

“EXOGENOUS KETONES”,
BETA-HYDROXY BUTYRATE SUPPLEMENTATION,
GLUCOSE/KETONE INDEX

The health food industry and several self-proclaimed internet gurus have been making a big deal lately about all sorts of ketone-related topics. Some are recommending supplementation with beta-hydroxy butyrate and/or the ingestion of coconut oil or other sources of medium chain triglycerides (MCTs). The more extreme gurus are recommending that we do routine (daily) blood tests on ourselves to determine the ratio in our blood between glucose and ketones --- the Glucose/Ketone Ratio. All this fuss is about nothing more than attempting to elevate ketones. There is absolutely nothing wrong (for most patients) in maintaining a certain level of ketones --- but what follows is a complete critique of the increasingly popular ketone song and dance.

Many internet gurus are waving the flag for “exogenous ketones”. Exogenous, of course, means from outside the body. But the recommendation is actually for ingesting MCTs (Medium Chained Triglycerides), either in the form of MCT oil, or coconut oil. Their terminology is misleading. Eating sources of MCTs is not to eat “exogenous ketones”. There are no ketones in coconut oil. These MCTs are simply ingested fats --- they are not exogenous ketones --- but merely more fat-derived calories.

The rationale behind the promotion of ingesting MCTs is that on a gram for gram fat basis, ingesting MCT fatty acids will generate more ketones within the body after ingestion than will eating Polyunsaturated Fatty Acids (PUFAs) or longer chain saturated fatty acids.

In a way, you could say we whole heartedly endorse this (mis-named) quest for elevated blood ketones. To the extent we are going to eat concentrated extracted fats, NUTRI-SPEC has always recommended coconut oil (along with butter and olive oil) as the only non-harmful choices. But really, maintaining a healthful level of ketones is not that difficult for most individuals. Following Eat Well – Be Well (The NUTRI-SPEC Fundamental Diet) will achieve that purpose quite nicely. But you know how the health food industry charlatans work --- they advocate eating “health food” gluten-free, all “natural sugar” cookies --- then, to save yourself from the extreme Insulin Resistance that will ensue, supplement your cookies with MCTs.

Some of the internet gurus go so far as to recommend not just eating coconut oil, but actually supplementing with beta-hydroxy butyrate. ----- It is funny how these things go --- beta-hydroxybutyrate supplementation was popular about 15 years ago, and then died out. Apparently it has been resurrected by the unscrupulous health food industry.

Technically speaking, beta-hydroxybutyrate (BHB) is not a ketone. Rather, it is the end product of fatty acid metabolism. Specifically, it is produced from one of the two primary ketones, acetoacetate. BHB is efficiently used as an energy substrate, and is particularly conducive to efficient metabolism in certain brain areas --- notably those concerned with cognition, memory, and mood. BHB specifically supports the action of BDNF (brain derived neurotrophic factor).

All the beneficial effects of BHB conjugate base supplementation (mainly sodium and potassium beta-hydroxybutyrate) do not so much illustrate what BHB is “good for”, but rather what eating cookies is bad for. So in a sense, all the claims made by the health food industry are valid in that the availability of BHB is very supportive of quite a number of metabolic processes. ----- But --- the same benefits can be achieved by anyone who follows a healthy, almost zero fructose sugar eating plan.

Looking further into coconut oil and other sources of MCT ----- first, you must understand they do not “give energy” as the health food charlatans claim. They do not “give energy” any more than eating a spoonful of sugar will. They are simply sources of calories in the form of fat, which is fine, and is a far superior fat to polyunsaturated oils, or to excess intake of long-chained saturated palmitate. But beyond that, it is only special in the sense that it is certainly superior to the same calories consumed as fructose. Eating a spoonful of MCT does not stimulate any more energetic activity in the body than would a teaspoon of sugar --- which is zero. Any MCT ingested in excess of immediate caloric needs, just like a spoonful of sugar, is rapidly stored away as body fat.

However --- the MCTs are more efficiently digested, absorbed, and metabolized than the longer chain fatty acids. And of course, ingesting them sidesteps all the nastiness associated with sugar intake and insulin reactivity. So, supplementing with MCTs results in either their being metabolized into beta-hydroxybutyric acid, or stored as fat, and then ultimately (ideally) pulled out of fat storage and metabolized to BHB. BHB derived from MCTs is no better than BHT derived from the other high-quality fats such as stearic acid, odd-chained saturated fatty acids, or the four-carboned butyrate (letter fat). But it’s just that the MCTs get to the point of BHB as a metabolite a little easier and a little faster than other fatty acids.

Your body’s own natural production of ketones derives entirely from the absence of carbohydrate energy substrates. If your body needs to burn a hundred calories for fuel, it goes looking around for sugar and fatty acids and generally burns a blend of the two --- a blend that yields a Respiratory Quotient of somewhere in the neighborhood of 0.85 (with 1.00 being entirely carbohydrate energy production). If no sugars are available, the Respiratory Quotient drops to around 0.7.

Generally, an RQ closer to 1 is healthier --- yielding a clean fast high energy “Metabolic Fire.” Those with an RQ of less than 85 are your patients with a Ketogenic Imbalance. They need the preponderance of carbohydrates in their diet, and need to limit the quantity of fat. Individuals with a Glucogenic Imbalance, will show a RQ above 85, but their overall energetics is low. They need to be more strict about limiting sugar intake, and carefully selecting their fats from MCTs (coconut oil), butter, and ghee, high stearic acid meats such as beef, bison, venison, and lamb, and also fish. They also do well on odd-chained fatty acids found in butter, cream, and cheese, while on a somewhat higher dietary protein intake than our Ketogenic patients.

Feel free to consume all the coconut oil you like. Just remember it can easily make you fat (just as will all extracted concentrated fats) since it yields 100 calories per tablespoon. Very little is required to undo the weight loss or weight maintaining benefits of Eat Well – Be Well. --- And --- be aware that what you want is real cold-pressed coconut oil, not liquid coconut oil or any of the other processed garbage that is out there. And also, many of the MCT oil supplements are processed junk as well. Eat your coconut oil and enjoy. --- But as far as beta-hydroxy butyrate supplements are concerned --- ignore the hype and save your money.