

1ST EDITION

THE CONDENSED GUT FUEL DIET GUIDE



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02

ABOUT THE GUT FUEL DIET GUIDE

Congratulations! By downloading this guide you have taken the first step towards improving your gut health, and therefore your health and wellness goals!

INTRODUCTION

The Gut Fuel Diet (GFD) is the simple, non-diet approach I created to optimize your gut health. It is an evidence-based approach that I outlined while completing my major scholar paper during my MSc on exploring the link between the gut microbiome and weight and whether manipulation of the microbiota through diet can promote weight loss. I call it a “non-diet” approach since I focused on adding foods to fuel the gut, rather than the restriction-based approach of most diets. Restriction leads to obsession and negative associations with food, which aren’t healthy and often result in an all or nothing approach where if you fall off the wagon you throw in the towel.

03 RATIONALE

After extensively researching the gut microbiome (the trillions of microorganisms that live in our GI tract) during my Master's degree, I learned of the impact of our gut health on our overall health - including weight. The research demonstrated that people with better gut health (referring to a more diverse and abundant microbiota) were more likely to maintain a healthy body weight. Those with better gut health were also less likely to have chronic diseases associated with obesity (high blood pressure, high cholesterol, diabetes etc.) - even if they were obese. I became obsessed with learning how to optimize gut health through diet and lifestyle interventions, therefore making it easier to maintain a healthy body weight long-term.

Ultimately, the foundation of a 'gut healthy' diet is fiber. Fiber is not digested by the human body. It's sole purpose is to provide food for the gut bacteria that reside in our large intestine. Therefore, the more fiber you eat (volume and variety) the better chance you have at optimizing gut health.

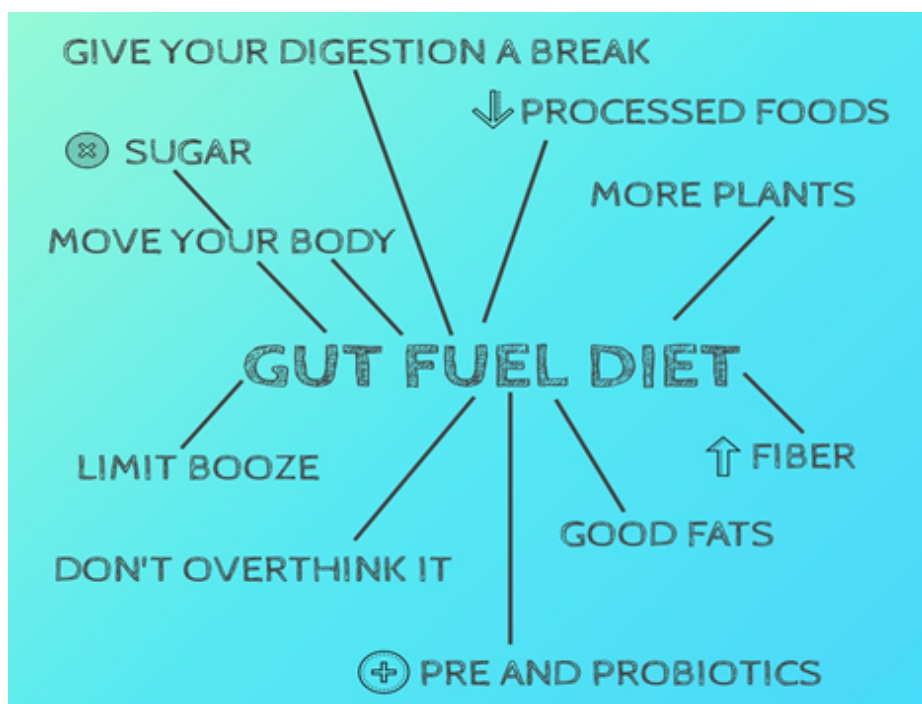
Fiber
= gut fuel
= the foundation of the gut fuel diet

When fiber is fermented by gut bacteria it results in the production of short-chain fatty acids (SCFAs). SCFAs are responsible for a lot of the amazing, beneficial impacts of the microbiota. SCFAs have a role in metabolism, insulin sensitivity, gut transit time, inflammation, reducing appetite and improving satiety...just to name a few!

04 OVERVIEW

The 10 Core Components of the GFD:

- #1: Eat More Plants
- #2: Give Your Digestion a Break
- #3: Fiber is Everything
- #4: Reduce refined sugar intake
- #5: Eat Real Food
- #6: Get Your Pre and Probiotics
- #7: Eat Good Fat
- #8: Move Your Body, Everyday
- #9: Limit the Booze
- #10: Don't Overthink It



05 OVERVIEW CONT...

The Condensed GFD Guide: What is Included

*Everything you need to get started

*In-depth review of 10-step GFD

Interested in implementing the GFD in your lifestyle?

Purchase the Complete GFD Guide at www.guthealthydietitian.com for
\$10 CAD

Includes:

*1-week meal plan

*Recipes

*10-week implementation guide

Why Should We Care About Our Gut Health?

The gut is a hot topic right now. Specifically, the action of the gut microbiota, which refers to the trillions (38 trillion to be exact) of bacteria that live in our gut. Gut health refers to the function of our entire digestive tract – the series of organs through which food passes, nutrients are absorbed, and waste is eliminated.

Why is gut health so important?

*70% of our immune system lays along our 9m long digestive tract.

Therefore, a healthy gut contributes to reduced risk of allergies and autoimmune conditions and fewer sick days

*Trillions of bacteria live in the lower part of our digestive tract. These bacteria outnumber human cells and play important roles in our health

*Good gut health is linked to lower risk of heart disease and type 2 diabetes

06 OVERVIEW CONT...

What does our gut microbiota do?

- * Produces vitamins and hormones (including serotonin)
 - * Influences appetite and satiety (feeling full)
- * Impacts metabolism, has a role in carbohydrate and lipid (fat) storage and metabolism
- * Communicates with our brain through the gut-brain-axis

How can I improve my gut health?

A healthy gut essentially refers to a diverse and abundant microbiota. This means that we want more gut bacteria, and a greater variety of bacteria.

Dietary fiber is the key to gut health. Human cells can't digest dietary fiber – its sole purpose is to feed our gut bacteria.

The single most effective way to contribute to a healthy gut microbiota is to increase the amount and variety of fiber in your diet through eating a diet abundant in plant foods. A good goal is to aim for 30 different plant foods in your diet every week. Each different plant food contains different types of fiber and phytochemicals (beneficial plant chemicals) that feed different gut bacteria. There are 6 classes of plant foods: fruits, vegetables, whole grains, nuts, seeds and legumes. Although it may seem daunting to eat 30 (or more!) different plant foods every week, it's easier than you think!

07 OVERVIEW CONT...

Because gut health is such a trend right now, a lot of food products are flooding the market promising to increase gut health. Overall, we need to be wary of these products as they are expensive, often high in sugar or other refined ingredients, and likely offer very little benefit. Instead focus on a diet high in whole foods and low in processed foods.

Studies suggest it is the variety of plants that we eat that matters most (from all 6 plant-based food groups) not whether we were having some chips, French fries or chocolate on occasion.

How can I increase the variety of plant foods in my diet?

As stated above, all different plant foods contain different types of fiber and beneficial phytochemicals. Even eating a variety of different coloured plant foods (for example, red and green peppers) contributes different types of fiber and phytonutrients and therefore are considered different plant foods.

Strawberries, blackberries, raspberries and blueberries are all considered different plant foods. Kale, spinach, arugula, spring mix, romaine are all different plant foods. Try buying a can of mixed beans that contain 3-4 varieties of beans (and 3-4 different plant foods) rather than just black beans or kidney beans alone. Sprinkle a tablespoon of hemp hearts or ground flax on your salad, cereal or toast. Choose bags of mixed frozen fruit for your morning smoothie and throw in a scoop of chia seeds.

08 CORE COMPONENTS OF THE GFD

#1: Eat More Plants

We have trillions of microbes living in the lower part of our gut (the large intestine) that are responsible for many vital actions including the production of hormones and vitamins, and even communicating with our brain. Good gut health is linked to lower risk of heart disease and type 2 diabetes. Ultimately, a varied diet containing large amounts of plants is vital to good gut health. Microbes feed off different types of fibers (including prebiotics) and plant chemicals (phytochemicals). Aim for 30+ varieties of plants every week.

Essentially, plants = fiber, vitamins, minerals, phytochemicals...HEALTH.

There are 6 plant-based food groups: fruit, vegetables, legumes, whole grains, nuts and seeds. The Gut Fuel Diet guide will demonstrate how easy it is to incorporate at least 30 different plants into your diet weekly.

Plants provide phytonutrients, which are beneficial plant chemicals that our gut bacteria love.

Phytonutrients are bioactive plant nutrients that support human health and immune function. Phytonutrients have anti-microbial, anti-inflammatory and antioxidant properties. Polyphenols are a type of phytonutrient that have specifically been associated with promoting the growth of beneficial gut bacteria and anti-inflammatory effects.

09 CORE COMPONENTS OF THE GFD

Food sources of polyphenols include legumes, tea, coffee, red wine, cocoa powder and certain fruits (berries, plums, cherries and apples) as well as some vegetables (artichokes, chicory, onions and spinach).

To summarize, each different plant food contains different dietary fibers and phytochemicals that feed different gut bacteria. This is why diversity is KEY. Increased bacterial diversity is associated with better long-term health.

#2 Give Your Digestion a Break

We eat way too often. The old approach of grazing constantly throughout the day to fuel your metabolism promotes over-eating and digestive issues.

It is important to integrate stretches of time without eating into your daily diet to activate your migrating motor complex (MMC).

Nutrition nerd alert: the MMC is an important mechanical function of our digestion. Waves of electrical activity that sweep residual undigested food material through the digestive tract during fasting periods.

Consider a fasting period of at least 12-hours daily to activate your migrating motor complex (MMC). If unable to fast for 12-16 hours daily, consider leaving 4-5 hours between meals which will also assist in activating your MMC and improve digestion.

10 CORE COMPONENTS OF THE GFD

#3 Fiber is Everything

Fiber is the primary source of fuel for our gut bacteria. Human cells cannot digest dietary fiber, its sole purpose is to feed gut bacteria. Fiber increases the diversity and abundance of the gut microbiota.

Nutrition nerd alert: when fiber is fermented by gut bacteria it results in the production of short-chain fatty acids (SCFAs). SCFAs are responsible for a lot of the amazing, beneficial impacts of the microbiota. SCFAs have a role in metabolism, insulin sensitivity, gut transit time, inflammation, reducing appetite and improving satiety...just to name a few!

How much fiber? Health Canada suggests a minimum of 25g/day for women and 38g/day for men. But I recommend aiming for closer to 50 grams of fiber per day as recommended by the well-established Mediterranean diet.

Types of Fiber: Dietary fiber is divided into two main types: insoluble or soluble fiber. Plant foods generally contain both insoluble and soluble fiber in varying amounts.

Nutrition nerd alert: Dietary fiber also contains many types of different bioactive plant components. Some common ones that you may have heard of include non-starch polysaccharides, cellulose, dextrins, inulin, lignins, resistant starch, pectins, beta-glucans and oligosaccharides.

1 1 CORE COMPONENTS OF THE GFD

Soluble fiber (dissolves in water):

- Slows digestion, therefore increasing satiety and preventing blood sugar spikes by reducing the rate at which your body absorbs sugar from the foods you eat. This type of fiber is particularly beneficial for the management of diabetes and prediabetes.
- Lowers LDL (bad) cholesterol by binding with fatty acids and helping to flush them out of the body (rather than being absorbed)
- Fermented in the colon into gasses and produces physiologically active by-products such as short-chain fatty acids (SCFAs) produced by gut bacteria

Food sources: oats and oat bran, barley rye, chia, flax, apples, bananas

Insoluble fiber (does not dissolve in water):

- Promotes bowel regularity/adds bulk to stools by helping to hydrate and move waste through your digestive tract
- May be beneficial in treating constipation, diverticular diseases and some types of IBS and may reduce the risk of colon cancer

Food sources: bran, whole grains, whole-wheat and wheat bran, most vegetables, skins of fruits and vegetables, legumes, nuts, berries

12 CORE COMPONENTS OF THE GFD

Fiber Supplements:

Functional fiber/Fiber Supplements: extracted from natural (food) sources, then added to supplements or fortified foods

The most common fiber supplements are metamucil (100% psyllium fiber) and inulin, both of which are sources of soluble fiber. Metamucil is commonly used for the treatment of constipation as it assists in bulk-forming through the absorption of liquid in the intestines and therefore assists in the elimination of stool. Inulin is a popular prebiotic that has been associated with beneficial health outcomes in clinical studies including decreased inflammation, improved gut barrier function, reduced body fat and appetite regulation.

Although there is not enough evidence available for me to support the routine use of fiber supplements, the demonstrated health benefits of inulin supplementation are promising. As always, before taking a supplement I would recommend focusing on including lots of prebiotic fiber-containing foods in your diet first!

13 CORE COMPONENTS OF THE GFD

#4 Reduce Refined Sugar Intake

Sugar is a primary contributor to the obesity epidemic. Sugar is terrible for our gut health and our waistlines. That being said, I am not suggesting that you never consume sugar. However, to promote optimal gut function and maintain a healthy weight we need to limit simple sugars and refined carbohydrates (i.e. white bread/rice/pasta, baked goods, candy, fruit juice, pop/soda etc.) and eliminate high fructose corn syrup. Focus on selectively consuming small amounts of refined carbohydrates and natural sugars (maple syrup, honey).

How Does Sugar Impact Gut Health?

- Reduces diversity of the gut microbiota (remember gut health = a diverse and abundant gut microbiota)
- Increased gut permeability (or “leaky gut”) a major factor in the development of metabolic endotoxemia (a contributing factor to the development of obesity)
- Inflammation
- Decreases good bacteria and increases bad bacteria

Nutrition nerd alert:

- o leaky gut: a digestive condition where bacteria and toxins can cross the gut lining (due to increased gut permeability) and enter your bloodstream
- o metabolic endotoxemia: an important mechanical function of our digestion. Waves of electrical activity that sweep residual undigested food material through the digestive tract during fasting periods.

14 CORE COMPONENTS OF THE GFD

High levels of glucose or fructose in the diet regulate the gut microbiota and increase intestinal permeability, which precedes the development of metabolic endotoxemia, inflammation, and lipid accumulation.

High amounts of refined sugars, particularly high-fructose corn syrup, have been linked to increased inflammation in the body.

Dietary fiber provides fuel (food) for good bacteria. However, pathogenic bacteria rely on sugar and refined carbohydrates for food. A diet high in sugar throws off the delicate balance within the microbiome resulting in dysbiosis and negative health consequences.

Nutrition nerd alert: dysbiosis is an imbalance between “good” bacteria and “bad” bacteria, which is associated with negative health outcomes

Are Artificial Sweeteners Healthy?

Small amounts of artificial sweeteners likely have minimal negative health consequences and impact on gut health. However, in animal studies large quantities of artificial sweeteners were found to be toxic for gut bacteria. Toxic impacts included altering metabolic patterns, reduction in several important genes and increased levels of cholesterol, lipids and several fatty acids.

Additionally, artificial sweeteners can increase cravings for sweet foods leading to increased consumption of refined carbohydrates and simple sugars.

15 CORE COMPONENTS OF THE GFD

#5 Eat Real Food

Eat at home, prepare your own meals, and limit processed foods. Simply put, the goal is that the majority of foods you eat are real, whole foods. Single ingredient foods. Limit foods with a mile-long list of ingredients you can't pronounce.

It is a simple concept, but difficult to put into practice. Life is busy, and convenience foods are everywhere! But the more food we eat in its natural state, without the addition of chemicals, additives and preservatives (not to mention the fat, salt, and sugar), the better. When you cook at home, you are the boss. You know exactly what goes into your food, and that is half the battle.

A diet high in processed foods and added sugars can decrease the amount of good bacteria in your gut. This imbalance can cause increased sugar cravings, resulting in further damage to your gut health.

#6 Get Your Pre and Probiotics

What are prebiotics and probiotics?

Probiotics: live microorganisms that provide a health benefit when administered in adequate amounts.

= good bacteria that have health benefits

Prebiotics: fermentable ingredients that selectively improve the growth of beneficial gut bacteria

= food for good bacteria

16 CORE COMPONENTS OF THE GFD

Nutrition nerd alert: many dietary fibers are considered to have a prebiotic effect as they are utilized by specific bacteria and result in bacterial growth. Dietary fibers with demonstrated prebiotic effects include chicory, onion, artichoke, garlic, asparagus, bananas, tomatoes, barley, wheat and rye.

Should I be Taking a Probiotic Supplement?

Clinical trials have demonstrated that specific strains of probiotic supplements are beneficial in treating certain issues when taken at appropriate doses and duration. Essentially, probiotics should be taken like a prescribed medication.

Rather than spending money on expensive probiotic supplements, increase your gut bacteria through a diet high in prebiotics (food for good gut bacteria) and probiotic-containing fermented foods such as kefir, sauerkraut and kimchi.

It can be tempting to turn to a supplement to get our nutrition - especially when we feel our diet is lacking in some area - but unfortunately, it's not that simple. Studies have shown that our diet actually impacts how we benefit from supplements. For example, a study found that people eating a high fiber diet had a greater response (more benefit) from taking a prebiotic supplement than people with a low fiber diet.

The takeaway? Although probiotic supplements do have a place in some cases, for most people the best way to feed our gut bacteria is through our diet.

17 CORE COMPONENTS OF THE GFD

For more information visit www.probioticchart.ca – a clinical guide to the probiotic products available in Canada. The site summarizes the available research to support the use of different probiotic supplements.

#7 Eat Good Fat

There are good fats, and there are bad fats. Choose healthy fats such as olive oil, avocados, nuts and seeds and limit animal sources of saturated fat and fats high in omega-6 fatty acids (i.e. canola oil, sunflower and soybean oil).

Omega-3 Fatty Acids are considered essential fatty acids, meaning our bodies require them to function. However, our bodies cannot make omega-3's and therefore we need to consume them in the diet.

Studies have linked omega-3 fatty acid intake with increased gut bacterial diversity and production of short chain fatty acids (SCFAs). SCFAs are associated with playing a role in protection against bowel cancer, depression and diabetes. Omega-3 also have powerful anti-inflammatory properties and have an important role in heart health and brain function.

The three most important omega-3 fatty acids are ALA, DHA and EPA. ALA is mostly found in plant sources, whereas EPA and DHA are mostly found in animal foods. ALA is the most common source of omega-3's in your diet, however, it needs to be converted into EPA or DHA before it can be utilized by the body. Unfortunately, the conversion process is very inefficient - less than 10% is converted! ALA that is not converted to EPA or DHA is stored or used as energy like other fats. You may want to consider an DHA/EPA supplement (algae) if you are plant-based!

18 CORE COMPONENTS OF THE GFD

Food Sources of Omega-3's:

- Fatty fish (such as salmon, mackerel, sardines) *DHA/EPA
- Algae *DHA/EPA
- Walnuts *ALA
- Flaxseeds *ALA
- Pumpkin seeds *ALA
- Hemp hearts *ALA

Nutrition nerd alert: Olive oil has the most demonstrated health benefits of all oils in research, associated with heart, brain and gut health.

Note: Olive oil is high in beneficial phytochemicals (polyphenols, lycopene) and antioxidants.

#8 Move Your Body, Everyday

We are far too sedentary. Aim for 20-30 minutes of formal exercise 4-5 times per week. But most of all, get moving on a daily basis. Resist the urge to Netflix and chill all night. Consider a quick 30-minute walk around the neighborhood before you settle in for the night. Whenever possible, choose to take the stairs or park further away from your destination. Essentially, move your body all day long as much as possible and limit long sedentary periods. Low to moderate-impact exercise may be more beneficial for your gut bacteria than high-impact exercise.

How does exercise affect gut health?

Exercise may increase levels of several beneficial gut bacteria as well as the health-promoting short-chain fatty acid butyrate. Nutrition nerd alert: butyrate has been associated with reduced inflammation and good gut health. Exercise has also been shown to promote higher diversity of the gut microbiota, a key factor in overall gut health.

19 CORE COMPONENTS OF THE GFD

What Type of Exercise Should I Be Doing?

Studies have linked cardiovascular and endurance-based exercise to increased gut microbial diversity. The health benefits of strength-training exercise on gut health have not been established yet.

Additionally, we know that stress negatively impacts the gut microbiota. High-intensity exercise creates stress on your body and results in the production of cortisol (the stress hormone) which negatively affects the gut microbiota. Very high intensity exercise may also increase inflammation, which can increase gut permeability (“leaky gut”) over time. Leaky gut can increase susceptibility to diseases such as depression and type 2 diabetes. That’s not to say never to do high intensity exercise, but maybe consider adding in some lower intensity exercises such as yoga or pilates a few days a week.

#9 Limit the Booze

Ultimately, we know that too much alcohol isn’t good for us. However, that certainly doesn’t mean that I recommend eliminating alcohol from your diet! Moderation is key.

Alcohol and the Gut:

- Gut bacteria actually help to metabolize alcohol, which is one of the reasons why we have different tolerances to alcohol. Greater amounts of healthy gut bacteria can help your body more efficiently detoxify alcohol
- Excessive alcohol consumption can inhibit the production of digestion enzymes and secretions, leading to poor digestion and absorption of nutrients
- Too much alcohol can cause inflammation in your gut, leading to increased gut permeability (“leaky gut”)

20 CORE COMPONENTS OF THE GFD

Unfortunately, alcohol is not good for our gut bacteria. It is also high in “empty” calories as it contains limited nutrients and is often high in sugar. Excessive alcohol consumption can also result in cravings for processed foods and lead us to make unhealthy choices.

How Much Alcohol Can I Have?

Limit alcohol to 1-2 drinks per day for women and 2-3 drinks per day for men, no more than 4 days per week.

If you are indulging in a few alcoholic beverages, I would suggest having 1-2 glasses of red wine before switching to tequila/vodka soda. Soda water is hydrating and contains no additional sugar or calories. Add a nice citrus twist and you have a delicious cocktail that limits damage to your gut bacteria...and waistline!

Bonus: red wine contains health-promoting polyphenols which our gut bacteria love. Enjoy small amounts in moderation!

#10 Don't Overthink It

The general concept of healthy eating isn't that hard, it's the commitment that's hard! We are faced with hundreds of food choices every single week and we cannot possibly make the “right choice” every time. And obsession leads to negative thoughts and negative thoughts lead to unhappiness and bingeing. Food should not be negative, food is awesome. So make the healthy choice whenever you can, but when you make some not-so-good choices, choose to forgive yourself and move on.

2 1 CORE COMPONENTS OF THE GFD

The problem with super restrictive diets is that they set a nearly impossible standard to uphold, which leads to feelings of failure when we inevitably can't meet those standards. By refusing to impose super strict, unmaintainable dietary restrictions on yourself, you eliminate the associated feelings of guilt and frustration. By allowing ourselves some forgiveness and flexibility in our diets, we may find that our dietary goals seem easier to achieve.

Life is too short to be worrying about what goes in your mouth all day long. Health is the most important commodity that any of us have, so we need to take care of our bodies and fuel them properly. But that does not mean a life of restriction and beating yourself up for food choices that aren't perfect. So have the cake on your birthday, the glass of wine to celebrate surviving the week, and all of the bread and pasta you want when you're travelling. Food is meant to be enjoyed!

Want More?

Purchase the Complete Gut Fuel Diet Guide at www.guthealthydietitian.com for \$10 CAD.

The Complete GFD Guide contains:

- Food Sources of Nutrients Reference List
- 1-Week GFD Meal Plan
- 10-Week Implementation Guide
- Using the Healthy Plate Method
- Recipes to support implementing the GFD!