



Supports healthy metabolism
and longevity

Pure Science

LifeExtension
Vitamin & Supplement Wholesalers, Inc.

Target Audience

This product is for individuals who:

- Want the longevity and metabolic benefits of the ketogenic diet without the constraints and increased atherogenic risk of consuming a high-fat diet
- Want to mitigate brain fog and fatigue associated with fasting
- Need a convenient way to fuel their workout (great for morning or evening)
- Are looking for clean energy substrates that enhance satiety without increasing glucose [ketones can be viewed as clean energy substrates since they do not require glucose oxidation (i.e., glycolysis) and inhibit free radical production]

The Problem

- Diet and lifestyle drive aging and associated chronic diseases.
- The ketogenic diet, which nearly eliminates carbohydrates and replaces them with fat, has become very popular.
- There is clinical evidence that the ketogenic diet and the ketones produced on the diet mimic the lifespan-extending properties associated with fasting.
- The diet can be helpful for certain diseases, but for the general population there can be significant health risks:
 - Severely restricting carbohydrates can result in nutritional deficiencies and insufficient fiber, which is linked to colorectal cancer.
 - This diet is also associated with hyperlipidemia and increased atherogenic risk.

Solution #1: Supplement with Exogenous Ketones

- Ketones — small, lipid-derived molecules that serve as an energy source during times of fasting or prolonged exercise when glucose becomes scarce.

D-β-Hydroxybutyrate (D-BHB) – a bioactive ketone

- Bioactive isoform (D-isoform) that can cross the blood-brain barrier.
- Energy substrate for mind and muscles.

Solution #2: Increase Endogenous Ketone Production

Mangiferin (extract from mango leaf)

- Clinically shown to enhance endogenous ketogenesis (ketone production).
- Improves metabolic parameters.

Mangiferin (MOA)

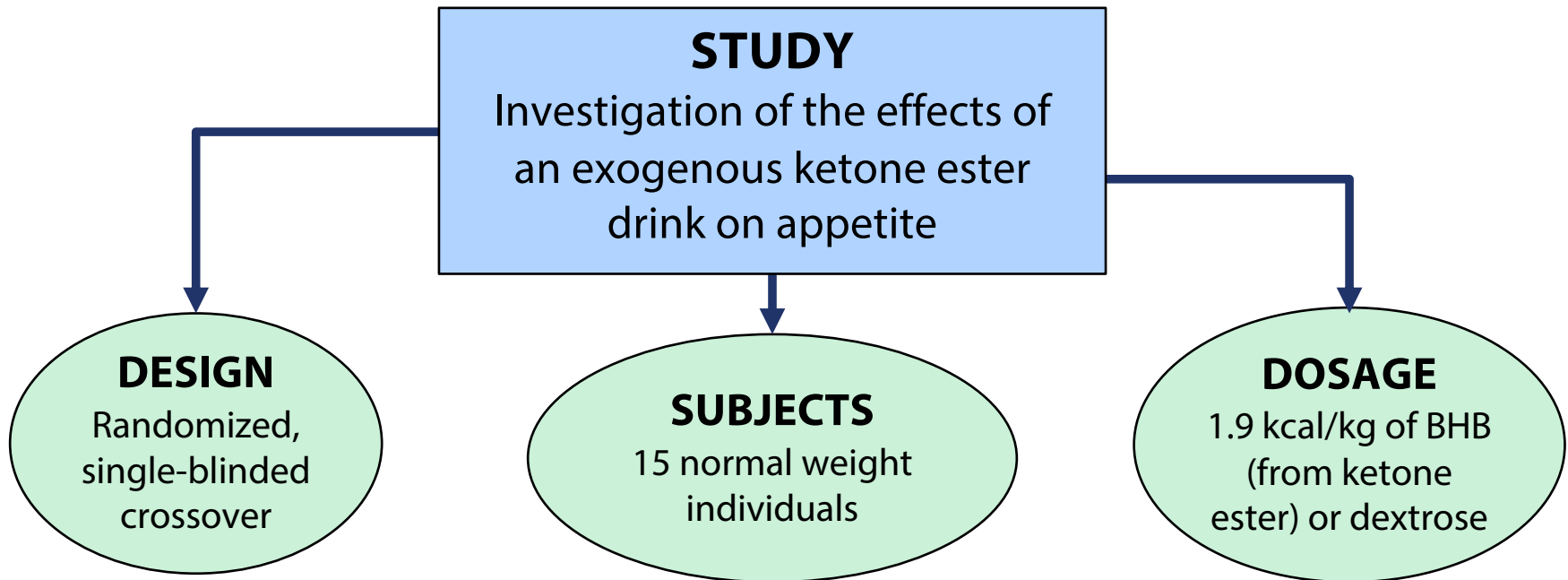
- Ketones are produced when fats are burned for fuel in the mitochondria.
- Mangiferin promotes fat burning by promoting the movement of free fatty acids into the mitochondria to be burned for energy.
- Promotes proteins important for mitochondrial bioenergetics (process in which cells increase mitochondrial mass, leading to greater glucose uptake by muscles).
- Downregulates the proteins controlling carbohydrate conversion into fatty acids to enhance energy expenditure.

Solution #3: Provide Ketone Precursors

- FiberSmart® Resistant Starch [from cassava (root)].
- Helps with satiety by slowly releasing energy and provides butyrate, a short chain fatty acid that is a precursor to BHB.

FiberSmart® is a registered trademark of Advanced Ingredients, LLC.

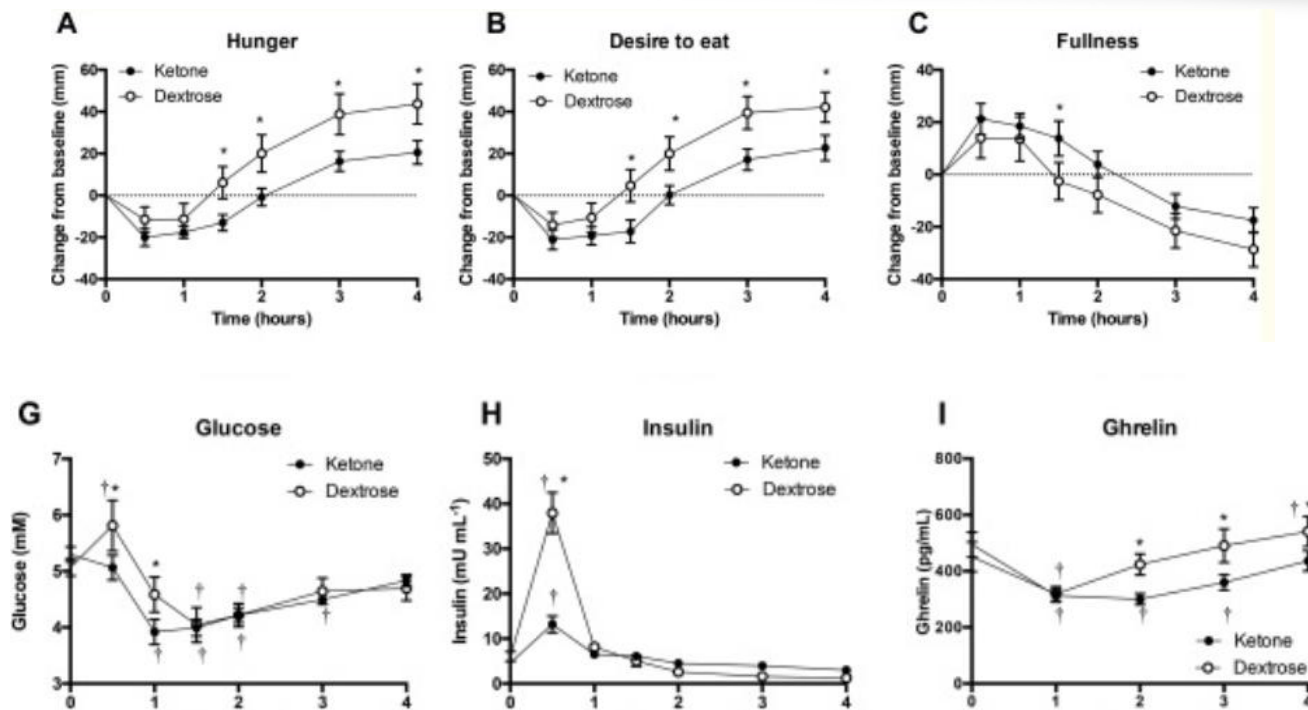
The Research



The Results

Ketones showed a decrease in hunger, desire to eat and ghrelin.
They also showed an increase in fullness.

The Research



FAQs

When can I expect an effect?

Based on the study (Stubbs, 2017) for D-β –Hydroxybutyrate, significant levels of ketones were seen in the blood as early as 1 hour after ingestion.

Based on the study (Na, 2015) for mangiferin, serum ketone levels were increased from baseline at 12 weeks.

Based on the study (McOrist, 2011) for cassava resistant starch, fecal butyrate levels were increased from baseline at 4 weeks. Life Extension® suggests following the study duration to determine efficacy.