The gut balance solution to obesity

The gut hartbors trillions of microbes that support many critical functions throughout the body (Fig. 1.). These microorganisms collectively are called *The Gut Microbiome* and are mainly bacteria but are also known to contain yeasts, and even viruses normally. There are many ways that an imbalanced gut ecosystem can cause stubborn weight gain. Bacteria from the *firmicutes* phyla of bacteria extract short chain fatty acids from dietary fiber at higher rates than other gut microbes.

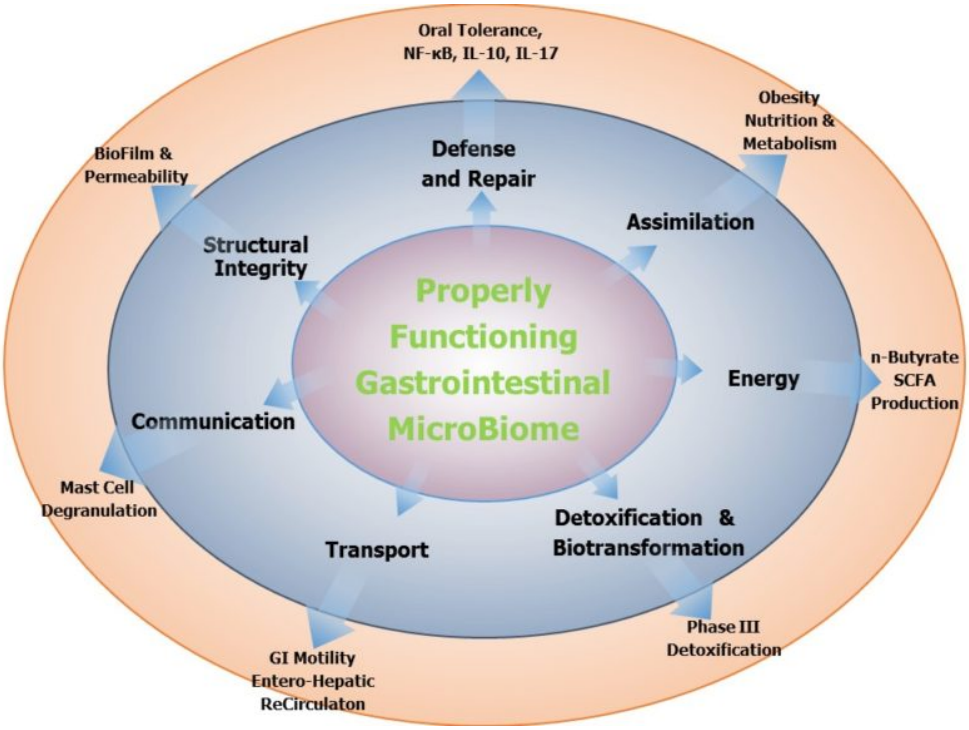

Fig. 1. A properly functioning gut microbiome is vital for optimal body physiology. The gut ecosystem supports digestion,detoxification and biotransformation, immunity, metabolism and many related processes. Gut bacteria help digestive fibers that are not broken down by the host into energy-rich fuels called short-chain fatty acids.

The result is the person harboring more of these microbes gains an *extra* 150 calories daily. An inbalanced gut ecosystem can ingite inflammation throughout the body that slows down the body's metabolism, induces insulin resistance and leads to fat accumulation. Gut-derived-inflammation when reaching the brain cuases resistance to the gut-derived hormone leptin which functions to turns-off appetite. This resistance leptin results in a constant state of hunger and a lack of satiation from food resulting in high consumtion of food. Finally, ecological imbalances in the gut lead to Intestinal inflammation which breaks down the "glue" that holds the gut lining cells together permitting toxins to enter the bloodstream which provokes a virgorous inflammatory response.

Some call the bacterial breakdown process of these barrier proteins leaky gut.

Harmony and balance in the gut microbiome are crucial to normalizing metabolism and body weight. The dietary approach to resetting the gut microbiome and promoting weight loss. First, the restriction of carbohydrates that provoke digestive discomfort and gut microbial imbalance-also known as dysbiosis.

Fig. 2. A number of processes drive one to obesity. Imbalances in the gut microbiota is a common thread to those listed as dysbiosis of the gut ecosystem leads to systemic inflammation resulting in blunted satiety signaling, increased appetite and impulsivity to food cues and enteric hormone dysregulation which causes insulin resistance and further dampens satiation.

The acronym FODMAPs (**f**ermentable **o**lgio-, **d**i-, **m**onosaccharides **a**nd **p**olyol**s**), includes poorly absorbed sugars (lactose, fructose), fructans (wheat) and xylitol or sorbitol sweetened products which drive ecological imbanaces in the gut and produce abdominal discomfort. While cutting down on sugary carbs, raise the intake of proteins and fats from anti-inflammatory sources. Favoring fats high in omega-3 fatty acid content (i.e. fatty fish) and lean and clean protein source such as wild salmon or cod, organic eggs, grass-fed sourced whey protein, and others. Over the course of a month the body's metabolism will improve as the gut microbiome rebalances. Many report weight losses of 15-20 pounds during this phase depending upon entry body weight and morphology.

The gut microbiome is repopulated by providing fermentable foods that contains abundant friendly

flora. Examples of fermentable foods include kefir, yogurt, miso, kimchi, sauerkraut, pickles and much more. I also encourage the fertilization of the healthy gut flora with fibrous foods that promote fat-burning gut microbes. Maintenance is one of the most challenging areas of weight loss medicine. The Mediterranean diet has many scientific studies showing positive health benefits and weight maintenance is often successful.

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