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10 STEPS TO A HEALTHIER MICROBIOME

What is the Microbiome?

The microbiome is trillions of bacteria, viruses, parasites, and fungi, all of which play a role in human health and disease. The health of the microbiome is affected by many things; age, nutrition, lifestyle, hormones, genetics, and environment.
In this guide you will learn 10 steps to build a healthier microbiome.

The Microbiome plays a role in various conditions...

- Digestion and Metabolism
- Obesity
- Diabetes
- Immune System
- Central Nervous System and Development
- Chronic Disease
- Gut-Brain Interactions
- Inflammation
- Autoimmunity
- Cardiovascular Disease
- Drug Interactions

Hills R, Pontefract B, Mishcon H, Black C, Sutton S, Theberge C. Gut microbiome: Profound implications for diet and disease. Nutrients. 2019;11(7):1613. doi:10.3390/nu11071613
Ogunrinola GA, Oyewale JO, Oshamika OO, Olasehinde GI. The human microbiome and its impacts on health. International Journal of Microbiology. 2020;2020:1-7. doi:10.1155/2020/8045646

1. Fiber

Westernized lifestyle and nutrition has contributed to a lowered diversity of gut microbiome. A variety of fiber from whole fruits, vegetables, and grains leads to a more diverse microbiome and lower incidence of chronic inflammatory conditions such as, cancer, allergies, autoimmune disease, obesity and more.

In a melanoma study, "People who reported higher fiber intake, had better responses to cancer treatment. In fact, researchers found that every 5-gram increase in daily fiber intake corresponded to a 30% lower risk of cancer progression or death."

1. Clemente-Suárez VJ, Beltrán-Velasco AI, Redondo-Flórez L, Martín-Rodríguez A, Tornero-Aguilera JF. Global impacts of western diet and its effects on metabolism and Health: A Narrative Review. Nutrients. 2023;15(12):2749. doi:10.3390/nu15122749

2. Fiber in diet linked to cancer immunotherapy response. National Institutes of Health. February 1, 2022. Accessed October 8, 2024. https://www.nih.gov/news-events/nih-research-matters/fiber-diet-linked-cancer-immunotherapy-response#:~:text=People%20who%20reported%20higher%20fiber,of%20cancer%20progression%20or%20death.

2. Limit sugar & Processed foods

A typical western diet is a consumption of highly processed foods, high sugar and saturated fat, along with low intake of vegetables, fruits, and fiber. This diet leads to an increased risk of metabolic disorders, obesity, cardiovascular disease, and chronic inflammation due to increased gut permeability. This is also known as “leaky gut”, where various bacteria, toxins, and food particles leak through the intestinal wall and into the blood stream, causing chronic inflammation and leading to disease.

Sugar holds the ability to stagger the diversity of bacteria within the gut and increase bacteria that are associated with various human disorders like metabolic disease, inflammatory bowel diseases, and inflammation. We have studied the gut microbiome enough to know that an increase in specific bacterias lead to poor immunological health and chronic diseases. ALSO, ***sugar speeds up the aging process.***

The average adult in the US gets upwards of 60% of their daily calories from processed foods.Through epidemiological studies it has been found these processed foods are associated with an increased risk of mortality (by 31%), obesity, type 2 diabetes, cardiovascular disease, metabolic diseases, inflammation, and more. These foods have been made convenient and affordable, but cost us our health.

Satokari R. High intake of sugar and the balance between pro- and anti-inflammatory gut bacteria. Nutrients. 2020;12(5):1348. doi:10.3390/nu12051348
Chiu DT, Hamlat EJ, Zhang J, et al. Essential nutrients, added sugar intake, and epigenetic age in midlife black and white women: NIMHD Social Epigenomics Program. JAMA Netw Open, 2024;7(7):e2422749.
How ultra-processed foods affect your gut microbiome and health | whittier, CA. | PIH health. Accessed October 9, 2024. https://www.pihhealth.org/wellness/articles/how-ultra-processed-foods-affect-your-gut-and-health/.

3. Probiotics

There are two different ways we can get probiotics in our diet; you can get them through fermented foods and drinks or you can take probiotics as a dietary supplement. There are benefits to both, but ingesting probiotics through food and drink helps to promote a greater diversity of microbes in your gut. This diversity leads to greater overall health and wellness.

Some of the best foods loaded with probiotics are yogurt, kimchi, sauerkraut, pickles, kefir, miso, and kombucha to name a few. When looking at labels, identifying “live active cultures” tell us there are likely probiotics. Focus on eating a variety of these foods as different foods provide different bacteria. ***Diversity is the goal.***

In the supplement world, they have been able to isolate specific probiotics to treat particular issues. Some of these will work best with food, and others are best on an empty stomach, but consistency and variety dis key.

Philadelphia TCH of. Food as medicine: Probiotic foods. Children’s Hospital of Philadelphia. Accessed October 22, 2024. https://www.chop.edu/health-resources/food-medicine-probiotic-foods.
What are probiotics & what do they do? Cleveland Clinic. June 19, 2024. Accessed October 22, 2024. https://my.clevelandclinic.org/health/treatments/14598-probiotics.

4.Prebiotics

Prebiotics are non-digestible food ingredients that feed/stimulate the growth of beneficial microorganisms within our gut microbiome. These prebiotics serve as a food source for probiotics, playing an important role in maintaining a healthy gut microbiome and overall well-being.
Prebiotics have been shown to improve obesity, inflammatory bowel disease, mental health, and more.

Prebiotic foods

Chicory Root
Dandelion Greens
Jerusalem Artichoke
Garlic
Onions
Asparagus
Flaxseeds
Jicama Root
Bananas
Barley
Oats
Apples
Konjac Root
Cacao
Burdock Root
Seaweed

Yoo S, Jung S-C, Kwak K, Kim J-S. The role of prebiotics in modulating gut microbiota: Implications for human health. International Journal of Molecular Sciences. 2024;25(9):4834. doi:10.3390/ijms25094834
1Philadelphia TCH of. Food as medicine: Prebiotic Foods. Children's Hospital of Philadelphia. Accessed October 24, 2024. https://www.chop.edu/health-resources/food-medicine-prebiotic-foods.

5. Reduce Stress

Stress and depression have the ability to reshape the gut microbiome composition through stress hormones, nervous system, and inflammation. On the flip side of this, ***gut bacteria can release metabolites, neurohormones, and toxins that alter your eating behavior and mood***. You can see how this can create a perpetual cycle. This cycles goes on to affect over health and immune function.

The gut and brain are communicating at every moment. This is also referred to as the gut-brain axis and is modulated through the vagus nerve. Think of this vagus nerve as a highway between your gut and your brain. Its a busy highway, constantly sending information back and forth. This is where we can see how poor gut microbiome plays a role in conditions such as depression, anxiety, and various cognitive impairments that have a profound affect on the body.

Madison A, Kiecolt-Glaser JK. Stress, depression, diet, and the gut microbiota: Human–bacteria interactions at the core of psychoneuroimmunology and Nutrition. Current Opinion in Behavioral Sciences. 2019;28:105-110. doi:10.1016/j.cobeha.2019.01.011

Breit S, Kupferberg A, Rogler G, Hasler G. Vagus nerve as modulator of the brain–gut axis in psychiatric and inflammatory disorders. Frontiers in Psychiatry. 2018;9. doi:10.3389/fpsyt.2018.00044

6. Exercise

It has been established that exercise has influence over the gut microbiome. Specifically, 30-50 minutes of physical activity helped to increase certain bacteria within the microbiome and longer more intense sessions seem to do the opposite and result in decreases.

Exercise holds the ability to influence the gastrointestinal tract and reduce the time it takes for food to move through the digestive tract. This allows the microbiome to effectively turn food into energy. Exercise can also reduce the risk of colon cancer and bowel disease, improve immune function, reduce insulin levels, increase sensitivity, and more. Even better, when nutrition and exercise are balanced, this creates a space to experience optimal health.

Boytar AN, Skinner TL, Wallen RE, Jenkins DG, Dekker Nitert M. The effect of exercise prescription on the human gut microbiota and comparison between clinical and apparently healthy populations: A systematic review. Nutrients. 2023;15(6):1534. doi:10.3390/nu15061534

New microbiome research reveals exercise may impact gut physiology. UCLA Health. October 3, 2023. Accessed October 9, 2024. https://www.uclahealth.org/news/article/new-microbiome-research-reveals-exercise-may-impact-gut.

7. Sleep

Did you know that more than 1/3 of Americans report getting less than 7 hours of sleep a day? Sleep is important to our overall health and wellness, with poor quality leading to poor quality of life.

Poor sleep quality has been linked to cancer, type 2 diabetes, obesity, heart disease, and Alzheimers disease. There are various factors that go into sleep duration and quality, one of them being the gut microbiome.

A diverse microbiome promotes healthier sleep, *both the quality and duration, improving both the immune system and cognition*. It is also important to note that sleep disturbances lead to a disruption in the balance of gut microbiota. Following our normal circadian rhythms are essential for maintaining normal physiological functions within the gastrointestinal tract.

With circadian rhythm disturbance and sleep fragmentation comes the destruction of the integrity of the intestinal barrier, leading to leaky gut and changes within melatonin production, affecting your both innate and cellular immunity.

Wu J, Zhang B, Zhou S, et al. Associations between Gut Microbiota and sleep: A two-sample, Bidirectional Mendelian randomization study. Frontiers in Microbiology. 2023;14. doi:10.3389/fmicb.2023.1236847
Person. Sleep statistics and facts. NCOA Adviser. March 11, 2024. Accessed October 9, 2024. https://www.ncoa.org/adviser/sleep/sleep-statistics/#:~:text=About%2030%25%20of%20adults%20have,38%25%20of%20the%20general%20population.

8. Variety in Diet

It's a simple notion that **the more diverse the diet, the more diverse the microbiota**. It has been found that diets too restricted can harm the gut microbiome, reducing the growth of beneficial bacteria.
Variety in foods provide a variety in nutrients to the body. Interestingly enough, different foods also provide various structure, composition, and function to the gut microbiome. This structure in the microbiome interacts with the gut lining and immune system, and works to maintain intestinal homeostasis. This homeostasis leads to a healthy host and prevention of most diseases.

Remember, within 24 hours of changing your diet, the gut microbiota begins to change. Say yes to a healthier microbiome, a healthier you!

Zhang P. Influence of foods and nutrition on the gut microbiome and implications for Intestinal Health. International Journal of Molecular Sciences. 2022;23(17):9588. doi:10.3390/ijms23179588

9. Recover from Medications

There is a bi-directional interaction between medications and the gut microbiome. The gut microbiome influences how someone responds to a drug and the drug influences the gut microbiome composition.

Commonly used Drugs that affect the gut microbiome

Antibiotics
Proton Pump Inhibitors (PPI's)
Metformin
Laxatives
Statins
Antidepressants
Opiods

Weersma RK, Zhernakova A, Fu J. Interaction between drugs and the gut microbiome. Gut. 2020;69(8):1510-1519. doi:10.1136/gutjnl-2019-320204

10. Meditation

Research shows that the gut microbiome affects mood and behavior through the gut-brain axis. This includes the body's hormone signaling, stress response (vagus nerve), and the immune response. Through the act of meditation, mental health disorders such as depression, anxiety, PTSD, eating disorders and more are being impacted while conjoinly altering the gut microbiome.

Through meditation and the enriching of the microbiome, many of the mentioned symptoms are being alleviated. This research is showing us that ***meditation holds power to influence our gut bacteria*** with several chemical processes that is leading to anti-inflammatory pathways, more effective metabolism, and a more optimal state of health.

Sun Y, Ju P, Xue T, Ali U, Cui D, Chen J. Alteration of faecal microbiota balance related to long-term deep meditation. General Psychiatry. 2023;36(1). doi:10.1136/gpsych-2022-100893

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