P** Legumes

\_\_\_\_\_servings/day

**Serving size:** As indicated  
**1 serving = approx. 100 calories**  
**C = 15 g, P = 7 g, F = 0-3 g**

- Beans (black-eyed, black, cannellini, edamame, garbanzo, kidney, lima, mung, navy, pinto, etc.): ½ cup cooked
- Beans, vegetarian refried: ½ cup
- Bean soups, homemade: ¾ cup
- Hummus: 4 Tbsp.
- Lentils (brown, green, red, yellow, French): ½ cup, cooked
- Peas (pigeon, split): ½ cup, cooked

### **C** Berries

\_\_\_\_\_servings/day

**Serving size:** As indicated  
**1 serving = approx. 60 calories,**  
**C = 15 g, P = 0 g, F = 0 g**

- Blackberries: ¾ cup
- Blueberries: ¾ cup
- Boysenberries: ¾ cup
- Cranberries, unsweetened: ½ cup
- Loganberries: ¾ cup
- Raspberries: 1 cup
- Strawberries: 1¼ cup

## Foods to Avoid

- Processed sugary foods and sauces like soda, fruit juice, smoothies, ice cream, candies, etc.
- Grains or starches and wheat-based products like rice, pasta, cereal, etc.
- Most fruits except for limited amounts of berries
- Root vegetables and tubers like potatoes, carrots, etc.
- Lowfat or diet products
- Unhealthy fats such as processed vegetable oils
- Sugary alcoholic drinks (sweet wines and cocktails); always check sugar content
- Sugar-free diet foods that are often high in sugar alcohol or artificial sweeteners like aspartame, acesulfame K, and sucralose (such as Diet Coke, Splenda, Sweet 'n Low)
- Fast food (pizza, burgers, pasta, etc.)

### Your practitioner may also recommend:

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# Ketogenic Meal Plans and Recipes

When you're following a ketogenic meal plan, many of your servings will come from the oils and fats, nuts and seeds, and proteins groups. It is important that you also include all your recommended servings of nonstarchy vegetables, as these are important sources of fiber, phytonutrients, and essential vitamins and minerals needed to maintain optimal health.

This guide provides you with a sample of three days' worth of ketogenic meal plans and recipes, as well as additional breakfast, lunch, dinner, and snack ideas.

## Day 1

### Breakfast Scrambled Egg and Yogurt



[Calories: 336, Fat: 25 g, Carbohydrate: 9 g, Protein 21 g]

- 1 whole egg
- 1 tsp. extra virgin olive oil
- ½ cup plain Greek yogurt
- 1½ tsp. almond butter
- 6 almonds

Directions: Scramble egg and cook in olive oil. Enjoy Greek yogurt, topped with almond butter, and crushed almonds on the side.

### Lunch Spinach & Chia Keto Shake



[Calories: 354, Fat: 24 g, Carbohydrate: 14 g, Protein 25 g]

- 2 scoops keto shake powder
- 2 cups spinach
- 1 Tbsp. chia seeds
- 3 Tbsp. light canned coconut milk

Directions: Mix ingredients together in a blender along with water and ice. Blend until desired consistency and enjoy.

### Dinner Tuna Wrap



[Calories: 328, Fat: 31 g, Carbohydrate: 6 g, Protein 13 g]

- 2 oz. canned tuna (skipjack)
- 2 Tbsp. unsweetened avocado mayonnaise
- 1 Tbsp. pine nuts
- ½ cup shredded green pepper
- 1 cup romaine lettuce (~ 2 large leaves)

Directions: Mix tuna, avocado mayonnaise, pine nuts, and green pepper together. Wrap with lettuce leaves and enjoy.

### Snack Celery & Nut Butter



[Calories: 114, Fat: 9 g, Carbohydrate: 6 g, Protein 4 g]

- 1 cup celery, cut into strips
- 3 tsp. almond butter

Directions: Spoon almond butter onto each piece of celery, or use it for dipping!

### Almond Keto Shake

[Calories: 460, Fat: 36 g, Carbohydrate: 12 g, Protein 26 g]

- 2 scoops keto shake powder
- 3 tsp. almond butter
- 6 almonds
- 1 Tbsp. MCT powder

Directions: Mix ingredients together in a blender along with water and ice. Blend until desired consistency and enjoy!



## Day 2

### Breakfast



#### Coffee Keto Shake

[Calories: 302, Fat: 21 g, Carbohydrate: 8 g, Protein 22 g]

- 2 scoops keto shake powder
- 1 ½ Tbsp. ground flaxseeds
- 1 tsp. heavy cream
- 4 oz. coffee

Directions: Mix ingredients together in a blender along with water and ice. Blend until desired consistency and enjoy.

### Lunch



#### Salmon Salad

[Calories: 220, Fat: 9 g, Carbohydrate: 19 g, Protein 20 g]

- 1 cup kale
- ¼ cucumber
- 1 cup spinach
- 4 Tbsp. avocado
- ¼ onion
- 1 ½ oz. smoked salmon
- ½ tomato

Directions: Mix all ingredients together in a bowl. Squeeze fresh lemon juice, add sea salt and pepper according to your taste.

### Dinner



#### Chicken Salad

[Calories: 399, Fat: 36 g, Carbohydrate: 6 g, Protein 20 g]

- ½ oz. chicken, shredded
- ½ cup celery, chopped
- 6 walnut halves
- ½ cup cucumber, chopped
- 2 tbsp. unsweetened avocado mayonnaise

Directions: Mix ingredients together and enjoy

### Snack



#### Cucumbers with Creamy Avocado Dip

[Calories: 118, Fat: 10 g, Carbohydrate: 6 g, Protein 2 g]

- 4 Tbsp. avocado
- 1 Tbsp. cream cheese
- 1 cup cucumbers, cut into strips

Directions: Mix the avocado and cream cheese together and spread on the cucumbers, or enjoy it as a dip.

#### Coconut Keto Shake

[Calories: 311, Fat: 22g, Carbohydrate: 11 g, Protein 21 g]

- 2 scoops keto shake powder
- 1 ½ Tbsp. unsweetened, shredded coconut
- 3 Tbsp. light canned coconut milk

Directions: Mix all ingredients together in a blender along with water and ice. Blend until desired consistency and enjoy.

### Keto Tips:

- Want to add additional fat? Add medium-chain triglyceride (MCT) oil or powder to your meals.
- Feeling the effects of the “keto flu”? You can support your body’s ability to keto-adapt with ketone salts.

## Day 3

### Breakfast



#### Egg Salad

[Calories: 308, Fat: 31 g, Carbohydrate: 0 g, Protein 9 g]

- 1 hard boiled whole egg, chopped
- 2 Tbsp. avocado
- Sprinkle of chopped green onion

Directions: Mix all ingredients together and enjoy it on a leaf of romaine lettuce.

### Lunch



#### Chicken Salad

[Calories: 399, Fat: 32 g, Carbohydrate: 6 g, Protein 20 g]

- ½ oz. chicken, shredded
- 6 walnut halves
- 2 tbsp. unsweetened avocado mayonnaise
- ½ cup celery, chopped
- ½ cup cucumber, chopped

Directions: Mix ingredients together and enjoy

### Dinner



#### Chia Keto Shake

[Calories: 358, Fat: 23 g, Carbohydrate: 17 g, Protein 25 g]

- 2 scoops keto shake powder
- 2 Tbsp. chia seeds

Directions: mix ingredients together in a blender along with water and ice. Blend until desired consistency and enjoy!

### Snack



#### Crunchy Vegetables

[Calories: 80, Fat: 6 g, Carbohydrate: 6 g, Protein 2 g]

- 2 Tbsp. avocado
- ¾ cup celery, cut into strips
- ¼ cup cucumbers, diced

Directions: Mix cucumbers and avocado together and spread on the celery or enjoy it as a dip.

#### Pumpkin Keto Shake

[Calories: 317, Fat: 22 g, Carbohydrate: 9 g, Protein 25 g]

- 2 scoops keto shake powder
- 2 tsp. cream
- 1 Tbsp. pumpkin seeds
- 1 tsp. pumpkin pie spice

Directions: Mix ingredients together in a blender along with water and ice. Blend until desired consistency and enjoy!

## Additional Ideas Suitable for Ketogenic Meal Plan

### Breakfast



- Keto coffee
- Cheesy scrambled eggs
- Keto shake with MCT oil and coconut milk
- Eggs Florentine
- Mini frittatas with spinach and tomato

### Lunch



- Prawn avocado salad
- Keto shake with MCT oil and coconut milk
- Raw vegetable pad thai
- Curried tofu
- Mediterrean salad

### Dinner



- Herbed baked salmon
- Seasoned chicken with shredded cabbage
- Thai lime and sesame stir-fry
- Keto shake with MCT oil and coconut milk
- Zesty Mexican keto soup

### Snack



Building a healthy ketogenic snack is just as important as creating a healthy ketogenic meal. Snacks can be combinations of a protein, fat, and carbohydrate depending on the overall composition of the day's meals. Healthy snack combos can include:

- 1 Tbsp. toasted pumpkin seeds (pepitas) with ½ cup cottage cheese
- 1-2 celery stalks with 1 Tbsp. nut butter
- 4 oz. Greek yogurt with ¾ cup blueberries
- 1 cup your choice of sliced peppers, celery, raw cauliflower, or broccoli and 2 Tbsp. hummus
- ½ medium tomato with 2 Tbsp. avocado

For these and more recipes, visit [Metagenics.com/ketogenic](https://www.metagenics.com/ketogenic).



# Keto vs. Paleo vs. Atkins

Paleo and Atkins are popular diets that appear similar to a ketogenic diet because they include many of the same foods and have overlapping benefits. However, each diet has its own premise and protocols that make it different from a ketogenic diet. Your practitioner recommended the ketogenic diet based on your personal health goals.

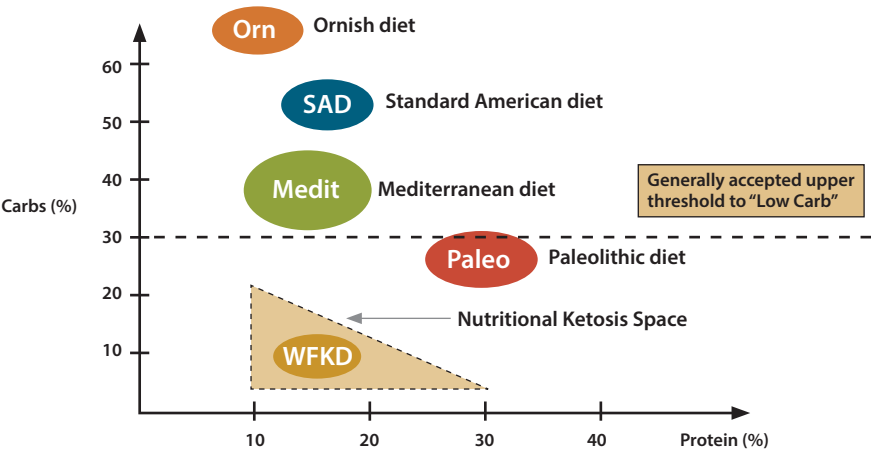
	Keto	Paleo	Atkins
<b>Philosophy</b>	Restricting carbs and sugar; eating real unprocessed foods	Eating real ancestral foods	Restricting carbs
<b>Ketosis</b>	✓	X	X
<b>Animal Protein</b>	✓	✓	✓
<b>Fats &amp; Oils</b>	✓	✓	Limited
<b>Nuts &amp; Seeds</b>	✓	✓	✓
<b>Grains</b>	X	X	Limited
<b>Fruits</b>	Limited	✓	Limited
<b>Nonstarchy Vegetables</b>	✓	✓	✓
<b>Starchy Vegetables</b>	X	✓	Limited
<b>Beans &amp; Legumes</b>	Limited	X	✓
<b>Dairy</b>	✓	X	✓
<b>Sugar</b>	X	X	X
<b>Sugar Substitute</b>	Stevia, monkfruit	Raw honey, maple syrup	Artificial sweeteners are allowed
<b>Macronutrient Comparison</b>			
<b>Fats</b>	High (70%)	Moderate (40%) <sup>†</sup>	Depends on the Phase
<b>Proteins</b>	Moderate (20%)	Moderate (40%) <sup>†</sup>	Depends on the Phase
<b>Carbohydrates</b>	Low (10%)	Low (20%) <sup>†</sup>	Depends on the Phase

<sup>†</sup>Cordain, L., The nutritional characteristics of a contemporary diet based upon Paleolithic food groups. Journal of the American Nutraceutical Association, 2002. 5(5): p. 15-24.

While there are many different types of diets out there, the best one is the one that you can follow long-term and also achieve success with.

In the graph below, a well-formulated ketogenic diet contains between 3-20% of calories coming from carbs and 10-30% of calories coming from protein with the remainder of calories coming from dietary fat. The range of carbohydrate, proteins, and fat are influenced by your total calorie requirements and also your overall health goals determined by your health care practitioner. Other diets typically contain more carbohydrates or less fat.

Well-Formulated Ketogenic Diet (WFKD)<sup>12</sup>



Notes: Carbs (%) = Percent of calories from dietary carbohydrates  
Protein (%) = Percent of calories from dietary protein



# Where Are Carbs Hidden?

## Playing hide and seek with hidden carbs

Carbohydrates are good at hiding in less-than-obvious places. Many common foods contain carbs, including:

- **Milk substitutes:** Milk substitutes such as soy or almond milk tend to have hidden carbs. Flavored milk substitutes are especially suspect because they often contain more sugar.
- **Yogurt:** Specifically avoid lowfat, fruit-flavored varieties. Try plain full-fat or whole milk Greek yogurt instead.
- **Ketchup and tomato sauce:** Hidden sugars and carbs are typically found in tomato products.
- **Salad dressing:** Check the label on your salad dressing, because most have sugar. Opt for olive oil and vinegar instead.
- **Chestnuts:** While most nuts and seeds have little carbs per serving, watch out for chestnuts which contain around 6-7g of carbs per serving.
- **Lowfat or fat-free:** These terms can indicate a food with more carbs due to added sugar.
- **No added sugar or sugar-free:** Naturally sweet foods, like fruit juice or raisins, are typically high in sugar.
- **Other sweeteners:** Sugar comes in many forms, and includes high fructose corn syrup, agave nectar, honey, molasses, and fruit juice concentrate.



## Keep things moving with fiber and more

High-fiber foods are often also high in carbohydrates, which can be problematic for people trying to achieve ketosis. However, some carbs and fiber are important for gut health and overall long-term nutrition and should not be avoided. What can you add to your diet to provide fiber without it preventing you from reaching or sustaining ketosis?

- **Water and other liquids:** Staying adequately hydrated can help reduce constipation.
- **MCT oil or avocado oil:** Both have a natural laxative effect.
- **Electrolytes/minerals:** Eat foods rich in electrolytes and minerals—especially during the first few days of your diet. Also, try magnesium citrate to help with constipation.
- **Move!** Being more active keeps things going.
- **Leafy vegetables:** Consume more leafy vegetables to promote intake of fiber.
- **Multivitamin/mineral supplements:** Helps ensure you get micronutrients you need for good health.

Make sure that you follow this ketogenic profile under the supervision of your healthcare practitioner.



## How to determine if you're in ketosis

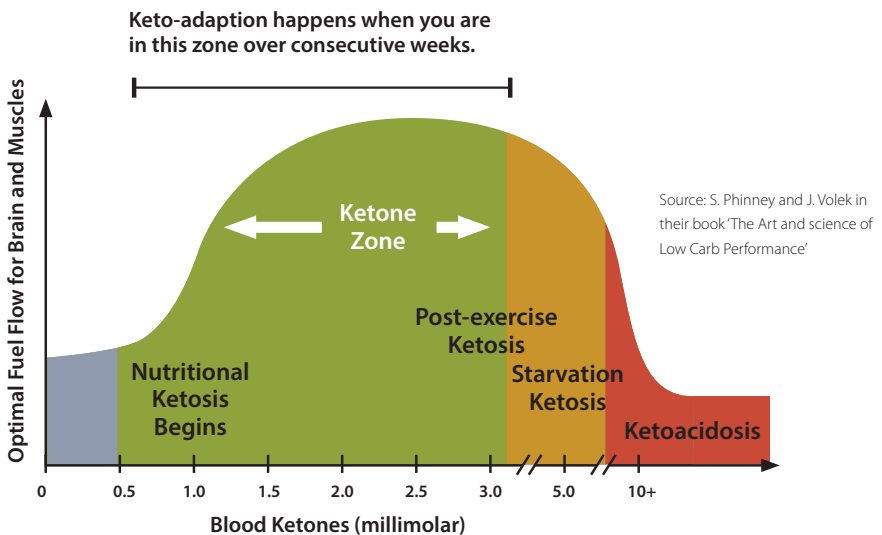
The state of ketosis means that the body has switched from depending on carbs to burning fats for fuel. As you restrict carbohydrate intake and increase dietary fat, more fat is metabolized, and ketone bodies are created.

### Ketones can be monitored in a variety of ways:

**Breath meter:** The primary ketone body present in the blood (which can also be taken as a supplement) is beta-hydroxybutyrate,  $\beta$ HB. When  $\beta$ HB is metabolized, it becomes acetoacetate and then acetone, which can be measured with a breath meter device.

**Urine strips:** Ketone urine testing strips are a more common way to check for ketosis. The strips change color to indicate the levels of acetoacetate excreted in urine. This method, however, doesn't necessarily match ketone levels in the blood because of certain factors such as water intake, which can result in a false positive with dehydration or overhydration. As the body becomes more efficient in utilizing ketone bodies as fuel, this leads to decreased ketones being excreted, which can lead to false negative readings via urine strips.

**Blood meter:** This is the most accurate way to measure the levels of ketones (primarily  $\beta$ HB) in the body. However, this method is more invasive than others and can also be significantly more expensive. Your healthcare practitioner can advise you on commercially available blood meters to test ketone levels by looking at circulating levels of  $\beta$ HB measured in millimolar (mmol/L) units. While variable among individuals, studies have indicated that  $\beta$ HB ranges between 0.5-3.0 mmolar are optimal.





# Supplementing Your Keto Lifestyle

Aside from adhering to a low-carb diet, you can also benefit from supplementation with a variety of ketogenic products. Ask your healthcare practitioner about incorporating these products into your diet plan:

**Ketogenic shake and soup:** These formulas are fast, easy, and ideal as a meal replacement or pre-/postworkout snack. The Ketogenic Shakes and Soup contain 20 grams of protein and 14 grams of fat, including 3 grams of MCT to provide support for a ketogenic lifestyle.

**MCT oil and MCT powder:** Your ketogenic lifestyle can benefit from the addition of high-quality medium-chain triglycerides. Available in convenient powder or oil forms, MCT can be easily added to meals and shakes. The MCT Oil and Powder are concentrated to 90% of C8 and C10 fatty acids and deliver 10 grams of MCT per serving.

**Exogenous ketone salts:** Supplementation with ketone salts can help temporarily increase circulating ketones in your body, making them available for use as an additional energy source.\*



\* This statement has not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.

# Frequently Asked Questions

## 1. What is keto-adaptation? How long does it take to adapt?

Keto-adaptation is the process the body goes through during the ketogenic diet as it switches to using fat as an energy source rather than glucose. The length of time varies for individuals but typically starts a few days after being on a ketogenic diet. Within a week to two, many people report positive effects of keto-adaptation.

## 2. During the keto-adaptation process, which noticeable changes are expected?

During the keto-adaptation process, some people may experience certain mild effects termed the “keto flu.” These changes occur as the body gets used to the process of switching to burning fat instead of carbohydrates as the main source of energy. Some people describe this as a feeling of withdrawal. People undergoing these changes have reported feeling drowsy, achy, nauseous, dizzy, and irritable. Some may even experience cramping, stomach pains, and muscle soreness.

## 3. How long do these effects last?

It varies, but the keto flu lasts typically a week or less for the average person, and not everyone experiences these effects. However, below are some ways to help your body through the adaptation process.

- Increase electrolyte intake, but avoid electrolyte sports drinks with high sugar
- Drink more water
- Eat more quality fat
- Take an exogenous ketone salt supplement
- Increase in exercise
- Get plenty of sleep

## 4. How long can I be on the ketogenic diet? Is it safe long-term?

Depending on your health goals, your practitioner may recommend a specific time period for you to be on the ketogenic diet. There are many people and cultures that go into ketosis and stay there for a long period of time without any negative effects.<sup>6</sup>

## 5. Does being on a ketogenic diet raise my cholesterol?

One of the biggest misconceptions is that cholesterol is bad. Eating cholesterol has minimal increase in cholesterol levels in the body. Blood levels of triglycerides are a major risk factor for heart disease and are directly correlated to the carbohydrates in the diet.<sup>13-14</sup> A low-carbohydrate diet drastically reduces serum triglyceride levels. Your healthcare practitioner may monitor your blood cholesterol levels to ensure they remain within normal limits when following a ketogenic diet <sup>15-16</sup>

# Learn More

A ketogenic diet can be simple to follow, but if you are feeling overwhelmed and would like to learn more or have a better understanding of the lifestyle, talk to your healthcare practitioner. You can also visit [Metagenics.com/](http://Metagenics.com/) ketogenic for additional tips, FAQs, and educational videos about following a ketogenic diet.



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