

Are Microgreens Keto Friendly?

My wife Tracey just started this new Keto diet, and she asked me, "Are microgreens keto friendly?"

That was the question she posed one evening on our daily one-mile walk. Even though I had been growing microgreens for over 3 months, I had no clue. But I wondered, "if microgreens were Keto-friendly, could I be on to something?"

Keto is short for ketogenic.

In their [All About The Keto Diet: A Beginners Guide](#), the folks over at ruled.me describe the ketogenic diet as a low carb, high fat diet that turns your body into a fat-burning machine.

First used to treat epilepsy in children, most people follow a ketogenic diet to lose weight.

Patients with diabetes show signs of ketosis.

The process can occur if the body does not have enough insulin or is not correctly using insulin.

People with diabetes should avoid the keto diet.

Meeting the Keto diet's requirements means cutting out many healthy foods, making it difficult to meet your micronutrient needs.

That's where microgreens come in.

They contain greater amounts of nutrients and health-promoting micronutrients than their mature counterparts, up to 40 times more, according to one [recent study](#).

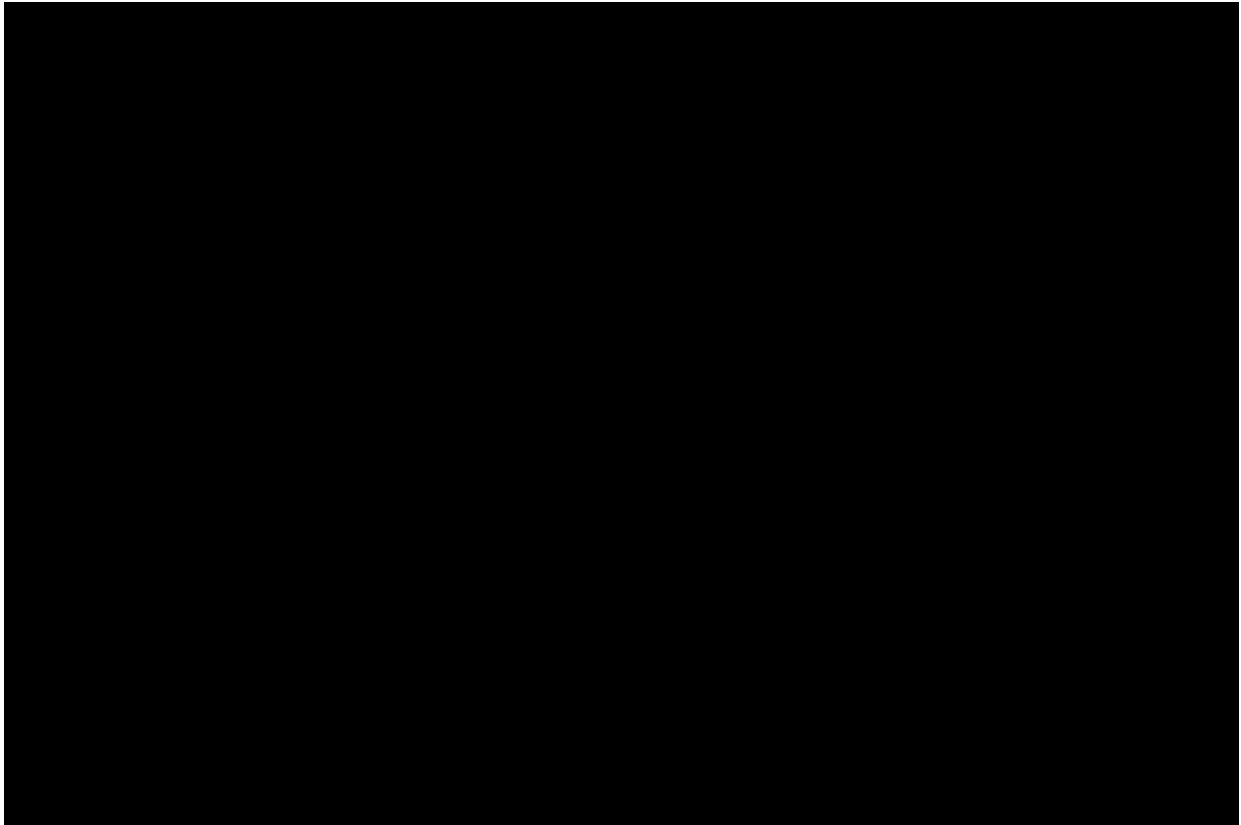
Salads with proteins like poultry, seeds, nuts, olive oil dressing, and some broccoli microgreens make for a great Keto meal.

But any Keto meal plan can incorporate microgreens to get essential micronutrients.

Yes, microgreens are more than Keto friendly. [They should be a part of your Keto diet.](#)

Quick Reads

- The Ketogenic Diet 4
 - History 4
 - Ketosis..... 4
 - High Fat, Low Carb..... 4
- Keto Diet Variations 6
 - Types of ketogenic diets..... 6
 - Does it work for weight loss? 6
- Microgreens and Keto..... 7
 - Is Dietary Carbohydrates Essential for Human Nutrition? 7
- This is Where Microgreens Excel 7
- Ketogenic Microgreen Recipes 9
 - Microgreen Salad with Tahini Dressing 9
- The Charlie Foundation 10



Estimated Reading Time: 8 min, 19 sec.

You can continue reading the article below, or read the Post here: [READ POST HERE](#)

The Ketogenic Diet

History

"Fasting and other dietary regimens have been used to treat epilepsy since at least 500 BC." That's the analysis of JW Wheless in an [article published in 2008](#).

In 1921, Dr. Russel Wilder, MD, of the Mayo Clinic instituted a [protocol](#) to treat epilepsy patients with a diet he thought should be as effective as fasting.

Based on his successful results, Dr. Wilder invented the phrase "ketogenic diet."

The Ketogenic diet became popular in the early 2000s when it got national coverage from NBC-TV's Dateline.

Ketosis

The ketogenic diet aims to induce ketosis.

Ketosis is a normal metabolic process.

When your body does not have enough glucose for energy, it burns stored fats instead.

This results in a build-up of acids called ketones within the body.

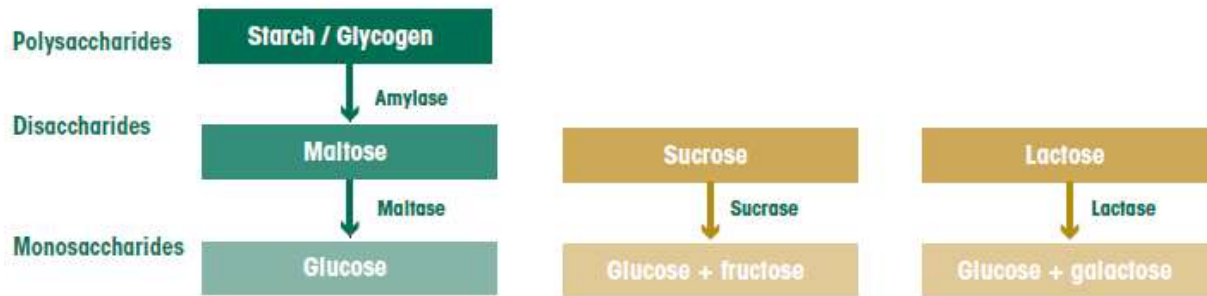
*If you or someone you know has diabetes, you are more likely to develop ketoacidosis, requiring emergency medical treatment to avoid or treat diabetic coma, and therefore **avoid the Keto Diet.***

High Fat, Low Carb

Your digestive system is a giant food processor.

It breaks down starches and sugars mechanically (e.g. through chewing) and chemically (e.g. by enzymes) into the single units **glucose, fructose, and/or galactose**.

It absorbs them into the blood stream and transports them for use as energy.



In normal circumstances, the body's cells use glucose as their primary form of energy.

Dietary carbohydrates produce glucose, including:

- **sugar** - such as fruits and milk or yogurt, and
- **starchy foods** - such as bread and pasta.

However, It takes more work to turn fat into energy than it takes to turn carbs into energy.

When you switch to a very high-fat, low-carb diet, your body stops using glucose and uses fatty acids and ketone bodies for energy. Because of this, a ketogenic diet can help speed up weight loss.

The Mayo Clinic invented the [Ketogenic Diet calculation](#) used today: 1 g of protein per kilogram of body weight in children, 10–15 g of carbohydrates per day, and the rest of the calories in fat.

The ketogenic — or keto — diet emphasizes high-fat foods, moderate protein, and restricts carbohydrates, according to Jason Ewoldt, RDN, LD, a wellness dietitian at Mayo Clinic Healthy Living Program (HLP).

| High-fat Foods | Proteins | Carbohydrates |
|---|---|---------------|
| 60-80% | 15-20% | 5-10% |
| Fewer fats for weigh loss | More protein for weigh loss | < 50 g/day |
| Nuts, seeds, cheese, plain Greek yogurt, non-starchy and fibrous vegetables, oils | Smaller amounts of meats, eggs and fish | |

Keto Diet Variations

The *Standard ketogenic diet (SKD)* that you see in books, magazines and the internet all identify meals high in fat. For example, 20% of the calories may be protein, 10% may be carbohydrates, and 70% may come from fat.

However, there are [several different versions](#) practiced on every continent.

Types of ketogenic diets

| Keto Diet | Description |
|--|--|
| Standard ketogenic diet (SKD) | This is a very low-carbohydrate with moderate-protein and high-fat diet. It contains 70 per cent fat, 20 per cent protein and only 10 per cent carbohydrates. |
| Cyclical ketogenic diet (CKD) | This diet involves periods of higher-carbohydrates in between the ketogenic diet cycles, for example, five ketogenic days followed by two high-carbohydrate days as a cycle. |
| Targeted ketogenic diet (TKD) | This diet permits adding additional carbohydrates around the periods of the intensive physical workout. |
| High-protein ketogenic diet (HPKD) | This diet includes more protein and the ratio around 60 per cent fat, 35 per cent protein and five per cent carbohydrates, but it is still a very high fat diet. |
| Very low-calorie ketogenic diet (VLCKD) | This protocol comprises 90% (50kg) of calories from fat and only 10% of daily energy from carbohydrates and proteins. VLCKD is a nutritional protocol that resembles fasting through a marked restriction of daily carbohydrate intake, lower than 30 g/day (13% of total energy intake) along with a relative increase in the proportions of fat (44%) and protein (43%) and a total daily energy intake ≤ 800 kcal |

These are just guidelines, intended for a therapeutic ketogenic diet. Most people do very well with fewer fats and more protein, in terms of weight loss.

Does it work for weight loss?

It takes two to three weeks for your body to start fat burning (ketosis) in the body. Once your body adapts, you become efficient at burning high amounts of fats for energy.

However, long term there is little difference between a ketogenic diet and a higher carbohydrate diet.

Microgreens and Keto

Eating less than 50 grams of carbohydrates a day is equivalent to eating less than four slices of bread's worth.

This can be very hard for many people to follow.

In fact, it took Tracey a couple weeks to get there.

Also, because the saturated fat content is high, coupled with limited amounts of fruits, vegetables and whole grains, physicians and nutrition experts do not consider Keto a long-term diet.

Plus, very low carbohydrate diets have higher rates of side effects, including constipation, headaches, bad breath and more.

And according to the Mayo Clinic "[meeting the diet's requirements means cutting out many healthy foods, making it difficult to meet your micronutrient needs.](#)"

Are Dietary Carbohydrates Essential for Human Nutrition?

Despite your body needing to break down carbs when they are ingested, [carbs are NOT an essential nutrient](#). An essential nutrient is one your body needs to survive because it won't be able to make it on its own. But your body creates sugar from fat and protein to regulate blood sugar levels.

Most microgreens, like any vegetables that grow above ground, are **low in carbs**.

They have depleted carbohydrate reserves.

[Studies involving radish microgreens](#) show that post-harvest light exposure increases soluble carbohydrates (D-glucose) which serves as a precursor for ascorbate synthesis.

While mature plants are photosynthetically and metabolically active, seedlings such as microgreens respire during the germination process.

Cotyledon cells in the "seed leaves" metabolize stored carbohydrates and do so until they drain carbohydrate resources, and the seedling is mature.

As it depletes carbohydrate sources, the cotyledons wither.

So, for our purposes plants are in the microgreen phase from the time they have developed their cotyledons up to and including their first set of true leaves.

Since growers harvest microgreens at the cotyledon stage, they contain very little carbohydrates.

This is Where Microgreens Excel

Scientists consider microgreens to be live food.

They contain a wide range of vital life force nutrients (e.g., vitamins, minerals, amino acids, and oxygen) and live enzymes.

They are also a great source of beneficial plant compounds like antioxidants.

They may help you extend Keto diets by [meeting your micronutrient needs as suggested by the Mayo Clinic](#).

| | Kohlrabi purple | Cabbage red | Broccoli | Kale Tucsan | Komatsuna red | Tatsoi | Cabbage green |
|-----------------------------------|------------------------|--------------------|-----------------|--------------------|----------------------|---------------|----------------------|
| Hypocotyl Length (mm) | 46 | 47 | 42 | 49 | 44 | 46 | 45 |
| Leaf Area (cm ²) | 1.82 | 1.93 | 1.65 | 2.02 | 1.75 | 1.86 | 1.83 |
| Fresh weight (g) | 0.44 | 0.46 | 0.42 | 0.47 | 0.41 | 0.45 | 0.44 |
| Dry weight (%) | 6.65 | 6.18 | 6.55 | 6.90 | 6.57 | 6.34 | 6.25 |
| P (mg/100 g FW) | 68 | 62 | 59 | 63 | 66 | 64 | 62 |
| K (mg/100 g FW) | 322 | 224 | 319 | 280 | 320 | 300 | 183 |
| Ca (mg/100 g FW) | 65 | 84 | 92 | 55 | 53 | 44 | 87 |
| Na (mg/100 g FW) | 46 | 40 | 50 | 46 | 28 | 35 | 69 |
| Fe (mg/100 g FW) | 0.77 | 0.69 | 0.74 | 0.76 | 0.76 | 0.65 | 0.67 |
| Zn (mg/100 g FW) | 0.43 | 0.40 | 0.42 | 0.38 | 0.38 | 0.41 | 0.33 |
| Cu (mg/100 g FW) | 0.08 | 0.10 | 0.11 | 0.07 | 0.05 | 0.08 | 0.06 |
| Mn (mg/100 g FW) | 0.39 | 0.35 | 0.41 | 0.46 | 0.34 | 0.35 | 0.37 |
| Phylloquinone (ug/ g FW) | 2.6 | 2.3 | 2.0 | 1.7 | 2.2 | 1.5 | 1.4 |
| α-tocopherol (mg/100 g FW) | 17.6 | 29.5 | 17.3 | 19.4 | 25.0 | 29.3 | 14.3 |
| Total Ascorbic Acid (mg/100 g FW) | 77.1 | 127.4 | 84.6 | 73.2 | 97.5 | 99.5 | 118.9 |
| β-carotene (mg/100 g FW) | 6.6 | 9.9 | 6.9 | 5.4 | 7.1 | 10.6 | 9.6 |

Table 2. Growth, and nutritional composition profile of Brassica microgreens

In a [research study of microgreen nutrition](#), red cabbage, cilantro, garnet amaranth, and green daikon radish had the highest concentrations of Vitamin C, Vitamin A, Vitamin K, and Vitamin E.

In one [study](#), some including bull's China rose radish, peppercress, Dijon mustard have high sugar concentration of 10.3, 8.8, and 7.7 g/kg.

This however is low compared to mature plants.

Peppercress has a sugar concentration of 44 g/kg.

Nonetheless they should be used sparingly.

Microgreens such as lettuce, broccoli and cabbage, are all suitable for the keto diet.

Ketogenic Microgreen Recipes

With the popularity of the Keto diet today and some of its micronutrient deficiencies, microgreens are well positioned to fill that gap.

And perhaps extend the Keto diet for persons all over the world who are obese and looking to lose weight.

Maybe you are thinking about starting a Keto diet, maybe you already have.

Whatever your reasons, adding microgreens to your diet is a great nutritional enhancement.

So, I went looking for Keto diet recipes that would pop your taste buds with some added microgreens.

Salad is one of my favorite ways to eat microgreens. You can either mix them with lettuce or other greens, or have a salad made of microgreens.

Here is a great site, [ruled.me](#), and their **top 10 Keto-friendly salads**. My favorite is the [Keto Mixed Green Spring Salad](#) with a 5 Minute Keto Raspberry Vinaigrette dressing. Just add microgreens.

Microgreen Salad with Tahini Dressing

This salad is my favorite and the one that I often use when I introduce people to microgreens for the first time. It is easy to make and is delicious.

Prep Time: About 15 minutes

Number of Servings: 1

Ingredients

- 1 tray Radish Microgreens (harvested and washed)
- 1/3 cup Tahini (see below)
- 1/3 cup Water
- 1 tbsp Lemon Juice
- 1 Onion chopped
- 1/2 tsp Salt (or to taste)
- 1/8 tsp Ground Black Pepper (or to taste)

Instructions

1. Harvest and wash the microgreens.
2. Mix the tahini, water, lemon juice, garlic, salt and pepper until smooth.

Tahini Keto Snack

35 g Tahina (sesame seed, lemon juice, salt, yogurt)

2 g olive oil

50 g cucumber

26 g heavy cream

(224 kcal, 3:1 ratio)

3. Add dressing to microgreens and serve! It's that easy.

The Charlie Foundation

A team of doctors created the Charlie Foundation for Ketogenic Therapies in 1994 "to provide information about diet therapies for people with epilepsy, other neurological disorders and select cancers."

The Charlie Foundation has many great recipes.

Go here: <https://charlifoundation.org/category/recipes/>

Any Keto meal plan can incorporate microgreens to get essential micronutrients.

Varieties of Microgreens:

- **Brassicaceae family:** *Cauliflower, broccoli, cabbage, watercress, radish and arugula*
- **Asteraceae family:** *Lettuce, endive, chicory and radicchio*
- **Apiaceae family:** *Dill, carrot, fennel and celery*
- **Amaryllidaceae family:** *Garlic, onion, leek*
- **Amaranthaceae family:** *Amaranth, quinoa swiss chard, beet and spinach*
- **Cucurbitaceae family:** *Melon, cucumber and squash*

Yes, microgreens are more than Keto friendly. **They should be a part of your Keto diet.**

References:

Wilder RM. (1921) *The effect on ketonemia on the course of epilepsy.* Mayo Clinical Bulletin 2:307.

Peterman MG. (1925) *The ketogenic diet in epilepsy.* JAMA 84:1979–1983.

Xiao, Z.; Lester, G. E.; Luo, Y.; Wang, Q. *Assessment of Vitamin and Carotenoid Concentrations of Emerging Food Products: Edible Microgreens.* J. Agric. Food Chem. 2012, 60 (31), 7644–7651

VERY LOW-CALORIE KETOTONIC DIET (VLCKD) FOODS

| YES | NO | MAYBE SO | |
|--|---|---|--|
| Coffee and Tea (Unsweetened) | Grains | Pasta 'al dente' | |
| Fish and seafood | Alcohol: especially beer, wine, and spirits | Dry wine | |
| Plain Greek yogurt and cottage cheese | Sweetened yogurt | Eat carbohydrates with protein: if you do mess up, peanut butter on your crackers. | |
| Cheese | Milk | Almond or coconut milk | |
| Avocados | High-sugar fruits: bananas, raisins, dates, mango, pear | <p>Very low-calorie ketogenic diet (VLCKD) protocol consist of 90% (50kg) of calories from fat and only 10% of daily energy from carbohydrates and proteins</p> <p>VLCKD is a nutritional protocol that resembles fasting through a marked restriction of daily carbohydrate intake, usually lower than 30 g/day (13% of total energy intake) along with a relative increase in the proportions of fat (44%) and protein (43%) and a total daily energy intake ≤ 800 kcal</p>  <p>MICROGREENS WORLD I LOVE MY GREENS</p> | |
| Poultry | Juices | | |
| Eggs | Honey | | |
| Nuts, seeds: almonds, cashews, pistachios, flaxseeds, pumpkin seeds | Any syrup, including Maple Syrup | | |
| Low-carb veggies: broccoli, cauliflower, green beans, bell peppers, zucchini and spinach | Sugar, Glucose | | |
| Berries: blueberries, blackberries, raspberries, strawberries | Chips and crackers | | |
| Dark chocolate and cocoa powder | Starchy vegetables: corn, potatoes, sweet potatoes and beets | | |
| Olive oil, high oleic safflower, sunflower oil, and canola oil. | Baked goods including gluten-free baked goods | | |
| Microgreens: lettuce, broccoli and cabbage | Bad Fats: margarine, chips | | Coconut oil is high in saturated fat |
| | High-sugar microgreens: fenugreek, China rose radish, peppergrass, Dijon mustard | | Microgreens: chickpeas, beans and lentils |

www.microgreensworld.com

I've learned a lot about microgreens, how good they are for you, and what you can do with them. Check out my guide, "[The Beginner's Nutritional Guide to Incredible Microgreens.](#)"



Andrew Neves

I'm the co-founder of JPureFarms, a startup. I live in Atlanta, Georgia, and enjoy urban farming, growing and writing about microgreens and their incredible health potential. I love my greens!