

Honey vs. Maltodextrin in Energy Gels: A Metabolic and Performance Comparison

Introduction

Energy gels have become a popular quick-fuel solution, originally designed for endurance athletes but now increasingly used by *anyone* needing a rapid energy boost. Students burning the midnight oil, busy professionals, and even tired parents might reach for these portable packets for instant fuel. Traditionally, many energy gels rely on **maltodextrin** – a highly refined carbohydrate – as their primary ingredient. However, there is a growing movement toward more natural formulations, with **honey** emerging as a superior, health-conscious alternative. This article compares honey and maltodextrin in the context of performance nutrition and broader everyday use, drawing on current research and expert insights. The evidence suggests that honey can deliver comparable performance benefits to maltodextrin while offering gentler metabolic effects, better gut health profiles, and advantages for long-term wellness.

Metabolic Impact and Glycemic Response

One key difference between honey and maltodextrin is how they affect blood sugar and metabolism. Maltodextrin is essentially a chain of glucose molecules that the body digests **very quickly**, leading to a rapid surge in blood glucose. In fact, [maltodextrin](#) has an extremely high glycemic index (GI) – around 110, **higher even than table sugar**. Consuming maltodextrin can spike blood glucose and insulin levels sharply, which might provide immediate energy but often at the cost of a subsequent “crash.” Health experts caution that diets high in such fast-digesting carbs can overload the body’s metabolic control. Dr. Benjamin Bikman, in [Why We Get Sick](#), notes that **chronically spiking insulin with refined carbs is a root driver of insulin resistance and modern metabolic diseases**. Over time, repeated surges from high-GI sugars can contribute to fatigue cycles, weight gain, and insulin dysregulation.

Honey, by contrast, has a **moderate GI** (roughly in the 50–65 range, though it varies by honey type). Chemically, [honey](#) is a “cocktail” of natural sugars – about 30–40% fructose and 30–35% glucose, with the remainder a mix of other sugars and bioactive compounds. The fructose in honey, absorbed more slowly than glucose, helps temper the immediate blood sugar spike. As a result, honey produces a **lower post-exercise blood sugar and insulin response** compared to an equivalent amount of pure glucose. In one [study](#), honey’s GI was measured around 35 (classified as low GI) versus dextrose’s GI of 100, yet both provided effective energy during exercise. For the everyday user, this means a honey-based gel is less likely to cause a jarring glycemic rollercoaster. Instead of the quick high and crash from maltodextrin, honey delivers a more

stable rise and fall in blood sugar, supporting sustained energy and mental focus. As Dr. Casey Means emphasizes in [Good Energy](#), the quality of how our cells are powered is foundational – steady, nutritious energy sources help **maximize metabolic health** and prevent the highs and lows that sap our vitality. In short, honey offers quick fuel **without overloading our metabolic engine**, aligning with the general recommendation to favor lower-GI carbs for better overall health.

Gut Health Considerations

Beyond blood sugar, there are stark differences in how these carbohydrates interact with our gut and microbiome. Maltodextrin is a product of industrial processing (often derived from corn or rice starch) and is classified as an [ultra-processed](#) additive. Research has found that maltodextrin can **alter gut bacteria** in unhealthy ways. For instance, a 2012 study noted by Healthline reported [maltodextrin](#) may suppress beneficial gut probiotics and **increase the growth of harmful bacteria like E. coli**, potentially raising susceptibility to inflammatory conditions such as Crohn’s disease. Moreover, maltodextrin can **deplete the protective mucus layer** of the intestines and increase [gut permeability](#), according to emerging research. These effects suggest that regularly consuming maltodextrin (as in frequent energy gel use) might perturb gut health and immunity over time.

Honey, on the other hand, has been prized not just as a food but also as a **natural remedy for gut and immune health**. It contains trace amounts of organic acids, enzymes, and polyphenols, giving it antioxidant, antimicrobial, and anti-inflammatory properties. Honey has even been used in clinical contexts to support digestion and heal gut infections, thanks to compounds that inhibit harmful microbes. For athletes, some [evidence](#) shows honey might **reduce exercise-induced immune stress** when used over weeks. While honey has a high fructose content means, most people tolerate moderate doses of honey well. In fact, many athletes report that honey is gentle on the stomach during workouts when other sugar gels might cause bloating. The key is that honey is a *whole food-derived* sugar, not a refined chemical additive – our gut seems to “recognize” it better. Taken together, a honey-based gel is generally more gut-friendly and less likely to disrupt the microbiome than one loaded with maltodextrin.

Natural vs. Ultra-Processed: Long-Term Health Effects

From a big-picture perspective, honey and maltodextrin sit on opposite ends of the food processing spectrum. **Honey is minimally processed** – essentially harvested from beehives and bottled – and falls into a category of natural sweeteners (NOVA classification 2, a “processed culinary ingredient” like maple syrup). Maltodextrin, conversely, is emblematic of what Dr. Chris van Tulleken in *Ultra-Processed People* calls “**industrially produced edible substances**”. In Tulleken’s investigation of [ultra-processed foods](#) (UPFs), ingredients like maltodextrin are red

flags for a product that bears little resemblance to real, whole food. These formulations are engineered for taste and shelf-life, not for health. Tulleken cites a *growing body of research* linking high UPF consumption to serious chronic issues: obesity, type 2 diabetes, cardiovascular disease, hypertension, even cancer and dementia. In other words, making a habit of ultra-processed carbs could quietly undermine one’s long-term health.

Honey offers a more **wholesome nutritional profile** that aligns with health-conscious eating. It is around 80% [natural carbohydrate](#) but also packs small amounts of micronutrients and phytochemicals – a stark contrast to the empty calories of maltodextrin. Renowned endocrinologist [Dr. Robert Lustig](#) argues that the *poison is in the processing* of our foods: the surge of chronic metabolic disease today stems largely from the ubiquity of refined sugars and additives. His advice in *Metabofix* and other works is to **eat real, whole foods** and avoid the kind of ingredient lists that require a chemistry degree to decipher. Honey fits this philosophy—it’s a recognizable, single-ingredient sweetener humans have consumed for millennia, whereas maltodextrin is a modern invention of food science. Even in terms of sweetness and satisfaction, honey’s rich flavor might allow one to use less for the same effect, whereas [maltodextrin](#) is often combined with artificial sweeteners or flavors to be palatable. Ultimately, replacing maltodextrin with honey in an energy gel aligns with a “food as fuel” approach that prioritizes **natural quality over artificial quantity**, supporting better metabolic outcomes over the long haul.

Performance and Endurance: Fueling Athletes

The ultimate test for any energy gel is whether it delivers during exercise. Historically, maltodextrin gained favor in sports nutrition because its glucose polymers provide a dense source of carbs that empties quickly from the stomach – ideal for rapid fuel during intense activity. However, multiple studies have now shown that **honey can perform just as well** as maltodextrin-based gels for athletic performance. Researchers from the University of Memphis found that honey delivered a “significant performance boost” during strenuous cycling, **matching the efficacy of a commercial dextrose (glucose) gel**. In that [trial](#), competitive cyclists rode 64 km tests on different supplements: honey, a maltodextrin-based gel, or a placebo. Both honey and the maltodextrin gel enabled the athletes to ride faster and produce more power than the placebo; the dextrose gel only *slightly* edged out [honey](#), a difference deemed negligible. The conclusion was clear: honey is a “**natural and effective carbohydrate source for endurance athletes**”.

Further evidence from sports science reviews reinforces honey’s viability as a sports fuel. A recent [narrative](#) review in the *Journal of the International Society of Sports Nutrition* noted that whole-food carbs like **honey, bananas, and raisins** are excellent alternatives to refined gels for endurance exercise. Honey, in particular, has practical advantages: it is **energy-dense** (80%+ carbs) so a small packet yields a lot of fuel, and it can be easily carried in workouts or races. During prolonged cycling and running, honey has been tested as the mid-activity carbohydrate source. In one study, trained cyclists consuming ~15 g of honey every 16 km in a long time trial saw the same performance improvements as when they consumed an equal amount of

maltodextrin/glucose gel. Both carbohydrate sources allowed cyclists to maintain higher power in the later stages compared to water alone. As the reviewers put it, these data show “*promise for the use of honey as a CHO source during exercise,*” yielding **similar improvements to traditional carbohydrate supplements**. In short, athletes don’t lose any performance edge by choosing honey – they can gain energy parity *and* gain the ancillary health benefits discussed earlier.

It’s worth noting that individual tolerance always matters. Athletes should, as always, **trial their nutrition in training**. Honey’s higher fructose content means some people might need to adjust to it; nonetheless, many find it causes no more (or even fewer) gastrointestinal issues than standard gels. With proper hydration and pacing, honey’s mix of sugars can actually aid absorption by using multiple intestinal transport pathways (glucose and fructose channels) to maximize carbohydrate uptake per hour. This dual-transport advantage is the same principle behind modern sports drinks that blend sugars – honey provides it *naturally*. Given these performance credentials and honey’s more favorable metabolic profile, it presents a compelling choice for endurance athletes seeking both **peak results and healthier fueling**.

Beyond Sports: Everyday Energy for Everyone

While developed for sports, energy gels are now popping up in daily life as convenient pick-me-ups. Here too, the honey vs. maltodextrin comparison is important. A busy parent or a student cramming for exams who takes a maltodextrin-based gel may get a quick burst of alertness, but the ensuing blood sugar spike and crash could leave them feeling jittery, then fatigued or hungry shortly after. In a non-exercise context, the body is more likely to store that sudden influx of glucose as fat, and the high insulin response could even *worsen* energy levels an hour later. By contrast, a honey-based energy gel would provide a gentler blood sugar curve and come with a bit of extra nutrition. Honey has been suggested in some circles as a brain-fuel during cognitive effort because it offers glucose for immediate neuronal energy and fructose for a more sustained release – all without the additives that can accompany maltodextrin products. For instance, rather than a cocktail of maltodextrin, artificial sweeteners, and caffeine, a honey-rich gel is simply delivering **natural sugars and trace nutrients**, which the brain and body can utilize efficiently.

Moreover, health-conscious consumers (the kind who read ingredient labels) often feel more confident when they see honey listed instead of a chemical name. It aligns with a desire to avoid [ultra-processed](#) ingredients in everyday diet. As Dr. van Tulleken quips, if you wouldn’t find an ingredient in your home kitchen, you might think twice about consuming it regularly. Most of us don’t keep maltodextrin in the pantry, but honey has been a household staple for ages. This psychological and nutritional reassurance makes honey-based gels attractive not just to endurance racers, but to **office workers battling afternoon slumps** or travelers needing quick energy on the go. In all these cases, honey provides the *convenience* and fast energy of a gel without forcing a compromise on health values. It’s a small change – swapping one carbohydrate source for another – yet it transforms an energy gel from an “edible fast carb substance” into a more holistic food-based supplement.

Conclusion

Honey stands out as a superior metabolic and health-conscious alternative to [maltodextrin](#) in energy gels. It delivers the core requirement of any energy gel – rapid carbohydrate energy – while mitigating many downsides associated with ultra-processed sugars. Honey’s moderate glycemic impact leads to steadier energy and less insulin stress on the. Its natural composition carries antioxidants and enzymes that support health, and it is far gentler on the gut microbiome than maltodextrin, which has been linked to gut dysbiosis and inflammation. For athletes, [honey](#) has proven itself capable of matching maltodextrin in [fueling performance](#), powering endurance exercise effectively without the need for synthetic additives. For non-athletes, a honey-based gel can provide a quick lift **without pushing the body into a deleterious cycle of spiking and crashing**.

In the bigger picture, choosing honey over a refined starch like maltodextrin is one small step toward aligning sports and nutrition products with the principles of *real food*. Thought leaders in nutrition – from [Dr. Lustig](#)’s crusade against processed sugar to Dr. Casey Means’ focus on [metabolic wellness](#) – all advocate for cutting out ultra-processed carbohydrates in favor of natural, nourishing sources. Honey embodies that philosophy, turning an energy gel into something that not only boosts performance and focus in the moment, but also supports the athlete’s (or student’s or worker’s) **long-term health and metabolic fitness**. For brands and investors, this represents a powerful messaging opportunity: a honey-powered gel isn’t just another quick fix, it’s a *good energy* solution grounded in science and nature. And for consumers, it means fueling life’s adventures – whether running a marathon or running to a meeting – with a product that feeds the body the way it was meant to be fueled.

Sources: This comparison is informed by a range of credible sources, including [Ultra-Processed People](#) by Chris van Tulleken, [Good Energy](#) by Dr. Casey Means, [Metabolical](#) by Dr. Robert Lustig, and [Why We Get Sick](#) by Dr. Benjamin Bikman, alongside current sports nutrition [research](#) and [reviews](#). These sources collectively support the view that honey-based energy gels offer a healthier, more sustainable form of quick energy than those made with maltodextrin.