THE ESSENTIAL DIET for FATTY LIVER

Nutrition Guide and Recipes to Heal Your Body

ANDY DE SANTIS, RD, MPH

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Mom and Dad,
there is no number of book dedications that
could repay your love and support over the years—
but here's another one anyway.

Yogurt Berry Pancakes *p.46*

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INTRODUCTION

My name is Andy De Santis, and I'm humbled to be your guide on the path toward better liver health. This book is all about teaching you the steps you can take to improve your quality of life while living with fatty liver disease.

I'm a registered dietitian from Toronto, Canada, with a passion for helping people utilize the power of nutrition to better their health, whether by working with them directly or on a larger scale via my writing. I've been fortunate enough to write ten books, and hundreds of blog posts and articles for various print and online platforms. But let's get into the topic you picked up this book for.

Hearing that you have a fatty liver from your doctor can sound scary, but know that you are not alone. "Fatty liver" is a generic term that often refers specifically to Nonalcoholic Fatty Liver Disease (NAFLD), which is the most common liver condition in North America, affecting close to one in four adults.

There are different types of NAFLD that we will go through in the chapters ahead, and each of them range in severity and often build on one another if left unmanaged. As the name suggests, NAFLD describes an unexpected and undesirable accumulation of fat on the liver that is not caused by excessive alcohol intake or other specific condition.

According to the *World Journal of Gastroenterology*, fatty liver disease has become increasingly common globally; that also means it is gaining greater attention from the scientific research community, as dietary and medical strategies to help prevent and manage NAFLD are becoming increasingly important.

I scoured the research on this topic to ensure no new scientific insights were left behind when I assembled this book. I want you to feel confident you are holding a very clear, very detailed look at the best available evidence on the role of diet and nutrition in managing and fighting back against NAFLD. You will also find 50 delicious recipes and a meal plan that combines and incorporates all of this information and helps you put it into action.

My goal with this book is to help you better understand your condition and how the choices you make about food, exercise, and other lifestyle factors influence the health of your liver. My hope is that you feel empowered to make meaningful but manageable changes and greatly improve your health and quality of life for years to come.

With all of that said, thank you for choosing this book to accompany you on your journey to better liver health. Let's get started!

PART 1

GETTING STARTED

CHAPTER 1

Understanding Your Liver

The liver serves hundreds of unique and essential functions, which to me makes it one of the most fascinating organs in the human body. In this chapter, we will begin to explore this vital organ, including a deep dive into some of these various functions. I hope not only to inform and educate you on the role your liver plays in your body, but also to support you on your quest for a healthier liver.

The Liver's Role

Often known as the "detoxifying" organ, the reality is that the liver is responsible for quite a bit more than that. This is part of the reason why diet and lifestyle changes to manage fatty liver disease are so important—you depend on your liver to perform so many essential tasks.

Located around the upper portion of the torso and sitting on top of the digestive tract, the liver generally weighs only a few pounds, which belies its extreme importance to a healthy human body.

It's estimated that the liver performs around 500 essential roles, which include detoxifying and processing various types of drugs, alcohol, and other compounds into forms that are easier for the human body to manage and excrete. The liver is uniquely positioned for this role because blood flow through the digestive tract, to which it is attached, enters directly through the liver for processing.

Other very important liver functions include:

Carbohydrate metabolism—Your body stores a certain amount of carbohydrates as glycogen in the muscle cells and elsewhere for later use as energy, and the liver is responsible for managing this conversion in both directions.

Fat metabolism—In addition to breaking down fats for use as energy, the liver produces various forms of cholesterol and important proteins. They have an essential role in transporting different types of compounds throughout the body.

Iron metabolism—The liver stores a portion of the body's iron and can also process the iron-carrying protein hemoglobin to increase iron availability if needed. The liver's role in iron metabolism explains why anemia is more likely in people with severe liver disease.

Digestion—The liver is responsible for producing a fluid compound known as bile. Bile stored in the gallbladder and helps break down fats so that they can be better absorbed in the small intestine.

Detoxification—Although "detoxify" is often passed off as a buzzword, the liver's detoxifying role simply cannot be understated. A great example of detoxification is its role in protein digestion. The human body breaks down the protein you eat into a compound called ammonia, which is dangerous if it accumulates in high amounts. Your liver, however, converts ammonia into something called *urea,* which you can easily get rid of via your urine.

FATTY LIVER FAQ

I heard that milk thistle and vitamin E supplements help with liver disease. Should I take these?

Not without consulting your health care team. Milk thistle extract, as it is sold in supplemental form, consists mostly of a bioactive antioxidant compound known as *silymarin*. It is thought to have antioxidant and liver protective properties, but the evidence for these claims is lacking.

Vitamin E supplements have generated a great deal of interest in the management of liver disease given their anti-inflammatory capacity—but not everyone with liver disease should take a vitamin E supplement. In both cases, consultation with your health care team must be considered before acting.

How does the doctor determine what type of fatty liver disease I have?

Ultrasounds and magnetic resonance imaging (MRI) may be used to help visualize fat deposits on the liver, but a liver biopsy is the most precise test available.

A biopsy involves taking a small tissue sample and reviewing it under a microscope to look for signs of inflammation and liver damage.

An NAFLD diagnosis usually occurs when there is fat accumulation, but not inflammation, whereas a NASH (nonalcoholic steatohepatitis) diagnosis usually occurs when there is fat with further visible damage and inflammation.

What are the biggest modifiable risk factors for fatty liver disease?

High cholesterol, triglycerides, blood sugar levels, and blood pressure are the big four risk factors that may increase one's susceptibility to not only liver disease, but other health complications like heart disease.

What are some other causes of fatty liver disease?

Individuals with hepatitis C, thyroid disorders, or celiac disease may be at higher risk of fatty liver disease as well.

How many people are affected by NAFLD?

Based on current estimates, there are over 100 million people in North America living with an NAFLD diagnosis, and although most are middle-aged adults, the rates are increasing alarmingly in adolescents as well.

What's the difference between alcoholic and nonalcoholic fatty liver disease?

The American Association for the Study of Liver Diseases suggest that when alcohol consumption is considered significant (>21 drinks weekly for men, >14 for women), then you may be considered to have alcoholic rather than nonalcoholic fatty liver disease.

Only your health care provider can make decisions regarding the nature of your diagnosis.

Are there pharmaceutical treatment options?

There are no Food and Drug Administration (FDA) approved medications for fatty liver disease. However, depending on the nature of your diagnosis and the assessment carried out by your health care team, you may be prescribed certain medications, such as Pioglitazone (often used in diabetes), although they are not proven to help everyone with a fatty liver.

Liver Disease: An Overview

In this section we take a closer look at various aspects of fatty liver disease, including the different types and symptoms, as well as potential causes and complications associated with this common condition.

TYPES

There are two primary types of fatty liver disease, essentially associated with or not associated with alcohol. They are categorized as follows:

Alcoholic Liver Disease (ALD): This is caused by chronic excessive alcohol intake.

Nonalcoholic Fatty Liver Disease (NAFLD): This is the most common type of liver disease in the United States and the primary focus of this book. NAFLD exists in two forms:

Simple Fatty Liver: The vast majority (80 percent) of people with NAFLD have this form, which involves the accumulation of fat on the liver without significant inflammation or damage.

Nonalcoholic Steatohepatitis (NASH): The remaining 20 percent of individuals with NAFLD have the more serious form of the condition. It is characterized by inflammation and damage to liver cells, which can progress to even more severe forms known as fibrosis and cirrhosis.

SYMPTOMS

Fatty liver disease is rarely a symptomatic condition and generally not characterized by obvious signs or signals.

In those for whom symptoms do appear, they may include:

- Pain or discomfort on the upper right side of the stomach (where the liver is located)
- Unexpected weight loss, weakness, or fatigue
- Jaundice or yellowing of the skin and eyes
- Swelling in the legs and torso
- Nausea and reduced appetite

NAFLD is more likely to land on your health care team's radar based on blood work (liver enzymes), imaging (such as an ultrasound), or by investigation of the area indicating concern.

Sometimes more extensive examinations and blood or imaging tests are required to narrow down your diagnosis. In short, diagnosis of NAFLD is one that only your doctor can make.

CAUSES

NAFLD is characterized by the excessive presence of stored fat in and around the liver, which occurs when the liver's ability to transport and utilize fatty acids in the body is compromised by factors other than alcohol consumption. Scientists are not 100 percent clear on the full causes of NAFLD, although the following are considered relevant considerations:

Insulin resistance: Insulin resistance is a key feature of type 2 diabetes and metabolic syndrome. It also changes the way your body interacts with fatty acids, thus increasing the risk they could accumulate within your liver.

High blood cholesterol and blood triglyceride levels: There is considerable evidence that these are major contributors to a fatty liver disease diagnosis.

Polycystic Ovary Syndrome (PCOS): Individuals living with PCOS are believed to be at elevated risk for NAFLD.

Hypothyroidism: Individuals with a history of hypothyroidism may also be at an increased risk.

Genetics and other personal factors: Family/genetic history and the use of certain medications may also play a role.

COMPLICATIONS

Depending on several factors, including lifestyle intervention, simple fatty liver can progress to NASH. With more time and increased liver damage, this could lead to severe inflammation (fibrosis) and eventually severe liver damage (cirrhosis).

Severe liver damage could warrant a liver transplant, and NAFLD, even if only moderate in severity, increases one's risk for cardiovascular disease—the number one cause of death in the United States.

Common Comorbidities

Because NAFLD is strongly associated with insulin resistance and elevated blood fat levels (cholesterol, triglycerides), it's not uncommon for those living with the condition to also be dealing with comorbidities such as type 2 diabetes, metabolic syndrome, PCOS, and more.

Type 2 Diabetes: Type 2 diabetes is a condition characterized by blood sugar levels that remain above the optimal range in both the short and long term. Insulin resistance is one of several potential drivers for diabetes because insulin is the hormone that allows blood sugar to enter the cells for use. When our cells don't respond to insulin as they should, blood sugar levels can elevate.

Metabolic Syndrome: Metabolic syndrome speaks to multiple simultaneous abnormalities across important parameters such as blood sugar, blood pressure, cholesterol, and/or triglycerides. The elevation of one or more of these markers can increase one's risk for a variety of conditions including heart disease. Those with metabolic syndrome may be at higher risk for NAFLD as compared to someone with these markers in check.

Polycystic Ovary Syndrome (PCOS): PCOS is a multifactorial condition, and its diagnosis is based on the presence of specific criteria such as cysts on the ovaries, elevated androgen levels, and insulin resistance. Once again, insulin resistance is the factor that ties NAFLD and PCOS together on a physiological level.

Cardiovascular Disease: Individuals living with fatty liver disease may be at increased risk of cardiovascular disease, especially since some of the key dietary considerations for fatty liver (such as saturated fat intake—discussed in detail in chapter 2) are also strongly related to cardiovascular health.

Various Other Conditions: Sexual health issues, sleep apnea, and osteoporosis may likely to occur in those living with NAFLD. The physiological abnormalities associated with liver disease affect multiple bodily systems, including the bones and reproductive organs.

WEIGHT AND LIVER HEALTH

I'm personally cautious about overemphasizing the value of weight loss above all other nutritional considerations, given that there are so many areas to focus on regarding the nutrient density of your diet that will have massive implications for your health going forward.

If you've been made to feel you need to lose a significant amount of weight in order to get better, I want you to take a step back and instead spend your energy focusing on incorporating the nutrition principles and recipes in this book.

Studies have demonstrated that increased physical activity can improve liver health, even with the absence of weight loss. A decrease in weight as modest as 3 percent of your total body weight has the potential to improve liver health outcomes. Working toward a goal of adopting the style of eating outlined in this book should be sufficient for most people to experience modest decreases in body weight without prioritizing that as a goal.

Key points, provided by the American Association for the Study of Liver Diseases, on the subject of weight loss include:

1. Weight loss of at least 3 to 5 percent of body weight helps improve fatty liver, and a greater loss (7 to 10 percent) has long-term potential to induce further benefit.
2. Exercise without weight loss has the potential to improve a number of important parameters of liver health, but the extent of the effect is not fully known.
3. An increase in physical activity and modest caloric reduction (-500 per day) is considered to provide the best effects.

The Role of Diet

There is little question that a strong dietary pattern, meaning what your food intake looks like over an extended period, plays a role in both the prevention and management of fatty liver disease, especially as it relates to minimizing further risks to your health and quality of life after a diagnosis.

Insulin resistance and poorly regulated blood fat levels (especially triglycerides) have a role to play in the development and progression of fatty liver disease. Dietary modifications that fight back against these physiological concerns are of the utmost importance—as is the role of anti-inflammatory dietary components, given that inflammation advances the severity of fatty liver disease.

In chapter 2, we'll take a deep dive into the nutrition principles that represent the most important dietary considerations for people living with fatty liver disease. These same principles, based on the best available evidence and research, were used to establish the criteria for the recipes in this book.

Principle #1: A Mediterranean-Style Diet—This diet diversifies your protein intake away from traditional sources like red meat and higher-fat dairy, and incorporates many more plant and seafood sources, as well as legumes, nuts, and seeds.

Principle #2: Focusing on Healthier Fats—The vast majority of the dietary fats we are looking to emphasize are found in foods such as nuts, seeds, fish, avocado, olives, and more—and much less so from various types of red meat and higher-fat dairy products like butter and cheese.

Principle #3: Minimizing Processed Foods, Fast Foods, and Fructose—Good health comes from what you do, not from what you don't do. Yes, limiting things like processed foods, sweets, and soda is certainly part of optimal health with fatty liver, but let's focus on the delicious and nourishing foods that you *will* get to have.

CHAPTER 2

Liver Nutrition

As a dietitian and nutrition science enthusiast, I can safely say that it's now time to get to the good stuff.

In the pages to come, you can expect a comprehensive discussion on all things liver nutrition, including a conversation of the key foods and supplements you need to optimize your health following a fatty liver diagnosis.

The Building Blocks of a Liver-Friendly Diet

It's time to expand and elaborate on some of the broad nutrition principles noted at the end of chapter 1. This section will tell you which foods are going to be the most valuable or harmful to your liver health.

1. REDUCE SATURATED FAT AND ADDED FRUCTOSE

In February 2021, the *Frontiers in Nutrition* scientific journal released a paper discussing the most important nutrition considerations for the management of fatty liver disease. In it they identified saturated fat and excess fructose intake as the biggest contributors to worsening liver fat levels and insulin resistance. So, where is all the saturated fat and fructose coming from?

Large amounts of saturated fat are found in red and processed meats such as beef, sausages, ham, pork, and lamb. They are also abundant in higher-fat dairy products like butter, cream, most cheeses, and milk and yogurt that have a milk fat percentage higher than 2 percent. Certain refined carbohydrates like cookies, cakes, and related products are often also high in saturated fat.

Fructose, specifically added fructose, is found in rich supply in sugary drinks of all types (ranging from soda and energy drinks to juices and fruit-flavored beverages), as well as candy, sweets, certain baked goods (as mentioned previously), and sauces and syrups. Look for "high fructose corn syrup" on a nutrition label if you are unsure.

2. INCREASE OMEGA-3 AND VITAMIN D INTAKE

Vitamin D and omega-3 fatty acids are bound together by the fact they are both found in large supply in fatty fish such as salmon, sardines, trout, and mackerel.

A 2011 study out of *BMC Medicine* found that individuals living with nonalcoholic fatty liver disease were much more likely to have low levels of vitamin D in their system. In comparison, a 2020 study out of the *Nutrients* journal found that omega-3 supplementation improves liver fat levels and other important indicators such as cholesterol and triglycerides.

This means that these two nutrients are extra important for those living with fatty liver, and thus eating more fish and seafood is a great dietary strategy.

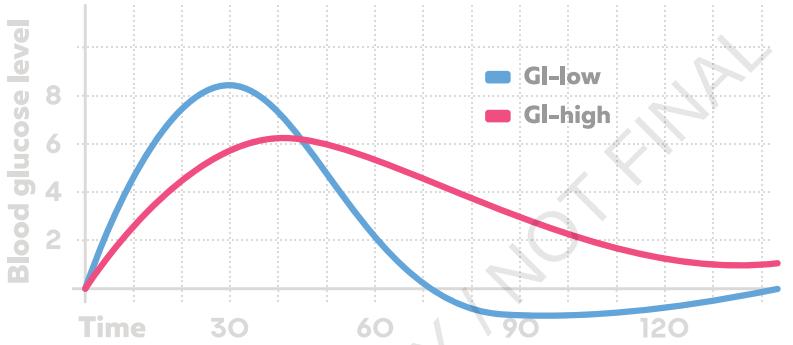
The best thing about fish is that it can be such an easy swap for red meat in many recipes. In fact, a 2019 study published in the *Journal of Clinical Endocrinology & Metabolism* found that replacing saturated fat with the types of fat found in fish (and other healthy fat sources) reduced liver fat accumulation.

Other sources of omega-3 fatty acids include various type of nuts and seeds such as walnuts, flax, chia, and hemp, as well as soy-based products like tofu, tempeh, and edamame. These foods have additional value to those living with fatty liver because they can contribute to a reduction in blood cholesterol levels, which is a major risk factor not only for fatty liver but also heart disease.

3. CHOOSE LOW GLYCEMIC CARBOHYDRATES

The glycemic index of a food dictates the way it affects your blood sugar levels. Foods higher in glycemic index, or GI, tend to cause sharp, quick blood sugar spikes, whereas foods lower in glycemic index lead to more modest and manageable changes in blood sugar levels.

Because insulin resistance and type 2 diabetes are legitimate concerns for those living with fatty liver, an understanding of glycemic index and the foods that are better aligned with a low GI style of eating is important.



Glycemic Index Example

4. EMPHASIZE PROBIOTIC/PREBIOTIC RICH FOODS

The human digestive tract plays a significant role in a number of conditions, and emerging evidence suggests that liver disease is among them. A 2016 paper out of *Molecular Metabolism* has suggested that an imbalance between good and bad bacteria in the human gut may contribute to the progression of fatty liver disease. This is in part because good bacteria plays a very important anti-inflammatory role, and its absence can change the state of inflammation in the body.

We are learning more and more about how good gut health supports immune health, reduces inflammation, and generally serves to improve overall health by helping with a variety of conditions. Studies published in both *The World Journal of Gastroenterology* and *The American Journal of Clinical Nutrition* found that probiotic supplementation has a demonstrated capability to reduce inflammatory markers in those living with fatty liver

disease, and may also contribute to improving liver enzyme levels and insulin resistance.

Consuming foods that are fermented, such as yogurt, kefir, kombucha, and vegetables like kimchi and sauerkraut, as well as foods that are high in fiber (especially prebiotic fiber that your gut bacteria thrive on), such as apples, oatmeal, onions, garlic, bananas, flaxseed, artichoke, and asparagus can improve the state of your microbiome.

Microbiome is a fancy word for the types of bacteria in your digestive tract. When we talk about "improving" it, we are really talking about helping the good bacteria grow and flourish, which in turn improves your health and reduces the state of inflammation in the body.

A HEALTHY APPROACH FOR YOU

The nutrition guidance I've provided so far is based on the best available evidence of food's and food components' impact on fatty liver disease and its comorbidities. I've identified key principles based on this evidence, which ultimately separates foods into different key groups. When looking at those key groups, you might notice that the dietary pattern is very similar to the Mediterranean diet principles.

The Mediterranean diet, in a nutshell, asks you to reconsider the role that red meat and dairy are playing in your daily life. It emphasizes reducing their frequency to accommodate the inclusion of components such as fish, seafood, nuts, seeds, legumes, fruits, vegetables, and whole grains.

A 2021 review out of the *Frontiers in Nutrition* journal found that utilizing the Mediterranean dietary pattern reduced fat accumulation within the liver. According to a 2013 clinical trial out of the *Hepatology* journal, the Mediterranean diet may also contribute to reduced insulin resistance; and, a 2008 study out of *Diabetologia* found that it improved liver enzyme levels in patients living with type 2 diabetes. So, if you find comfort in bigger themes more than in specific details, the Mediterranean diet really is your best starting point from a nutrition perspective when it comes to fighting back against fatty liver disease.

A Closer Look at Your Plate

I know there's been quite a bit of scientific talk so far, but it's time to refocus on the practical aspects of bringing all of this guidance to your daily routine. Much of that comes down to how you think about your plate, so let's take a closer look at what components your plate should consist of, and how they contribute to your overall health.

PROTEIN (10 TO 35 PERCENT OF TOTAL CALORIES)

Pursuing greater variety in your protein intake is one of the most important steps you can take to enhance your health with liver disease.

Sources of saturated fat from red (beef, pork) and processed meat (sausage, salami, hot dogs, and related foods) should be replaced as much as possible with leaner protein sources such as poultry and white fish (cod, haddock, tuna) and from various types of fatty fish (salmon, sardines, mackerel) and tofu-based products.

The primary justification for this shift is that liver disease is often characterized by high levels of unhealthy blood fats (cholesterol and triglycerides), which tend to be increased in the presence of saturated fat but decreased in the presence of other types of healthier fat.

CARBOHYDRATES (45 TO 65 PERCENT OF TOTAL CALORIES)

The type of carbohydrates you consume is very relevant because insulin resistance is a major factor in both type 2 diabetes and fatty liver disease. How your body interacts with insulin has a lot to do with dietary carb choices. Carbohydrate choices that are digested slowly and don't cause big blood sugar swings are preferable for this reason.

Foods in this category include all type of legumes (*lentils, chickpeas, other beans/peas)*, fruit, whole grains (*steel-cut oatmeal, brown rice, whole grain bread, quinoa, whole grain pasta)* as well as certain starchy vegetables like sweet potato and butternut squash.

FATS (20 TO 35 PERCENT OF TOTAL CALORIES)

Although many types of fats are found within foods that are also deemed to be high protein, there is a subgroup of foods that are often referred to

as “healthy fats” that are very important in managing the comorbidities of fatty liver disease.

Nuts, seeds, and avocados are rich in various types of healthy fats, as well as dietary fiber, which makes them optimal foods to support the management of blood cholesterol and blood sugar levels.

Within this category of healthy fats there is a subgroup (walnuts, chia seed, flaxseed, and hempseed) that is uniquely rich in omega-3 fatty acids. Studies have found positive beneficial effects for including more of these various types of “healthy” fats, both as it relates to liver enzyme levels and also total liver fat.

VITAMINS AND MINERALS

Because the food choices discussed and emphasized thus far are naturally high in the important nutrients that your liver needs (such as vitamin D), you won’t need to go out of your way to look at food from the perspective of vitamins and minerals, but instead can focus on the role they play as part of your diet as a whole.

BEVERAGES

Daily fluid recommendations can vary from person to person, but general recommendations for men (15.5 cups or 125 fluid ounces) and women (11.5 cups or 90 fluid ounces) do exist. Fluids come from food (about 20 percent) and beverages (80 percent).

Water is always the ideal choice and plays an important role in the body’s natural detoxification processes and optimal organ functioning (the liver included!). Sugar-free and naturally carbonated water beverages may also be favored choices.

Alcohol and sugar-sweetened beverages such as fruit juices, soda, and energy drinks should be kept to a bare minimum, ideally no more than 1 to 2 servings per week in those who already consume them.

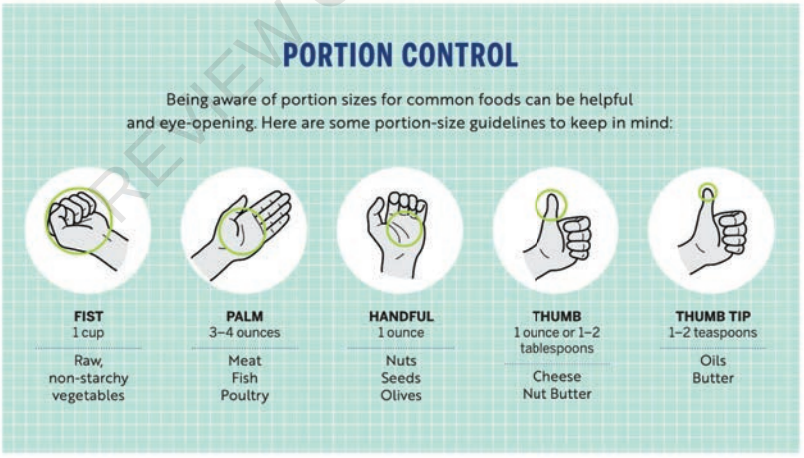
Per the American Institute for Cancer Research, coffee intake may be protective against liver cancer. Coffee and tea provide large amounts of antioxidants and are acceptable components of a healthy diet with liver disease, but you should limit or omit creamers and high-fat milk products, along with sweeteners.

PORTION CONTROL

The concept of portion control is not only about keeping the amount of food you consume at each meal to a healthy level, but also about having a strategic combination of different nutrient-dense and truly satiating foods that will allow you to feel both full and satisfied and sustain you until your next meal.

Generally, your meals should consist of three primary components—each of which should comprise around one-third of your plate:

1. **Low glycemic index starchy foods**—such as any legume, sweet potato, brown rice, and quinoa.
2. **Lean or non–red meat protein source**—such as most cuts of poultry, seafood, and tofu to minimize saturated fat and maximize more useful types of dietary fat.
3. **Non-starchy veggies**—any vegetable from A to Z, quite literally asparagus to zucchini, and most of the other great options in between.



Foods to Enjoy, Avoid, and Eat in Moderation

In this section, you'll find an accessible list of the foods that should be playing the biggest role in your diet going forward.

FOODS TO ENJOY FREELY

Legumes: Lentils, chickpeas, black beans, navy beans, pinto beans, kidney beans and their relatives are among the most effective foods at helping control blood sugar and blood fat levels. These are also truly filling foods thanks to their uniquely high protein and fiber contents.

Fruit: Fruits of all varieties are potent due to the large amount of anti-inflammatory polyphenol compounds they contain, as well as rich amounts of fiber, vitamins, and minerals. Berries, oranges, apples, and bananas may be particularly beneficial, but when it comes to fruit, you really don't need to pick sides.

Veggies: Owing to vegetables' incredible capacity to improve health via fiber, vitamin, mineral, and antioxidant content, there is no question that vegetables must comprise an important part of your dietary strategy.

Non-starchy veggies: Zucchini, broccoli, Brussels sprouts, spinach, kale, bell peppers, carrots, asparagus, eggplant, Swiss chard, and cauliflower are among your many options.

Starchy veggies: Beets, sweet potatoes, and various types of squash are among the prime choices.

Lean meats (chicken, turkey—especially breast): Using very lean protein sources like chicken and turkey breast is a great way to provide protein without the saturated fat found in other meats.

Healthy fats (nuts, seeds, avocado, and certain oils): You can't go wrong in this category with foods containing healthy fats. Flax, chia, hemp seeds, and walnuts are unique among this group for their high omega-3 fat content.

Avocado and olive oil are also uniquely high in what are known as monounsaturated fats, which help lower cholesterol levels and have essentially the opposite effect of saturated fat in this regard. Almonds, pistachios, and cashews are other examples of foods high in this fat, and they also

contain large amounts of fat-soluble vitamin E, which may be uniquely useful for good liver health.

Eggs: Despite what some think, eggs can be consumed regularly. As part of a balanced style of eating, their cholesterol content won't have a negative effect on our health.

Low/Medium Glycemic Index Grains: Choosing grains lower in glycemic index (GI) is a relevant consideration for those living with fatty liver, primarily due to the fact that insulin resistance and type 2 diabetes could play a role in progression of the disease. Options in this category include steel-cut oatmeal, quinoa, whole grain breads/pastas, and brown rice.

Soy: Soy-based foods such as tofu, tempeh, soy milk, and edamame offer an alternative protein source to help you lessen your reliance on saturated fat–rich animal proteins, which in turn improves liver health. Soy-based foods also have a unique cholesterol lowering effect.

Low Fat Dairy: This includes products like kefir and yogurt that contain probiotics.

Seafood/Fish: Fatty varieties such as salmon, mackerel, trout, tuna, and sardines are particularly high in one or both of vitamin D and omega-3 fatty acids.

FOODS TO MODERATE

These foods should play a lesser role than the foods to enjoy freely, as it relates to your dietary pattern.

Refined Carbohydrates: These are foods made primarily from white flour such as white bread/bagels, and most types of store-bought baked goods like pretzels, muffins, and cakes.

Although not technically considered "refined" carbohydrates, certain commonly available foods like various types of russet potatoes as well as instant oatmeal are high in glycemic index and may not be the best choices for regular consumption, especially in those with type 2 diabetes.

Saturated Fats: Saturated fats are highest in all types of red meat, ranging from beef to lamb, and pork to darker-meat poultry. Saturated fats are also high in dairy-based products like mayonnaise, butter, cheese, and high-fat

yogurt. Coconut oil is also uniquely high in saturated fat among cooking oils and, although it acts differently in the body, it may be important to moderate for those with fatty liver disease.

FOODS TO AVOID

Although I would not tell you or one of my clients that they should NEVER eat a certain food, when pressed I could think of a few foods that you should certainly limit as much as possible.

Processed meat: Given the increased risk of cardiovascular disease associated with fatty liver and the negative role that saturated fat plays in potentially worsening the condition, this is a category of food to avoid. This includes: sausages, salami, hot dogs, ham, and bacon.

Sugary drinks: Sugar-sweetened beverages that are high in fructose, such as soft drinks and fruit-flavored drinks, should be avoided. Excessive fructose intake is not ideal for liver health.

How You Should Eat If You Have . . .

If you are living with fatty liver disease, it's likely you may also be dealing with either high blood sugar, cholesterol, triglyceride, or high blood pressure levels. Although the guidance provided so far will support you in managing the concerns that follow, in this section I offer up additional information for you to consider.

HIGH BLOOD SUGAR

Legumes such as lentils, chickpeas, kidney beans, and related foods are the lowest glycemic index starchy foods, and utilizing them more often in place of other foods in this category will likely contribute to improved blood sugar control.

HIGH BLOOD CHOLESTEROL

Soy-based foods like tofu, tempeh, edamame, and soy milk have unique cholesterol-lowering benefits, and help provide a low saturated-fat protein alternative for those trying to eat less red meat.

HIGH TRIGLYCERIDES

Reducing alcohol and sugar-sweetened beverage consumption, and at the same time emphasizing omega-3 rich foods like fish, walnuts, and flaxseeds, can contribute to lower triglyceride levels.

HIGH BLOOD PRESSURE

Foods high in potassium are effective in lowering blood pressure levels; some common examples include sweet potato, squash, pumpkin seeds, salmon, kidney beans, bananas, avocado, yogurt, dark chocolate, and leafy greens like spinach and chard.

About the Author

Andy De Santis, RD, MPH, is a private practice dietitian and published author from Toronto. He graduated in 2014 from the University of Toronto School of Public Health with a master's degree. Andy has gone on to write nine books and hundreds of blog posts, and has worked with individuals to tailor a nutrition strategy to fit their personal goals. He brings a wealth of nutrition science knowledge and tailored nutrition solutions to this book, eliminating guesswork so that readers can clearly pursue their fitness goals.