

# Chapters 2 & 3 – Gut Check



Gotta be honest: this book, while insightful, was a hard read for me. The two chapters we're covering mostly recap his previous work, but he goes deeper into the weeds of science to provide a closer look at the mechanisms behind our immune and energy-making systems. I found myself struggling to get through just a few pages at a time, re-reading them at least once before drifting off to sleep. I prefer things to be simple, so it was a little discouraging to realize I can't just ingest some polyphenols and trust that they're going to do what I sent them to do! Spoiler alert: you have to carefully seed your microbiome with diverse, beneficial bacteria with a healthy dollop of not-so-beneficial bacteria to keep the good guys on their toes. On the bright side, Gut Check may help those of us whose symptoms persist despite closely following the Gundry way of eating.

Because there's so much material in Chapters 2 and 3 and much of it is review, I'm going to focus on newer insights. I'm sure I'll miss some, so feel free to mention them during discussion!

## Chapter 2: It Takes Two

In this chapter, Dr. Gundry spends a lot of time recapping *why* our microbiome (our gut) and mitochondria (energy-producing organelles in our cells) are so interconnected: they share bacterial origins. I appreciate that as someone who not only wants to know the who, what, where and how of things but also the why. The first few pages recap how mitochondria make energy and revisit that awesome "Mito Club" analogy from his previous book. Then he expounds on uncoupling compounds, like polyphenols and short-chain fatty acids, and beneficial substances our gut buddies produce, like gasotransmitters (including nitric oxide).

I'll highlight what's new, then we'll discuss...

**NEW:** One nugget that was new (to me) in the nightclub analogy is that **melatonin** and **glutathione** are “bouncers”, whose job is to keep reactive oxygen species (ROS for short), the culprit behind oxidative stress, in check as our cells make energy. Apparently some ROS is needed for beneficial cellular signaling (p. 26 in the hardcopy book). I thought you wanted to get rid of *all* ROS. Nope.

Mitochondrial uncoupling is still cool! Dr. G recaps how and why. But he drills down on the role of cellular signaling in that process. And this is where (on p. 29 in the book) he debunks the notion that you can get the full benefit of uncoupling by just swallowing polyphenols, apple cider vinegar and MCT oil. “If only it were that simple!” he writes. It’s absolutely critical to have the right gut buddies in place to capitalize on those nutrients.

**NEW:** We get pretty detailed insight on the role of our gut buddies’ role as “middlemen” in the uncoupling process. Polyphenols, it turns out, are nutritious gut-buddy food, causing them to become “more absorbable and bioactive compounds.” So, he says, “your gut buddies are essentially empowering polyphenols to tell the cells to protect both the mitochondria and themselves—a double whammy.”

Berries, pomegranates and walnuts have a polyphenol called ellagitannins that feed the creation of a metabolite called urolithin A, and that creates life-extending processes called mitophagy (recycling old, damaged mitochondria) and mitogenesis (creating new mitochondria). Love this quote on p. 32: “In humans, the mitochondrial effects of urolithin A have been shown to beneficially impact muscle health and reduce cartilage degeneration and pain in people with osteoarthritis.”

Resveratrol, in particular, is a polyphenol that protects our brain from Alzheimers by activating the anti-aging SIRT1 and AMPK enzymes. Why does that matter? These enzymes not only energize us, they help us create new neurons and mitochondria. Fermented food is beneficial because it equips butyrate-making gut bacteria to get maximum nutrition from high-fiber food.

**DISCUSSION:** What are your favorite polyphenols? Are you likely to increase the different types of polyphenols you consume? What about fermented food? Anyone take a nitric oxide supplement?

## Chapter 3: I Have a Crystal Ball and It’s Your Gut Wall

This chapter focuses on how to maintain a healthy gut wall and Dr. G boldly asserts that nearly all of his patients have some degree of leaky gut. He calls it an epidemic, the culprit behind widespread inflammation underlying autoimmune disease. He recaps how the gut wall functions, emphasizing the role of vitamin D to strengthen and rejuvenate.

In the section titled “Bringing in the Reinforcements,” he describes the systems and substances that restore and protect our gut lining: intestinal alkaline phosphatase (IAP), glycine, and polyamines.

**NEW:** Dr. G characterized IAP as a “cornerstone” of gut barrier health. It’s an enzyme present throughout our GI tract, important because it is a line of defense against LPSs (harmful dead pieces of bacteria that freak out our immune system when they seep out of the gut barrier.) IAP upregulates proteins that protect tight junctions along the gut wall, promoting stability. You want more IAP. The way to get it: take curcumin (the polyphenol in turmeric), black pepper, red pepper, and ginger.

**NEW:** Dr. G characterized glycine as “the most important simple, nonessential amino acid in humans, animals and many mammals.” In *Longevity Paradox*, he positioned it as a sleep aid by lowering body temperature and calming our muscles. He recommended taking 1 gram before bed. In *Gut Check*, he reveals a bigger role for glycine in protecting the gut wall as it’s a major component of collagen.

**NEW:** Polyamines are organic compounds made by our gut buddies, mostly in the large intestine. They play a huge role in developing our inner ecosystem, particularly along the gut wall. “By helping to shape the immune system and acting as antioxidants,” he writes, “polyamines play a big role in modulating the inflammatory immune response.” They increase the activity of IAP and protect stem cells deep in our intestines. The way to get polyamines? Eat a variety of fermented foods.

**DISCUSSION:** Have you added any of the nutrients mentioned in this chapter? Do you have a favorite?