



KETOGENIC DIET

The ketogenic diet is currently a hot topic because there are several studies that are underway to assess its impact on diabetes and weight loss. We decided to talk about it in this Infoletter to inform you of its origin, its function and its effects demonstrated to date.

Please note that this article is only a summary, and that if you decide to start this diet, we recommend that you talk to a health professional (dietitian, nurse), or your doctor to prevent negative consequences on your health. Also, be wary of very restrictive diets that are difficult to follow long term. Therefore, before starting a diet, ask yourself if you can follow it for the rest of your life.

WHAT IS IT?

Origin: It was developed in the 1920's to reduce convulsions of children suffering from epilepsy.

It's a diet that includes small amounts of carbohydrates (sugars), that is to say, that contain between 20 and 50 grams per day, compared to diet for diabetics (conventional diet) which contains between 130 and 225 grams of carbohydrates daily.

It is a diet that is very rich in lipids (fat): 45% to 75% of the calories ingested come from fats.

WHERE DOES THE ENERGY COME FROM IF I EAT VERY LITTLE CARBOHYDRATES?

Fat becomes the first source of energy (fuel).

The carbohydrates stored in the liver and the muscles are exhausted in 24 to 36 hours. Subsequently the liver uses lipids and proteins to provide energy to the body. The degradation of lipids by the liver forms ketone bodies. Ketones will provide energy for the brain and muscle cells.

SIDE EFFECTS

- Fruity breath, constipation (related to low fiber intake).
- During the first weeks: tiredness, headaches, dizziness, nausea, and muscle cramps.
- There is a risk of HYPOGLYCEMIA for diabetics treated with insulin or insulin secretagogues (Gliclazide, Glimépiride, Glyburide, Nateglinide and Repaglinide).

STUDIES DONE TO EVALUATE LONG TERM EFFECTS :

- Several studies have been conducted to evaluate the impact of the ketogenic diet on weight loss, improvement of A1C, improvement of post-meal sugar levels, and lipid (cholesterol) balance.
- The duration of studies does not exceed 2 years, so researchers are not aware of the impacts that the ketogenic diet can have on long term. No cure for Type 2 diabetes has been demonstrated with the studies.
- In some studies, the criteria of the ketogenic diet have not always been respected, so it is difficult to reach convincing conclusions.
- To date, it is difficult to encourage this diet because it lacks knowledge about long-term effects (more than 5 years), it is a very restrictive diet and other side effects need to be studied (for example: effects on lipids, effects on the brain and concentration, weight gain and its consequences, etc.).

Références

1. GAGNÉ, Andrée, et Célia Scaramuzzino. «La diète cétogène : un choix judicieux pour les personnes diabétiques?», Plein Soleil. Volume 60 Numéro 1 (Printemps 2018), pages 14 à 17
2. OPDQ. «L'état de la science en matière de traitement nutritionnel du diabète de type 2 chez l'adulte par les diètes faibles en glucides et rôles des professionnels», Prise de position. [en ligne]. Publié en Mai 2018. www.opdq.org [consulté le 1^{er} juin 2018].
3. HUOT, Isabelle. «Le point sur la diète cétogène», Journal de Montréal. [en ligne]. (publié le 11 février 2018). <http://www.journaldemontreal.com/2018/02/11/le-point-sur-la-diete-cetogene>

TABLE COMPARING CONVENTIONAL DIET AND KETOGENIC DIET (GAGNÉ et SCARAMUZZINO, 2018, page 15)

	CONVENTIONAL DIET	KETOGENIC DIET
CHARACTERISTICS	Variety, moderation Fulfills the need for vitamins, minerals and other nutrients such as antioxidants. Low saturated fat and added sugars	Limited variety, some forbidden foods High in fat Low in vitamins and minerals, in fiber No added sugars
COMPOSITION	Rich in carbohydrates: 130 to 225 grams per day (45% to 60% of energy intake) Moderate in protein (10% to 25% of energy intake) Moderate in fat (20% to 35% of energy intake)	Very low in carbohydrates: 20 to 50 grams per day (5% to 10% of energy intake) High in fat (75% of energy intake) Moderate or high in protein (15% to 20% of energy intake)
ALLOWED FOOD	Vegetables and fruits Whole grain starch Meat, tofu, legumes, eggs, fish, poultry, cheese Milk and substitutes Nuts and seeds Olive oil and canola	Red meat, poultry, eggs, fish, sausages, cheese Fat (oil, butter, cream, nuts) Vegetables: low in carbohydrates such as green and leafy vegetables Starches: Less than one serving per day Milk and alternatives: Less than one and a half (1 ½) servings per day No fruits, no legumes, no added sugar
EXAMPLE OF A MEAL	2 slices whole wheat bread (no fat, no added sugar) 1/2 cup (125 mL) cottage cheese 2% 1 orange 250 ml of milk 2% Provides: 8 grams of fat, 65 grams of carbohydrates, 8 grams of fiber, 29 grams of protein	2 eggs 1/2 avocado 1 green pepper, minced Salt and pepper 2 teaspoons canola oil Provides: 35 grams of fat, 15 grams of carbohydrates, 8 grams of fiber, 16 grams of protein

5 grams of fats = 1 tsp of butter
 5 grams of carbohydrates = 1 tsp of sugar

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