

The Ketogenic Diet

The ketogenic diet involves limiting your intake of Carbohydrates, and eating plenty of Fat and some Protein. This lowers the blood glucose levels, and forces the body to burn fat. The metabolism of fat produces ketones in the liver, and these replace glucose as an energy source.

For Nutritional Ketosis, and weight/fat loss, we can simply eliminate foods high in carbohydrate (starchy fruits and vegetables, bread, pasta, grains and sugar) whilst eating more fat and up to 100 grams of protein a day.

For Therapeutic Ketosis, and to stress Cancer, we limit carbohydrates to 12 grams a day, (basically only eating green salads with herbs), whilst eating plenty of fat, (olive oil, coconut oil, butter, cream) and roughly 10 grams of the 9 Essential Amino Acids [EAA] (protein replacement) a day.

Measure your ketones with a finger prick blood test meter. First thing in the morning will produce the best reading after fasting all night. You are in Nutritional Ketosis at **0.5 to 3.0 mmol/L**. When dealing with Cancer we are aiming for **Therapeutic Ketosis, which is from 3.0 to 6.0 mmol/L**. Also measure your glucose levels. They should progressively decrease and remain stable to the lowest possible value and increase little after meals.

Ketones Too Low?

- **Too much carbohydrate** is the main reason people fail to achieve a good level of ketosis. You MUST measure your carbohydrate intake.
- **Emotional stress** will raise your cortisol, which will increase glucose levels, which will lower your ketones. Practice gratitude and acceptance.
- **A sedentary lifestyle** as opposed to exercise shortly after eating which helps to burn up the glucose and get you into ketosis. Go for a brisk walk.
- **No medium-chain triglycerides** in the diet. You need these to produce ketones. Use plenty of coconut oil.
- **Eating too much protein** (except EAA) Limit your protein to 100g per day.

Fat Sources

Have at least 1 teaspoon of Coconut or Palm Oil with each meal. Have butter on your veggies.

Ketones are produced from fats high in Medium-Chain Triglycerides.

Best Fats & Oils.		
Coconut Oil	Butter	Ghee
MCT-Oil	Palm Fruit Oil	Palm Kernel Oil

Good Fats & Oils.		
Avocado Oil	Macadamia Nut Oil	Olive Oil Extra Virgin
Animal Fat (lard, tallow)	Cream (2.96g carb)	Cheddar and Quark

Protein Sources

Allow for 100g per day of eggs or meat. More than this will generally drop people out of ketosis. For the other two meals, take 5 to 10 grams of EAA as a protein source. (Take 10 grams of EAA if weight loss or hunger is a problem)

Best Protein Source [4].		
	Tissue Building	Glucose
EAA	99%	1%

Good Protein Sources [4].		
	Tissue Building	Glucose
Whole Eggs	48%	52%
Poultry	32% avg.	68% avg.
Fish	32% avg.	68% avg.

Poor Protein Sources [4].		
	Tissue Building	Glucose
Casein, Whey & Milk	16%	84%
Soy	17%	83%

Cheese

High fat cheese like camembert may be eaten somewhat freely, as it is low in carbs, high in fat, and moderate in protein.

Cheeses			
Grams of X per 100g [1].			
	Protein	Fat	Carbs
Camembert	19.80g	24.26g	0.46g
Cream Cheese	5.93g	34.24g	4.07g
Swiss Cheese	26.93g	27.80g	5.38g

Carbohydrate Sources

Aim for a carbohydrate load of no more than 20g per day. The lower the better for ketosis levels.

Low Carb Vegetables - less than 6g a cup		
Grams of carb per 100g [1].		
Artichoke (2.79g carb)	Avocado (1.83g carb)	Asparagus (2.11g carb)
Bamboo Shoots (0.52g carb)	Bean Sprouts (4.14g carb)	Beans Green (4.68g carb)
Beet Greens (2.56g carb)	Bok(pak) Choy (0.78g carb)	Broccoli (3.88g carb)
Brussel Sprouts (4.5g carb)	Cabbage (3.61g carb)	Cauliflower (1.81g carb)
Celery (1.37g carb)	Chard (2.03g carb)	Chives (1.85g carb)
Collard Greens (1.65g carb)	Cucumber (3.13g carb)	Eggplant (5.64g carb)
Endive (0.25g carb)	Fennel Bulb (4.2g carb)	Green Beans (4.68g carb)
Gherkin (1.41g carb)	Kale (3.63g carb)	Lettuce (1.57g carb)
Mushrooms (2.24g carb)	Napa Cabbage (2.23g carb)	Okra (2.01g carb)
Olives Pickled (0.54g carb)	Peppers (2.94g carb)	Radish (1.80g carb)
Sauerkraut (1.38g carb)	Savoy Cabbage (2.61g carb)	Scallions (4.74g carb)
Spinach (0.73g carb)	Taro Leaves (1.89g carb)	Tomatoes (2.69g carb)
Turnips (3.06g carb)	Watercress (0.79g carb)	Zucchini (2.11g carb)

Medium Carb Vegetables - 7 to 14g a cup		
Grams of carb per 100g [1].		
Beetroot (7.96g carb)	Carrots (5.22g carb)	Leeks (6.62g carb)
Pumpkin (3.21g carb)	Rutabaga (5.04g carb)	Kohlrabi (5.59g carb)

Low Carb Fruits		
Grams of carb per 100g [1].		
Blackberry (4.31g carb)	Boysenberry (6.89g carb)	Gooseberries (5.88g carb)
Raspberries (5.44g carb)	Strawberries (5.68g carb)	Lemons (6.52g carb)

Medium Carb Fruits		
Grams of carb per 100g [1].		
Blueberries (12.09g carb)	Cherries Sweet (13.91g carb)	Cherries Sour (10.58g carb)
Grapefruit (9.09g carb)	Red Currant (9.50g carb)	Apricots (9.21g carb)

Low Carb Nuts		
Grams of carb per 100g [1].		
Almond (10.11g carb)	English Walnuts (7.01g carb)	Black Walnuts (2.78g carb)
Hazelnuts (8.2g carb)	Brazil Nuts (4.24g carb)	Macadamia (4.83g carb)
Coconut (6.23g carb)	Pecan (4.15g carb)	

Considerations

Perseverance is required by people whilst the body adjusts to using Ketones more efficiently. In the meantime, symptoms of low blood sugar, like tiredness, may be inconvenient.

High blood sugar levels suppress the immune system [2] and Cancer cells have over six times the number of insulin receptors that healthy cells do [3]. This means that cancer cells are feeding on glucose, and blood glucose reduction has shown to correlate with cancer remission or stability [5].

Sample Menu

Breakfast

- 5 to 10 grams of EAA.
- 1 tsp Coconut Oil.
- 100g Quark (1.9g carb).
- 50g Blackberries (2.13g carb).
- Coffee with 1 tbsp Cream (0.44g carb).
- OR Tea with lemon.
- 300mls water.

Lunch

- 5 to 10 grams of EAA or 100g of Protein (e.g. 2 x eggs).
- 1 tsp Coconut Oil.
- 300g of fresh salad (avg. 8g carb).
- Dressing – Lemon/vinegar & Oil.
- Coffee with 1 tbsp Cream (0.44g carb).
- OR Tea with lemon.
- 300mls water.

Dinner

- 5 to 10 grams of EAA.
- 1 tsp Coconut Oil.
- 300g of hot fresh veggies with butter.
- Grated cheese for flavour.
- A handful of Macadamias.
- 300mls water.

Sample Keto Recipe

Almond and Seed Bread Recipe

- 6 Eggs (separated)
- 250g Quark or 220g butter
- 100g Ground Almonds
- 40–60g Sesame seeds
- 40–60g Coconut either shredded, desiccated or ground.
- 15g Baking Powder
- 2 teaspoons Coconut oil.
- 5g Whole Linseeds (Flaxseeds). These are for sprinkling on top once mixture is in baking pan.

Almonds, Sesame seeds and Coconut needs to add up to 200g so mix and match to get the flavour and texture you prefer.

Method:

1. Separate eggs.
2. Beat/blend quark and egg yolks until smooth.
3. Add almond, sesame, coconut and baking powder then mix in with quark mixture. This will form a dough. Let entire mix stand for 10 minutes.
4. Beat eggs whites until stiff. Once quark mixture has finished 10 minute standing gently fold beaten egg white into mixture.
5. Transfer dough mixture to 24cm baking pan that has been lined with baking paper. Sprinkle top with linseeds.
6. Bake in preheated oven for 30 minutes at 170 degrees Celsius. Once cooked remove from oven, leave to stand in baking pan for 10 minutes before turning out onto cooling rack to completely cool.
7. Keep refrigerated.

Bread can be sliced and frozen. You can make a double recipe and freeze.

Weight Loss Problem

Losing too much weight on a ketogenic diet can be addressed by increasing consumption of macadamias, avocados and EAA. Up to 50 grams of EAA a day can be consumed with no more than 20 grams being consumed at any one time.

If weight loss continues to be a problem then protein (fatty meat, fish, eggs) should be increased until the problem ceases.

A Low Carbohydrate, High Protein Diet Slows Tumor Growth and Prevents Cancer Initiation [6].

References

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EAA = the 9 Essential Amino Acids (e.g. Swanson Essential Amino Acid Complex)