



## KETOGENIC DIET: BOON OR BANE

### Community Medicine

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### ABSTRACT

Prevalence of obesity is rapidly increasing worldwide and in India. Along with Obesity many non-communicable disease like heart attack, high blood pressure, diabetes etc. can also rises. Ketogenic diet allows high fat, moderate protein with low carb diet to control obesity with improved health. This paper is all about a brief on how to do Keto Diet.

### KEYWORDS

Keto-Diet, weight-loss, improved health, immunity booster, Low Carb Diet.

#### INTRODUCTION:

The Keto Diet or Ketogenic Diet is a High Fat, Moderate Protein, Very Low Carbohydrate diet. It was established in 1920 for the group of people suffering from Epilepsy.<sup>1</sup> By time passed it was exist just a sake of name. But from the few decades because of the rate of rapid increase of Obesity worldwide, this diet came into the light.

There are so many short term studies were done by foreign researchers on what is Keto? How it works? Who can do Keto? How long one can do Keto? How to do Keto? Benefits and Drawbacks of Keto. But still it is unrevealed for Indians.

This paper is about Indian Ketogenic Diet.

#### What is Keto Diet?

According to my research Keto is not a Diet but it is a system or stage that our body achieve after taking care of the Macro Nutrients. It is somewhat same as Atkins's Diet, only difference is Protein Intake.

Standard Keto is all about taking a High Fat, Moderate Protein and Very Low Net Carbohydrate, No Sugar recommended 55-60%, 30-35% and 5-10% of total daily calorie intake respectively.<sup>2</sup>

#### How Does Keto Diet Works?

It works on the thumb rule of 'Body Burn fat for fuel instead of Carbohydrates'. In simple way, our body convert the carbohydrates into Glucose which is used as the fuel to survive.

While taking Very Low or No Carbohydrate liver starts utilizing stored fats in your body and converts them into molecules to use as an immediate and ultimate source of energy which is called "Ketones".

This process is called "Ketosis". In this stage body is completely dependent on fats for energy.

#### How to get Ketosis Stage?

- Reduce Carbs intake: Reduce Net Carbohydrate by 20-30 gram per day.  
Net Carbohydrates = Total Carbs per serving – Dietary fibre per serving  
(In grams) (In grams) (In grams)
- Eat More Fat: Include more Healthy Fat in Diet. It is the primary source of fuel in this diet thus eat as much as you can.
- Consume moderate protein: It's a myth that Keto is High Protein diet. High Protein diet is not good for Kidneys and lead to many serious diseases. So recommended that have maximum 1 gram of protein per kg you weigh per day. For E.g. If you weigh 75 kg then it's good to have maximum 75 Gram of Protein per day.
- Drink Water: Our Body is made of 70% of Water. Drink minimum 3-4 litter of water to hydrate your body. This will make body smooth to burn more fat by boosting metabolic rate.

- Start Intermittent Fasting: Fasting is a very good way to get faster into Ketosis. Have fast for 16 hours and open eating window of 8 hours. This fasting time will help your body to heal all the diseases and burn more fat in less time. Logic behind fasting is normally our body needs 9-10 hours to digest. So on regular days body did not get much time to heal, to repair and to clean all the damaged organs. So by fasting of 16 hours your body will get the best time to deal with. And that will boost your metabolism to burn stored fat.
- Increase Physical Activity: Many studies have proven that physical activities like walking, jogging, jimmying, dancing, swimming, playing outdoor sports etc. any kind of activities which make your heart beats higher than normal is good. A simple logic behind weight loss is Burn more calories than eat. Keto Diet will help you in this. As this diet is based on high Protein that will keep you more energise to keep moving.

#### How long it takes to get into Ketosis?

Normally it takes 24 to 48 hours to go into Ketosis. But it will vary from person to person. Sometimes it takes 2-3 weeks to get Ketosis Stage.

#### Benefits of Keto diet:

- Weight loss: Instead of satiety after eating.<sup>3</sup>
- Reduce Cardiovascular Diseases.<sup>3</sup>
- Improved Fat burning process: Burn Fat throughout the day as it is the only primary source for fuel.
- Reduce inflammation and pain: By reducing Reactive Oxygen Species (ROS) produced on Keto inflammation will reduce.
- Improve high-density lipoprotein (HDL), or "good" [cholesterol](#), without adding to low-density lipoprotein (LDL), or "bad" cholesterol
- Improve Type -2 Diabetes: Reduction in Blood Glucose and insulin level helps those with Type-2 Diabetes become less insulin resistant.<sup>4,7</sup>
- Reduce Cancer risk: Keto diet creates less ROS than normal diet. And ROS have linked to cancer. When body get no Glucose, cancer cells cannot thrive and are weakened. Therefore Keto Diet is good with Chemotherapy treatments.<sup>8</sup>
- Boost Brain Functions.
- Reduce Appetite: High fat and moderate Protein diet makes you feel full for more time.
- Boost Immunity: According to a study done on mice, Keto diet seems to boost immune cells, which may be responsible for protecting any flu or viruses.<sup>9</sup>
- Improve skin: allowing good Fats like Butter, Ghee, Coconut oil, Cheese etc. makes your skin glow and provide natural moisturizers.
- Acidity Problems: Keto being carb no sugar diet, it boycotts the main cause of acidity by improving liver, gallbladder, sleep, stress.
- Alzheimer's disease:** This diet may reduce symptoms of

Alzheimer's disease and slow its progression.<sup>11</sup>

(14) Parkinson diseases.<sup>12</sup>

(15) And many more restrict aging effects, improve liver health, control mood swings, improve sleep disorder, reduce Stress

#### Adverse effects of Keto Diet:

There are very few side effects of Keto Diet. Which are called "Keto Flu". But it is temporary for the initial Ketosis days.

- (1) Stomach upset/ Diarrhoea
- (2) Constipation
- (3) Nausea
- (4) Bad Breath
- (5) Frequent urination
- (6) Muscle Cramps
- (7) Sugar cravings
- (8) Flu-Like symptoms

#### Summary:

Keto Diet is mainly used for weight loss. It is not only about cutting fat and lose weight. However it is more about to improve overall health. When you eat healthy fats, and weigh ideal weight all the illness goes away. There is no proven research on long term Keto diet is published. But if body suits this diet and you are feeling healthier, younger and active than before. Then my suggestion is not to stop doing this after achieving desired weight. Maintain Keto Diet as your Body system and occasionally have some feast to get change.

It is easy to convince people for the weight loss and there are many diets available to lose weight. Most contradict to Keto Diet is Low Fat Diet. From years many RCT's have been placed to check the efficacy of Low Card Diet vs. Low Fat Diet to lose weight. And they found no significant difference in weight loss done by any either diets.

But people are focused on only weight loss or ideal weight maintenance. By the time they ignore the other health issue come forward due to low fat diets like pre-diabetes, Diabetes, High Blood Pressure, Insulin resistance, Inflammation, Acidity, Gas, Weak Metabolism, Poor pancreas, Bloating, Poor liver, Aging effects, Poor RBC production and many more. Keto will help to improve all of this.

**Disclaimer:** Since long term study of Keto is not done as especially on India Keto Diet, Moderation is the key.

#### REFERENCES:

1. Wilder RM. The effect of ketonemia on the course of epilepsy. *Mayo Clin Proc.* 1921;2:307-8. [Google Scholar]
2. Ketogenic Diet : Wajeed Masood; Pavan Annamaraju; Kalyan R. Uppaluri. <https://www.ncbi.nlm.nih.gov/books/NBK499830/>.
3. *Obes Rev.* 2009 Jan;10(1):36-50. doi: 10.1111/j.1467-789X.2008.00518.x. Epub 2008 Aug 11. Systematic review of randomized controlled trials of low-carbohydrate vs. low-fat/low-calorie diets in the management of obesity and its comorbidities. Hession M1, Rolland C, Kulkarni U, Wise A, Broom J.
4. McKenzie AL, Hallberg SJ, Creighton BC, Volk BM, Link TM, Abner MK, et al. A novel intervention including individualized nutritional recommendations reduces hemoglobin A1c level, medication use, and weight in type 2 diabetes. *JMIR Diabetes* 2017; 2 : e5.
5. Does the ketogenic diet work for type 2 diabetes? Medically reviewed by Natalie Olsen, R.D., L.D., ACSM EP-C on March 29, 2019 — Written by Adam Felman.
6. Dashti HM, Bo-Abbas YY, Asfar SK, et al. Ketogenic diet modifies the risk factors of heart disease in obese patients. *Nutrition.* 2003;19:901-2. [PubMed] [Google Scholar].
7. *Nutr Metab (Lond).* 2005 Dec 1;2:34. A low-carbohydrate, ketogenic diet to treat type 2 diabetes. Yancy WS Jr1, Foy M, Chalecki AM, Vernon MC, Westman EC.
8. Franceschi S, Favero A, Decarli A, et al. Intake of macronutrients and risk of breast cancer. *Lancet.* 1996;347:1351-6. [PubMed] [Google Scholar]
9. Prostaglandins Leukot Essent Fatty Acids. 2004 Mar;70(3):243-51. Pathways and control of ketone body metabolism: on the fringe of lipid biochemistry. Fukao T1, Lopaschuk GD, Mitchell GA.
10. The therapeutic implications of ketone bodies: the effects of ketone bodies in pathological conditions: ketosis, ketogenic diet, redox states, insulin resistance, and mitochondrial metabolism.
11. *J Physiol Biochem.* 2012 Mar;68(1):141-51. doi: 10.1007/s13105-011-0112-4. Epub 2011 Oct 8. The biochemistry of ketogenesis and its role in weight management, neurological disease and oxidative stress. McPherson PA1, McEneny J.
12. *Neurology.* 2006 Feb 28;66(4):617; author reply 617. Treatment of Parkinson disease with diet-induced hyperketonemia: a feasibility study. Jabre MG, Bejjani BP.