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**COURSE: BIOCHEMISTRY**

**Ketogenesis** is the [biochemical](https://en.m.wikipedia.org/wiki/Biochemistry) process through which organisms produce [ketone bodies](https://en.m.wikipedia.org/wiki/Ketone_bodies) through [breakdown of fatty acids](https://en.m.wikipedia.org/wiki/Fatty_acid_metabolism) and [ketogenic amino acids](https://en.m.wikipedia.org/wiki/Ketogenic_amino_acid). This process supplies energy under circumstances such as [fasting](https://en.m.wikipedia.org/wiki/Fasting) or [caloric restriction](https://en.m.wikipedia.org/wiki/Caloric_restriction) to certain organs, particularly the [brain](https://en.m.wikipedia.org/wiki/Brain), [heart](https://en.m.wikipedia.org/wiki/Heart) and [skeletal muscle](https://en.m.wikipedia.org/wiki/Skeletal_muscle). Insufficient [gluconeogenesis](https://en.m.wikipedia.org/wiki/Gluconeogenesis) can cause [hypoglycemia](https://en.m.wikipedia.org/wiki/Hypoglycemia) and excessive production of ketone bodies, ultimately leading to a life-threatening condition known as [ketoacidosis](https://en.m.wikipedia.org/wiki/Ketoacidosis).

**Ketonaemia:** is the Presence of Ketones, usually of unrecognisable concentration in the plasma or in the blood stream . It is a physiological consequence of Lipid Metabolism

Ketonuria: is a medical condition in which ketone bodies are present in the Urine.

It is seen in conditions in which the body produces excess ketones as an indication that it is using an alternative source of energy. It is seen during starvation or more commonly in [type 1 diabetes mellitus](https://en.m.wikipedia.org/wiki/Diabetes_mellitus_type_1). Production of ketone bodies is a normal response to a shortage of [glucose](https://en.m.wikipedia.org/wiki/Glucose), meant to provide an alternate source of fuel from fatty acids

Consequences of Ketosis

The most common side effects of ketosis include headache, fatigue, dizziness, insomnia, difficulty in exercise tolerance, constipation, and nausea, especially in the first days and weeks after starting a ketogenic diet Breath may develop a sweet, fruity flavor via production of acetone that is exhaled because of its high volatility.

Most adverse effects of long-term ketosis reported are in children because of its longstanding acceptance as a treatment for pediatric epilepsy. These include compromised bone health, stunted growth, hyperlipidemia, and kidney stones.

Management of Ketoacidosis

Treatment depends on the underlying cause of the ketoacidosis. [Diabetic ketoacidosis](https://en.m.wikipedia.org/wiki/Diabetic_ketoacidosis) is resolved with insulin infusion, intravenous fluids, electrolyte replacement and supportive care Alcoholic ketoacidosis is treated with intravenous [dextrose](https://en.m.wikipedia.org/wiki/Dextrose) and supportive care and usually does not require insulin Starvation ketoacidosis can be resolved with intravenous dextrose with attention to electrolyte changes that can occur with [refeeding syndrome](https://en.m.wikipedia.org/wiki/Refeeding_syndrome)