



Chapter 3

Chapter 3: Healthy Eating and Anti-Aging

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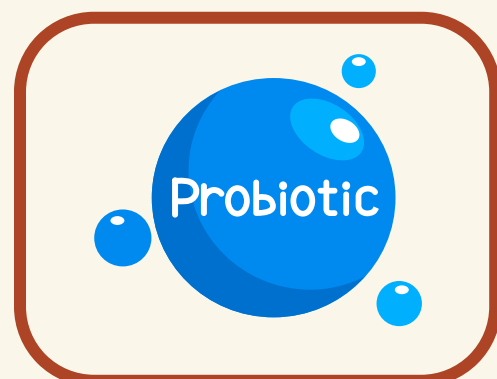
Types of Healthy Foods for Anti-Aging



Antioxidant-Rich Foods: Berries These fruits are packed with antioxidants, particularly vitamin C and anthocyanins, which can reduce inflammation and improve skin elasticity.



Vitamins: vitamin C is vital for collagen production, which helps keep the skin firm, youthful. Vitamin E is a fat-soluble antioxidant that helps protect skin cells from oxidative damage.



Probiotic Foods: Probiotics promote gut health, which is increasingly linked to skin health. A healthy gut microbiome can help reduce inflammation and prevent or reduce skin conditions.

Atkins Diet: Low Carb-High Protein



Atkins Diet

The Atkins Diet is a well-known low-carb, high-protein diet that emphasizes weight loss and improved overall health by drastically reducing carbohydrate intake and increasing protein and fat consumption. The diet is based on the principle that by reducing carbohydrates, your body will shift from burning glucose (sugar) for energy to burning fat, a process called ketosis.





Atkins Diet

Four Phases

The Atkins Diet is divided into four phases, each with specific guidelines that gradually increase the amount of carbs you can consume.

Phase 1: Induction

Phase 2: Balancing

Phase 3: Pre-Maintenance

Phase 4: Maintenance

Atkins Diet

Phase 1: Induction

Carb Limit **Less than 20 grams of net carbs per day**, primarily from non-starchy vegetables like leafy greens (e.g., spinach, kale).

Goal Kickstart weight loss by inducing ketosis, where the body starts burning stored fat for energy instead of carbs.

Foods to Eat High-protein foods (chicken, beef, fish, eggs), healthy fats (avocados, olive oil, butter), and low-carb vegetables.

Duration This phase lasts for **at least two weeks** but can be followed longer for accelerated weight loss. The more weight you have to lose, the longer you can stay in this phase.



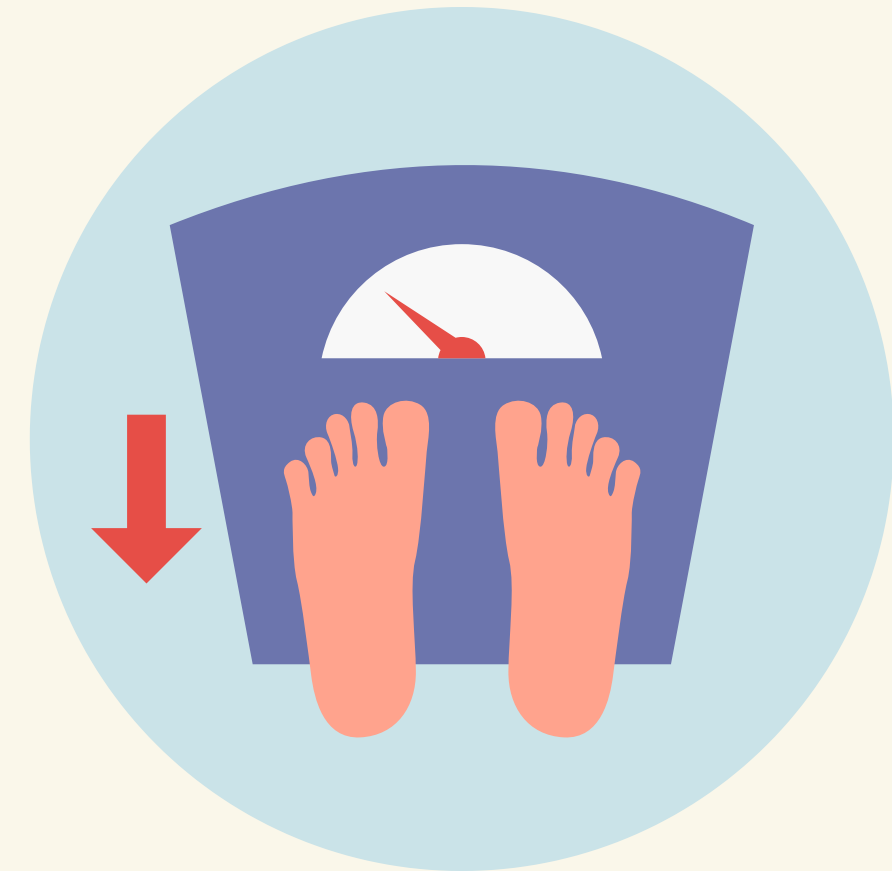
Atkins Diet

Phase 2: Balancing

Carb Limit Gradually increase your **carb intake by 5 grams per day**, aiming to find the level that allows you to continue losing weight. The focus is on incorporating low-carb fruits, nuts, and seeds.

Goal Continue weight loss while adding more variety to the diet.

Foods to Eat In addition to the foods from Phase 1, you can start adding small portions of fruits (like berries), more nuts, and other low-carb vegetables.



Atkins Diet

Phase 3: Pre-Maintenance

Carb Limit Increase **carb intake by 10 grams per day**, aiming to reach the right amount of carbs that allows you to maintain your goal weight.

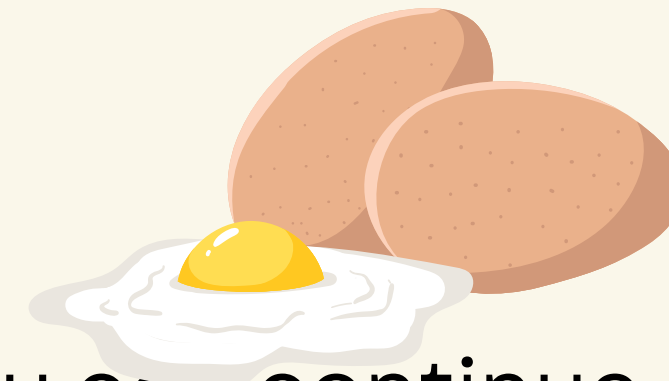
Goal Slow down weight loss as you near your goal weight and begin the transition to a more sustainable long-term diet.

Foods to Eat More carbs from whole grains and higher-carb vegetables can be added, but the focus remains on whole, unprocessed foods.



Atkins Diet

Phase 4: Maintenance



Carb Limit Once you have reached your goal weight, you can continue eating a higher amount of carbs—generally **60-90 grams of net carbs per day**—while maintaining weight loss.

Goal Maintain your weight loss by eating a healthy, balanced diet that includes a higher number of carbs while continuing to focus on whole foods and nutrient-dense options.

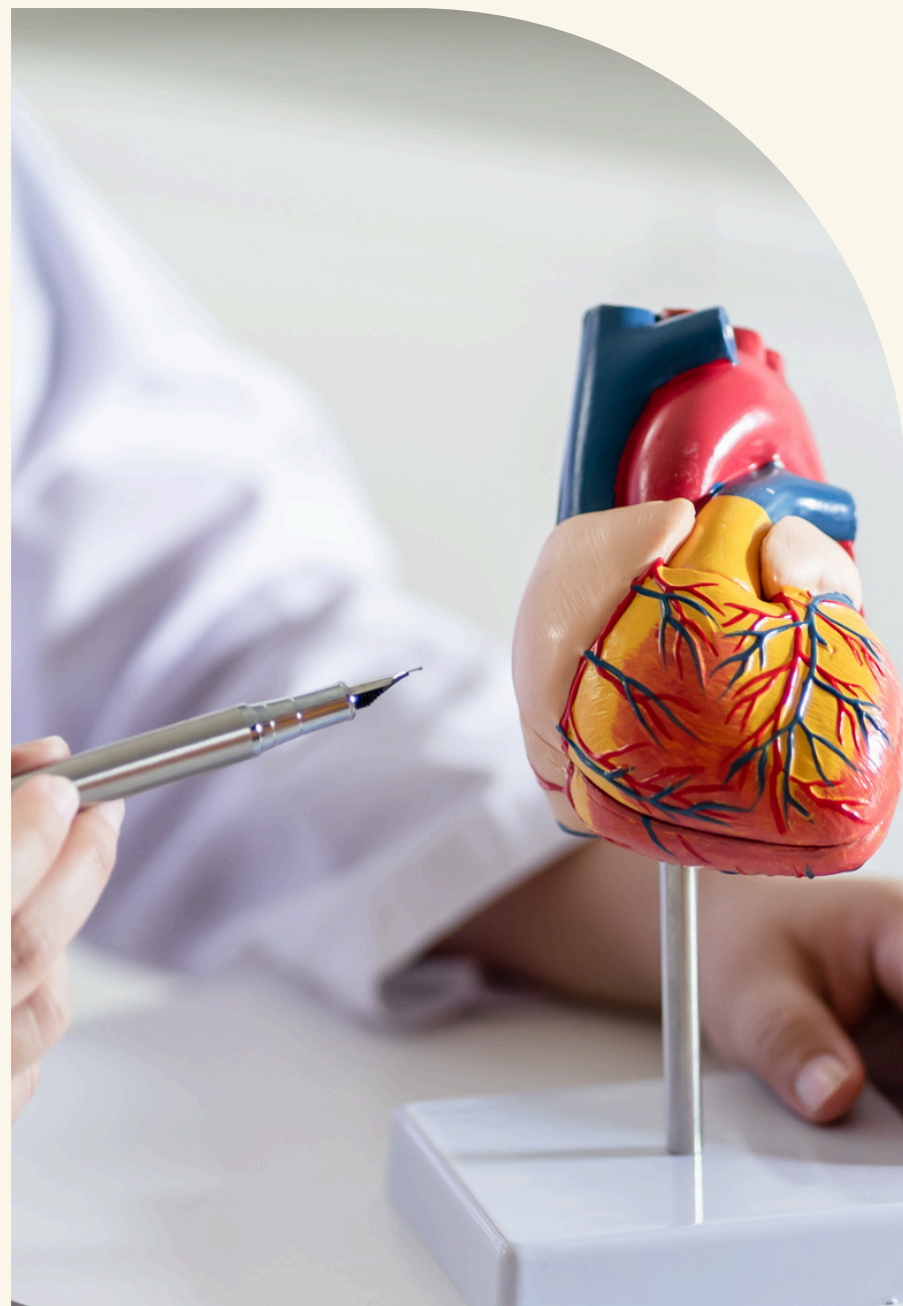
Foods to Eat At this stage, most foods are allowed, though the emphasis is on whole, unprocessed foods with a focus on lean proteins, healthy fats, and vegetables.

Benefits of the Atkins Diet



- 1. Weight Loss** By reducing carbs, the body uses stored fat for energy, which can lead to significant weight loss, especially in the initial phases.
- 2. Appetite Control** High-protein and high-fat meals tend to keep you full for longer, reducing overall calorie intake by decreasing hunger and cravings.
- 3. Improved Blood Sugar Levels** The diet helps regulate blood sugar and insulin levels, which can be beneficial for individuals with type 2 diabetes or insulin resistance.
- 4. Increased Fat Burning** By reducing carb intake, the body switches from burning glucose for energy to burning fat (ketosis), which can accelerate fat loss, especially in the abdominal area.
- 5. Improved Triglycerides and HDL Cholesterol** Studies suggest that low-carb diets like Atkins can improve blood lipid profiles by lowering triglycerides and increasing HDL (good) cholesterol.

Potential Drawbacks of the Atkins Diet



1. **Nutrient Deficiencies** A strict low-carb diet may lead to deficiencies in certain nutrients, especially in the early phases.
2. **Keto Flu** In the initial phases, some people experience flu-like symptoms, such as headaches, fatigue, dizziness, and irritability, as the body adapts to burning fat for fuel.
3. **Long-Term Sustainability** Some people find the highly restrictive nature of the diet difficult to maintain in the long term.
4. **Possible Heart Health Concerns** Since the Atkins Diet encourages high-fat intake (including saturated fats), it may raise concerns about the long-term effects on heart health.
5. **Digestive Issues** Due to the reduced intake of fiber, some people may experience constipation or bloating, especially in the earlier phases of the diet.

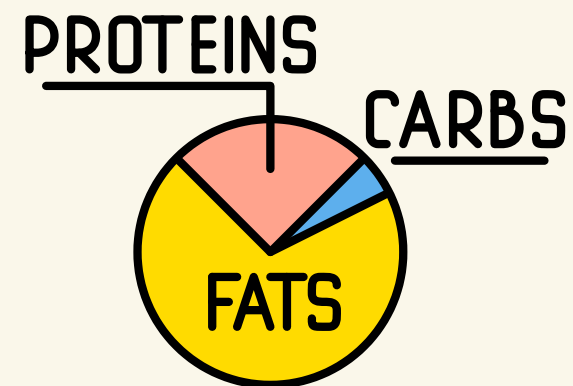
Ketogenic Diet: Low Carb – High Fat



Ketogenic Diet

The Ketogenic Diet is a low-carb, high-fat eating plan designed to induce a metabolic state called ketosis, in which the body burns fat for energy instead of carbohydrates. This shift occurs when carb intake is drastically reduced, leading the liver to produce ketones from fat, which then become the primary fuel source for the brain and body.





Ketogenic Diet

Low Carbohydrates

Typically, the ketogenic diet restricts carbohydrates to around 20-50 grams of net carbs per day. The exact number can vary based on individual factors such as activity level, metabolic health, and specific goals.

High Fats

The majority of the calories on a keto diet come from healthy fats, usually 70-80% of total calories. This includes sources like avocados, olive oil, butter, coconut oil, and fatty cuts of meat.

How the Ketogenic Diet Works



Carb Restriction and Ketosis

When you drastically reduce carbohydrate intake, your body runs low on its primary energy source (glucose). This forces the body to switch to fat stores for energy. As fats are broken down in the liver, they produce ketones, which the body then uses for energy.



Burning Fat for Fuel

Once the body enters ketosis, it begins to efficiently burn stored body fat as its primary source of energy. This can lead to significant weight loss, particularly from fat stores.



Gluconeogenesis

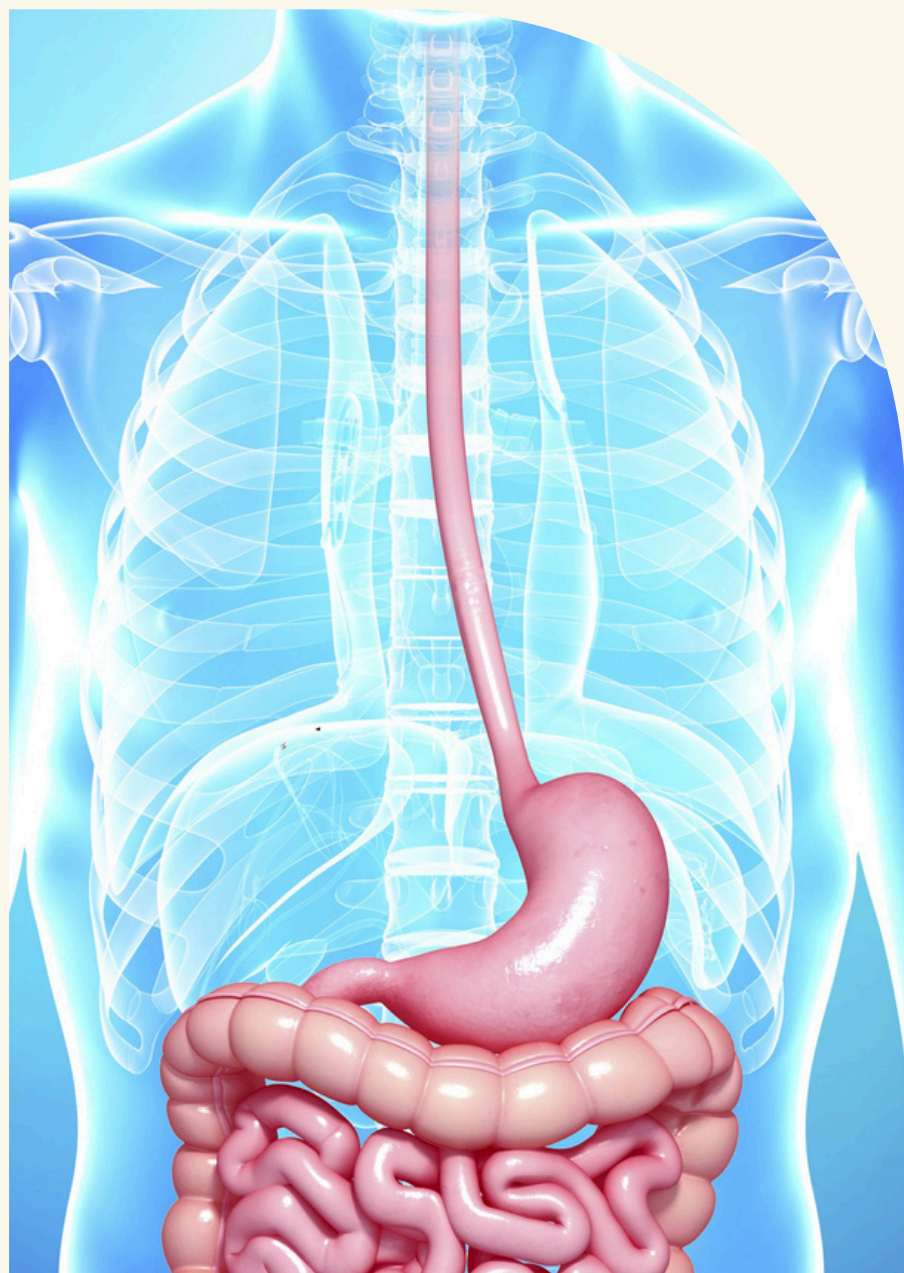
While the body's primary energy source shifts from glucose to ketones, gluconeogenesis ensures that some glucose is still available for cells that require it, such as red blood cells and certain brain functions.

Benefits of the Ketogenic Diet



- 1. Weight Loss and Fat Burning** By reducing carbs and increasing fats, the body enters ketosis, which enhances fat burning.
- 2. Improved Insulin Sensitivity and Blood Sugar Regulation** Type 2 Diabetes By drastically reducing carbohydrate intake, the ketogenic diet can help reduce blood sugar levels and improve insulin sensitivity.
- 3. Anti-Aging and Cellular Health** The ketogenic diet may have anti-aging benefits by promoting autophagy, the body's process of cleaning out damaged cells and regenerating new ones. Autophagy is believed to play a role in reducing the impact of aging at the cellular level.

Potential Challenges and Side Effects



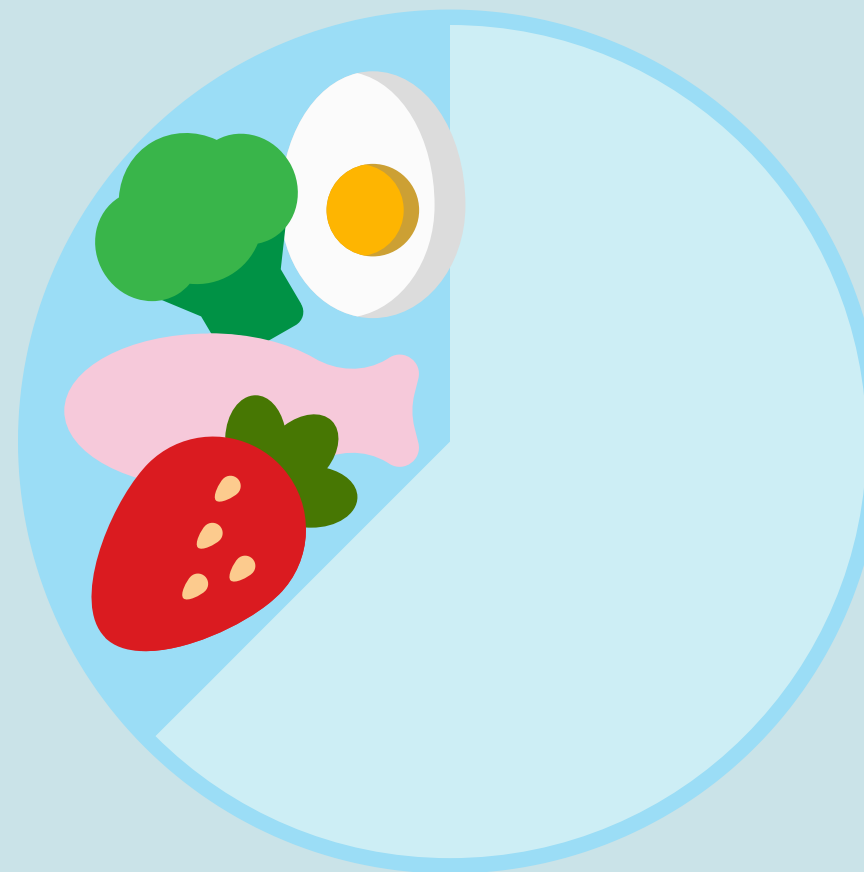
1. **Keto Flu** When transitioning into ketosis, some people may experience the “keto flu,” a temporary set of symptoms that include headaches, fatigue, dizziness, nausea, irritability, and muscle cramps.
2. **Nutrient Deficiencies** Because the ketogenic diet restricts certain food groups, it’s possible to become deficient in key nutrients like fiber, vitamins C and K, and magnesium.
3. **Digestive Issues** Due to the low intake of fiber-rich foods some people may experience constipation or other digestive discomforts.
4. **Social and Lifestyle Considerations** The ketogenic diet can be difficult to follow in social situations, such as dining out or attending events where high-carb foods are present.

Intermittent Fasting



Intermittent Fasting (IF)

Intermittent Fasting (IF) is an eating pattern that alternates between periods of eating and fasting. It doesn't prescribe what to eat, but rather when to eat. By restricting the eating window, the body is given time to rest from constant digestion and potentially harness the health benefits of fasting.





How Intermittent Fasting Works



During fasting periods, insulin levels drop significantly. This helps the body access stored fat for energy, as lower insulin levels promote fat burning.

Insulin Sensitivity

Cellular Repair and Autophagy

Fasting can significantly increase the production of growth hormone, which helps preserve muscle mass, promote fat burning, and improve cellular repair.

clean up damaged cells and regenerate new ones. This process is thought to help with anti-aging, reduce inflammation, and improve overall cell health.

Human Growth Hormone Production

Increased Fat Burning

After the body has used up its immediate supply of glucose from food, it switches to burning stored fat for energy.

Methods of Intermittent Fasting

16/8 Method (Leangains Protocol)

Fasting Period: Fast for 16 hours.

Eating Window: Eat during an 8-hour window, typically between noon and 8 p.m.

This is one of the most popular and easiest-to-follow methods, as it often involves skipping breakfast and consuming two or three meals within the 8-hour period.



Methods of Intermittent Fasting

5:2 Method

Eating: Eat normally for 5 days of the week.

Fasting: On the remaining 2 days, reduce calorie intake to about 500–600 calories per day.

This method involves fasting twice a week but still allows you to eat regularly during the other 5 days, making it a flexible option.



Methods of Intermittent Fasting

The Warrior Diet

Fasting Period: **20 hours of fasting** (with very minimal food, such as small portions of fruits and vegetables).

Eating Window: A **4-hour eating window at night**, where you eat one large meal.

This method is more restrictive and may be difficult for beginners but can be effective for those seeking significant weight loss.



Benefits of Intermittent Fasting



1. **Weight Loss and Fat Loss** By limiting eating windows, people tend to naturally consume fewer calories, and the body also switches to burning fat for fuel. This can lead to fat loss, particularly from the belly area.
2. **Improved Metabolic Health** By reducing insulin resistance, fasting lowers the risk of type 2 diabetes and can help control existing blood sugar issues.
3. **Cellular Repair and Anti-Aging** During fasting, autophagy (the body's process of cleaning out damaged cells and regenerating new ones) increases.

Challenges and Considerations



1. **Hunger and Cravings** In the initial stages, hunger and food cravings are common, especially if you're not used to fasting. However, over time, the body adapts, and many people report less frequent hunger during fasting periods.
2. **Energy Levels** Some people may initially experience low energy levels during fasting periods, particularly if they are new to intermittent fasting.
3. **Nutrient Deficiency** If not properly planned, intermittent fasting can lead to nutrient deficiencies, particularly if you're not consuming a variety of whole foods during eating windows.

Plant-Based Diet



Plant-Based Diet

A Plant-Based Diet is a way of eating that focuses primarily on foods derived from plants. While the term "plant-based" often refers to a diet that minimizes or eliminates animal products, it emphasizes the consumption of a wide variety of whole, plant-derived foods such as fruits, vegetables, whole grains, legumes, nuts, seeds, and plant-based oils.



Plant-Based Diet

Unlike a vegan diet, which excludes all animal-derived products (including dairy, eggs, and honey), a plant-based diet doesn't necessarily eliminate all animal products entirely. It generally encourages plant foods as the primary source of nutrition, with occasional, smaller amounts of animal-based foods. The main goal is to prioritize foods that are nutrient-dense and come from nature's offerings, rather than highly processed or refined products.



Plant-Based Diet

Minimizing or Eliminating Animal Products

while some plant-based diets may include small amounts of animal products. A typical plant-based diet might consist of

- Vegetables: Leafy greens, cruciferous vegetables (broccoli, cauliflower), root vegetables (carrots, sweet potatoes), etc.
- Fruits: Berries, citrus, apples, bananas, and tropical fruits like mangoes and pineapples.
- Whole Grains: Brown rice, quinoa, oats, barley, millet, farro.
- Legumes: Beans, lentils, peas, chickpeas, edamame.
- Nuts and Seeds: Almonds, walnuts, flaxseeds, chia seeds, pumpkin seeds.
- Plant-based Oils: Olive oil, avocado oil, coconut oil.

Benefits of Plant-Based Diet



- 1. Better Digestion** The high fiber content helps regulate bowel movements, improves digestion, and supports the growth of healthy gut bacteria, reducing the risk of constipation and promoting overall digestive health.
- 2. Anti-Aging and Longevity** Many plant-based foods are loaded with antioxidants, which help neutralize harmful free radicals that cause oxidative damage and contribute to aging.
- 3. Sustainability and Environmental Impact** The production of plant-based foods generally requires fewer natural resources (water, land) and results in less greenhouse gas emissions than raising animals for food.

Potential Drawbacks of the Atkins Diet



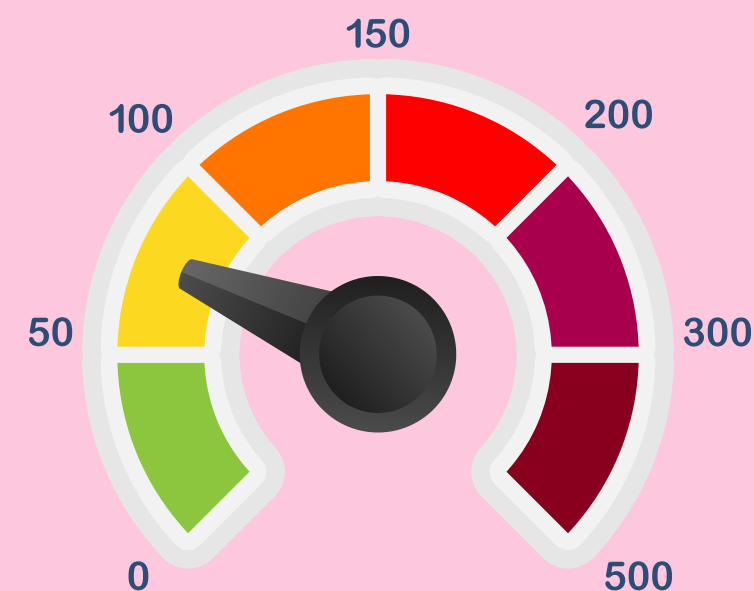
- 1. Nutrient Deficiencies** While plant-based diets are rich in vitamins, minerals, and fiber, they can sometimes be lacking in certain nutrients typically found in animal products. These include **Vitamin B12** (Found mainly in animal products), **Iron**, **Omega-3 Fatty Acids** are found in fatty fish.
- 2. Processed Plant-Based Foods** Highly processed plant-based foods, such as meat substitutes, chips, sugary snacks, and refined carbohydrates, can still contribute to poor health. For optimal health, it's essential to prioritize whole, minimally processed plant foods over packaged, processed alternatives.

Low Glycemic Index Diet



Low Glycemic Index Diet (Low GI)

The idea behind a low glycemic index diet is to help control blood sugar levels, which can have a range of health benefits. Since foods with a low GI are digested and absorbed more slowly, they provide a steady release of energy, helping to maintain stable blood sugar levels and preventing the peaks and crashes that can occur with high-GI foods.

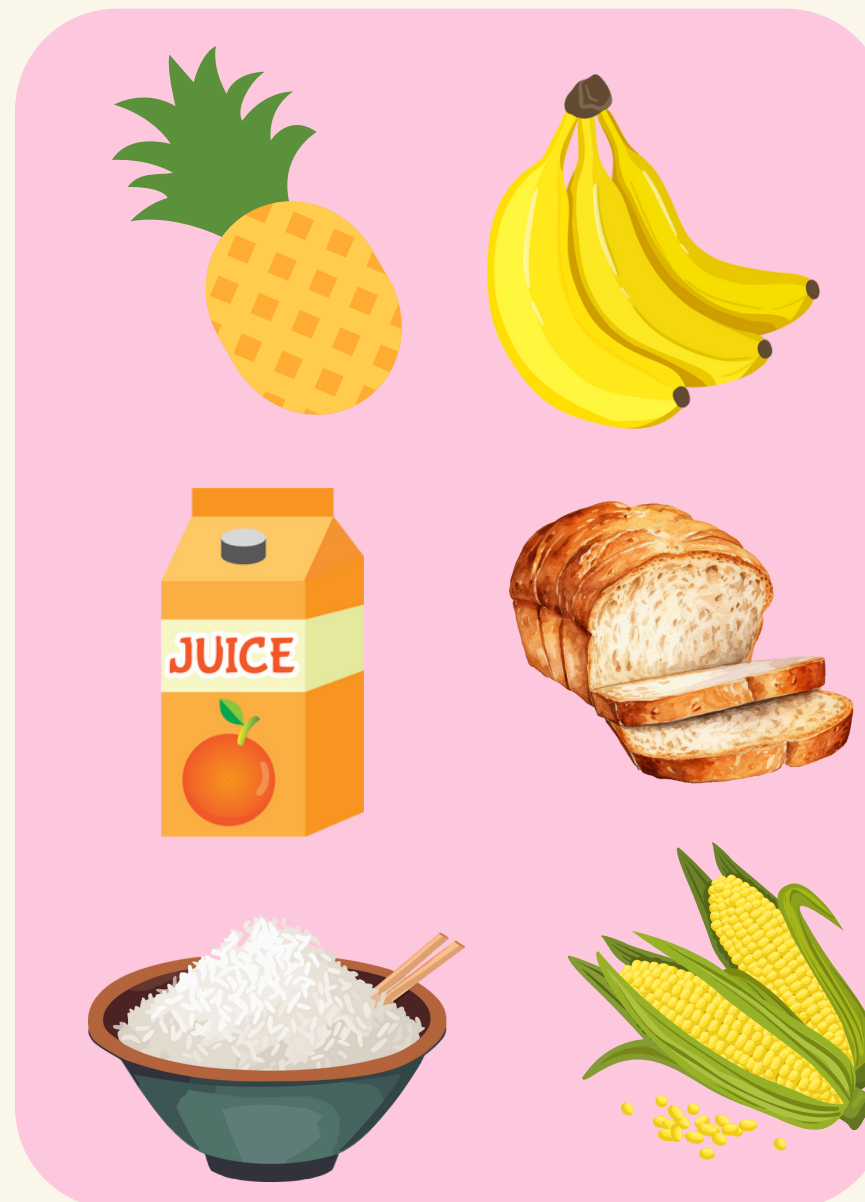


Common Foods in a Low Glycemic Index Diet

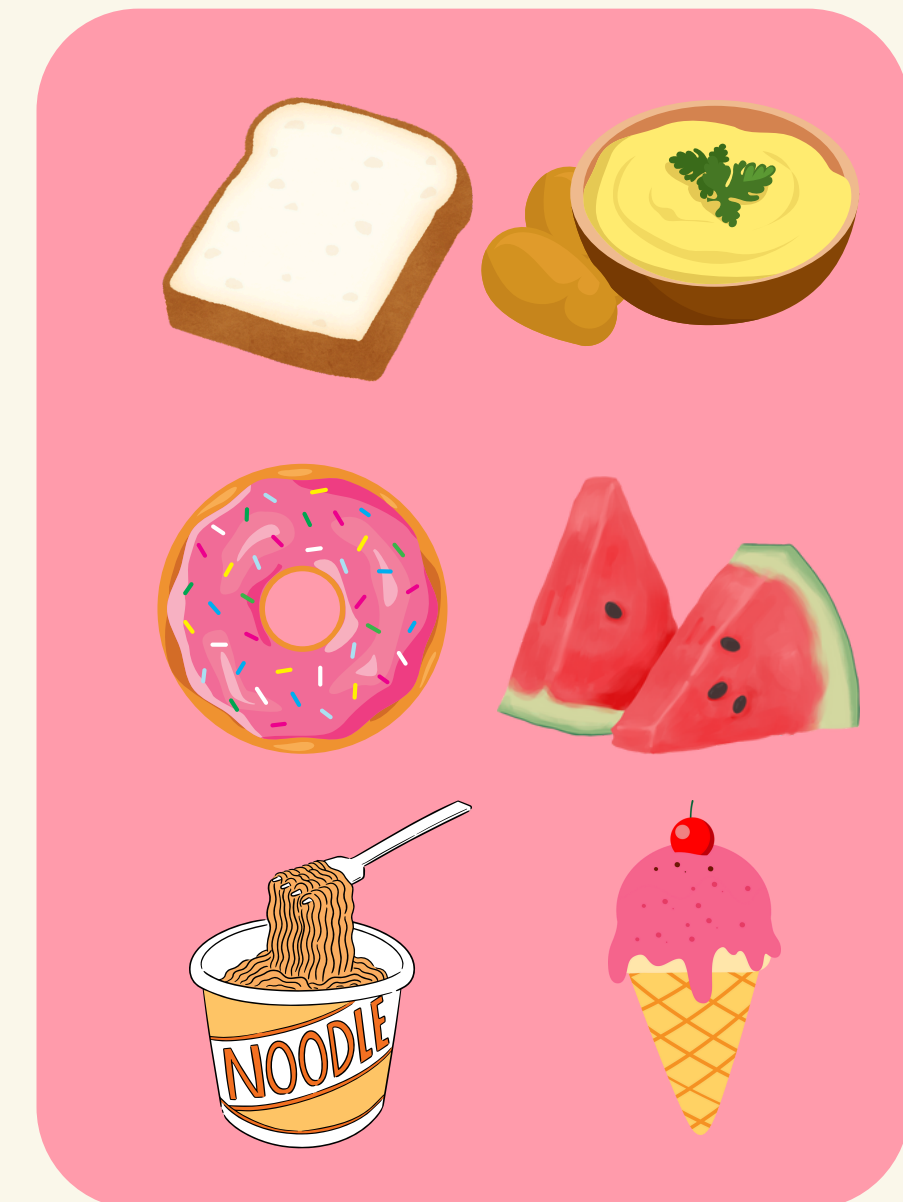
Low GI Foods (55 or below)



Medium GI Foods (56-69)



High GI Foods (70 and above)





Benefits of a Low Glycemic Index Diet

Better Blood Sugar Control

A low GI diet is particularly beneficial for people with diabetes. By eating foods that raise blood sugar more gradually, blood sugar levels can be better controlled, reducing the need for medication or insulin.

Weight Management

Low GI foods tend to be more filling and satiating than high GI foods, which means you may feel fuller for longer and are less likely to overeat or experience hunger cravings.

Improved Heart Health

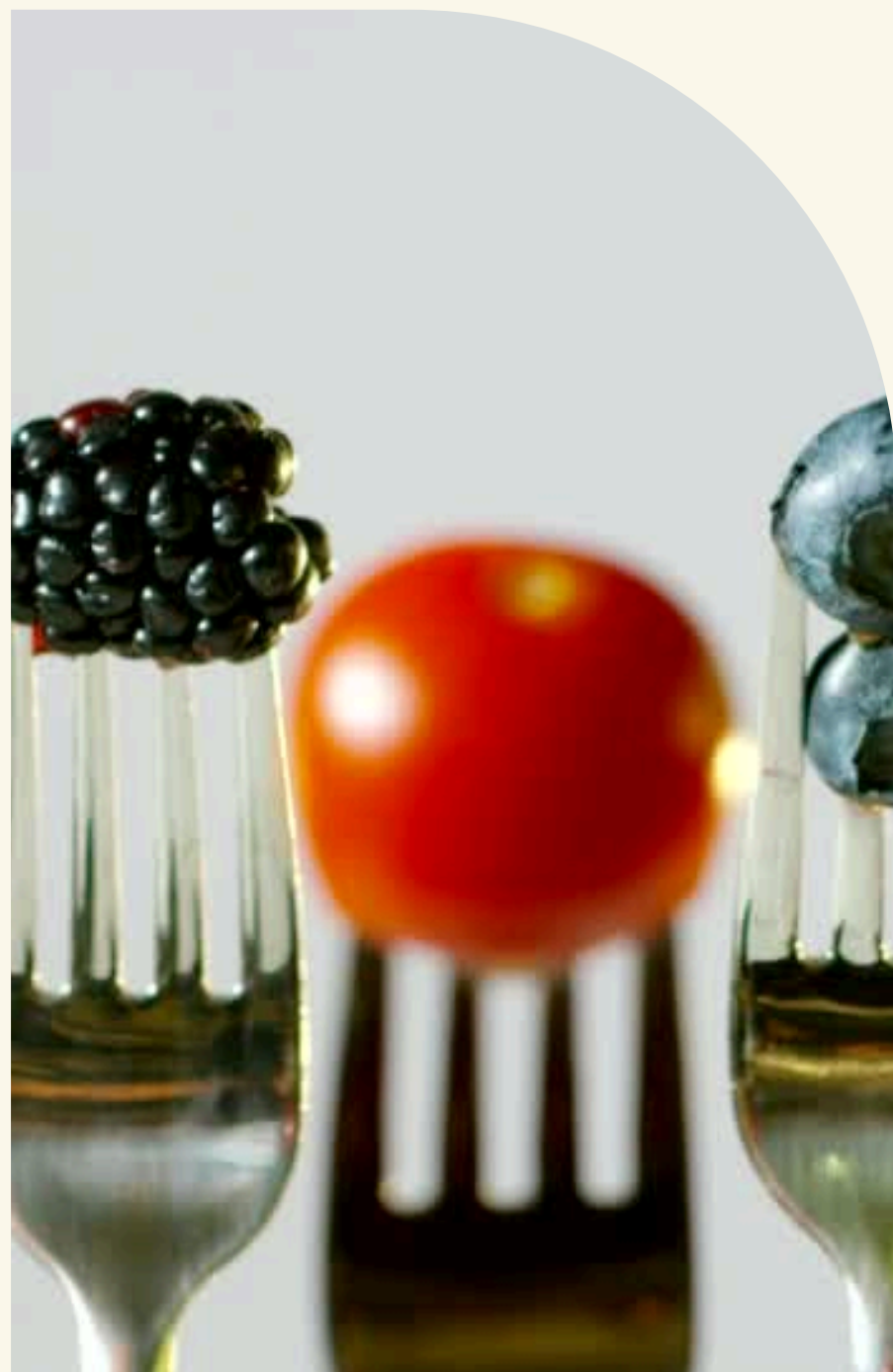
low GI diets help reduce the risk of developing heart disease and stroke. Some studies have shown that a low GI diet can help lower triglycerides and increase HDL cholesterol, both of which are important for heart health.

Reduced Risk of Chronic Diseases

A low GI diet may help reduce the risk of developing type 2 diabetes, heart disease, and obesity, all of which are linked to poor blood sugar control and insulin resistance.



Potential Drawbacks of the Low GI Diet



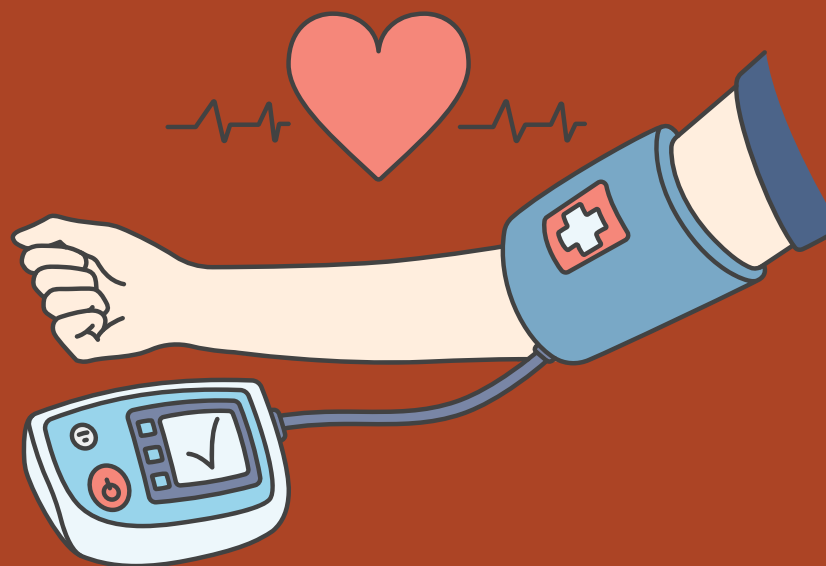
- 1. Not All High-GI Foods Are Unhealthy** Misleading Labels,
The GI only measures the rate at which a food raises blood sugar, not its overall nutritional quality. Some high-GI foods, such as watermelon, pineapple, and carrots, are still nutrient-dense and healthy. They provide important vitamins, minerals, and antioxidants despite their higher GI value.
- 2. GI Doesn't Consider Nutrient Density or Caloric Content**
The GI scale does not account for nutrient density or the overall caloric content of a food. For example, foods with a low GI may still be calorie-dense (e.g., certain nuts or avocados), while high-GI foods may be low in calories but packed with nutrients.

DASH Diet



DASH Diet

The DASH Diet stands for Dietary Approaches to Stop Hypertension. It is a diet plan that was originally developed to help lower high blood pressure (hypertension) and promote overall heart health. The DASH diet emphasizes nutrient-rich, whole foods that are low in sodium and high in potassium, magnesium, calcium, and fiber—nutrients that help control blood pressure and improve cardiovascular health.



DASH Diet

Focus on Nutrient-Rich Foods

- **Fruits and Vegetables** The diet encourages consuming 4–5 servings of vegetables and 4–5 servings of fruits each day. These foods are rich in **potassium, magnesium, and fiber, which help lower blood pressure** and improve overall health.
- **Whole Grains** 6–8 servings. Whole grains like brown rice, quinoa, oats, and whole wheat bread are high in fiber and important for heart health.
- **Lean Proteins** The DASH diet promotes lean protein sources, such as poultry, fish, beans, nuts, and seeds.



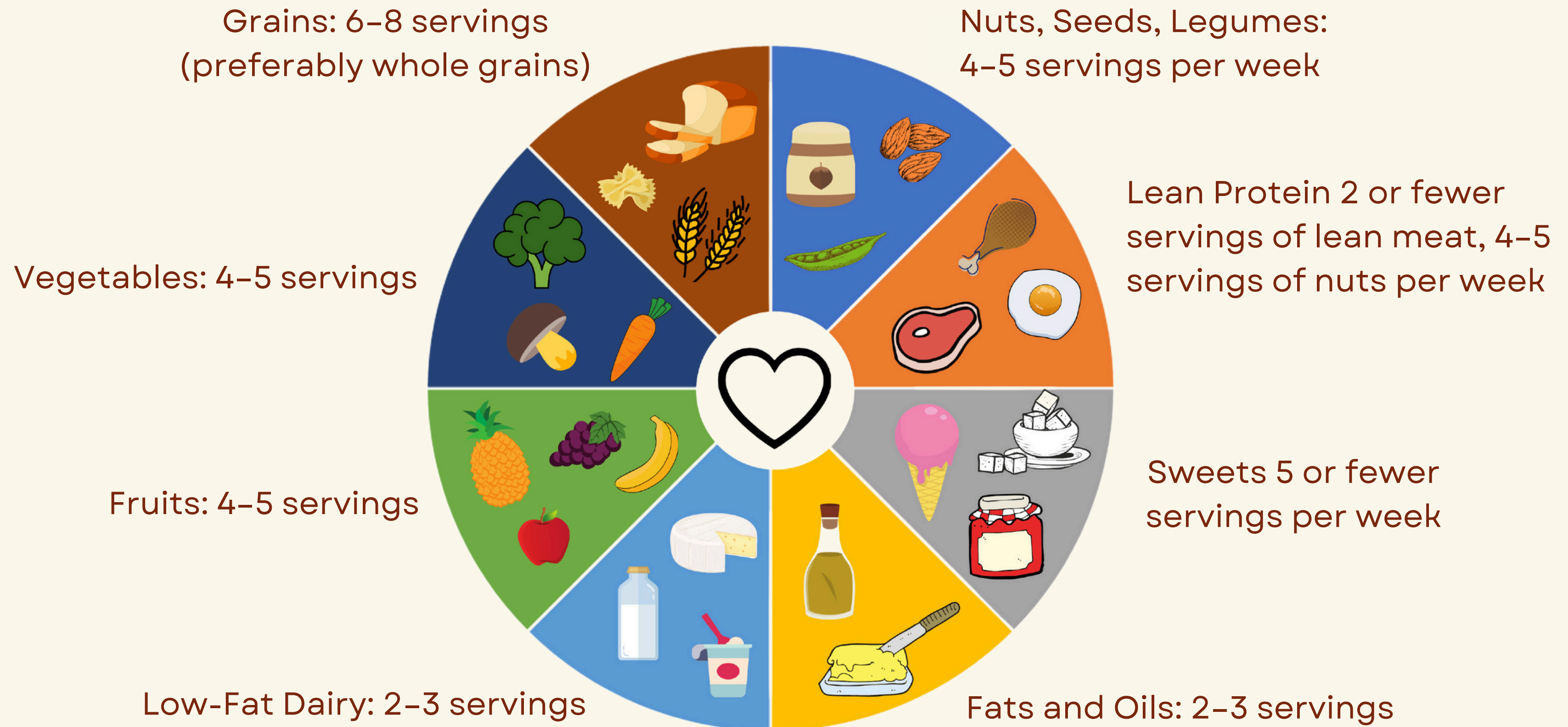
DASH Diet

Limiting Sodium Intake

The DASH diet emphasizes reducing sodium consumption, as excess salt can raise blood pressure. The standard DASH diet recommends a limit of 2,300 mg of sodium per day, while a more strict version for people with hypertension recommends 1,500 mg per day.



Recommended Daily Servings on the DASH Diet



Benefits of the DASH Diet



- 1. Blood Pressure Reduction** The primary benefit of the DASH diet is its ability to lower blood pressure, both systolic and diastolic. Numerous studies have shown that people who follow the DASH diet experience significant reductions in hypertension, often within just a few weeks. By focusing on potassium, magnesium, and calcium-rich foods and limiting sodium, the DASH diet helps regulate blood pressure.
- 2. Heart Health** The DASH diet improving key risk factors such as blood pressure, cholesterol, and inflammation. The emphasis on healthy fats, lean proteins, and fiber-rich foods helps lower LDL (bad) cholesterol and improve HDL (good) cholesterol.



Potential Drawbacks of the DASH Diet



- 1. Cost of Fresh Ingredients** Fresh fruits, vegetables, and lean proteins can sometimes be more expensive than processed or pre-packaged foods. However, buying in-season produce, purchasing frozen vegetables, and planning meals in advance can help mitigate costs.
- 2. Limited Salt and Processed Foods** While limiting salt is beneficial for lowering blood pressure, some people may find it difficult to adjust to lower sodium levels in their diet, especially if they are used to salty, processed foods. The DASH diet requires individuals to be more mindful of food labels and may limit convenience foods that are high in sodium.

Low FODMAPs Diet



Low FODMAPs Diet

The FODMAP Diet is a dietary approach designed to help manage symptoms of irritable bowel syndrome (IBS) and other gastrointestinal (GI) conditions, such as inflammatory bowel disease (IBD), functional dyspepsia, and small intestinal bacterial overgrowth (SIBO). The term FODMAP stands for Fermentable Oligosaccharides, Disaccharides, Monosaccharides, and Polyols, which are a group of short-chain carbohydrates (sugars) that are poorly absorbed in the small intestine.



Low FODMAPs Diet

These carbohydrates tend to be fermented by bacteria in the large intestine, causing the production of gas and leading to symptoms like bloating, diarrhea, constipation, and abdominal pain. The Low FODMAP Diet aims to eliminate or reduce the intake of foods high in these carbohydrates, thus helping to relieve gastrointestinal symptoms.



Low FODMAPs Diet

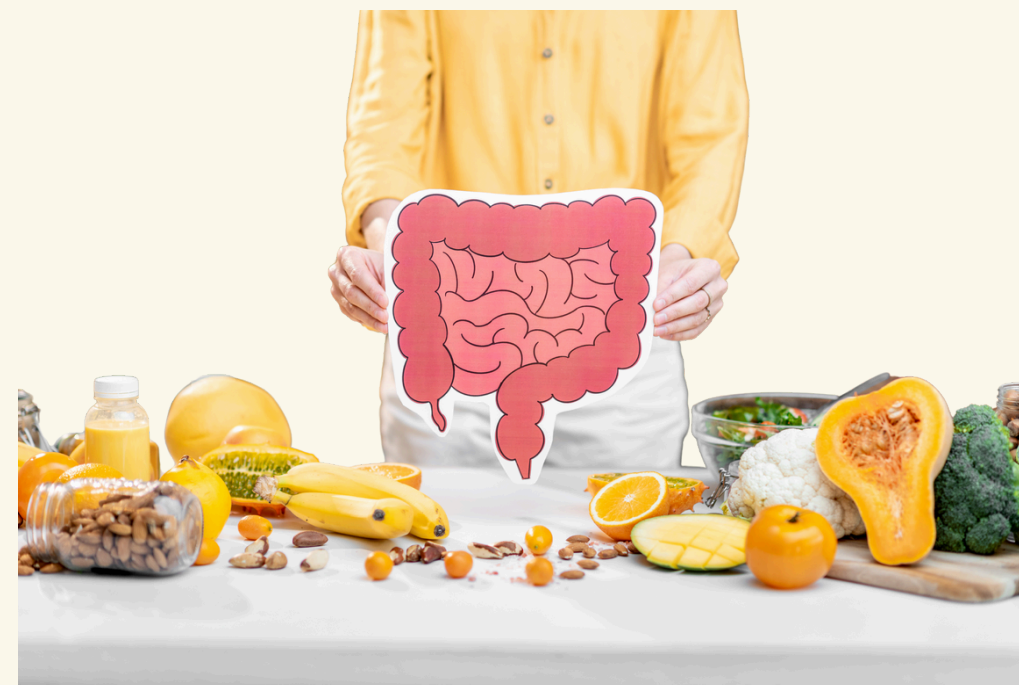
Three Phases

The Low FODMAP Diet typically involves three phases

Phase 1: Elimination Phase

Phase 2: Reintroduction Phase

Phase 3: Personalization Phase



Low FODMAPs Diet

Phase 1: Elimination Phase

In this phase, all foods high in FODMAPs are eliminated for 4–6 weeks. The goal is to reduce symptoms like bloating, abdominal pain, and irregular bowel movements by avoiding high-FODMAP foods.

High-FODMAP foods eliminated during this phase include

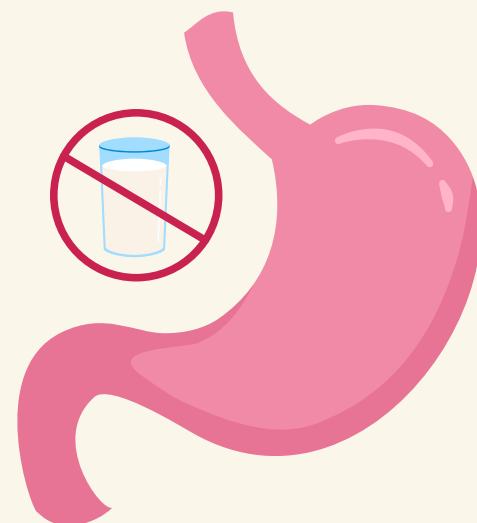
- Dairy products (milk, soft cheese, ice cream)
- Certain fruits (apples, pears, cherries, mangoes)
- Certain vegetables (onions, garlic, cauliflower, asparagus)
- Wheat and rye products, Legumes (lentils, chickpeas, kidney beans)



Low FODMAPs Diet

Phase 2: Reintroduction Phase

After the elimination phase, specific high-FODMAP foods are gradually reintroduced to identify which FODMAP groups trigger symptoms. This phase is essential because it helps pinpoint the specific types of FODMAPs that cause problems. Foods are introduced one at a time, typically over a period of 3–5 days per food, to observe any changes in symptoms.



Low FODMAPs Diet

Phase 3: Personalization Phase

- Once the reintroduction phase is complete, a personalized eating plan is created, where foods that are well-tolerated can be reintroduced in appropriate quantities, and high-FODMAP foods that cause symptoms can be limited or avoided.
- The goal is not to permanently eliminate all FODMAPs, but to establish a manageable, long-term diet that provides relief while allowing for a varied and nutritionally balanced intake of foods.



Benefits of Low FODMAPs Diet



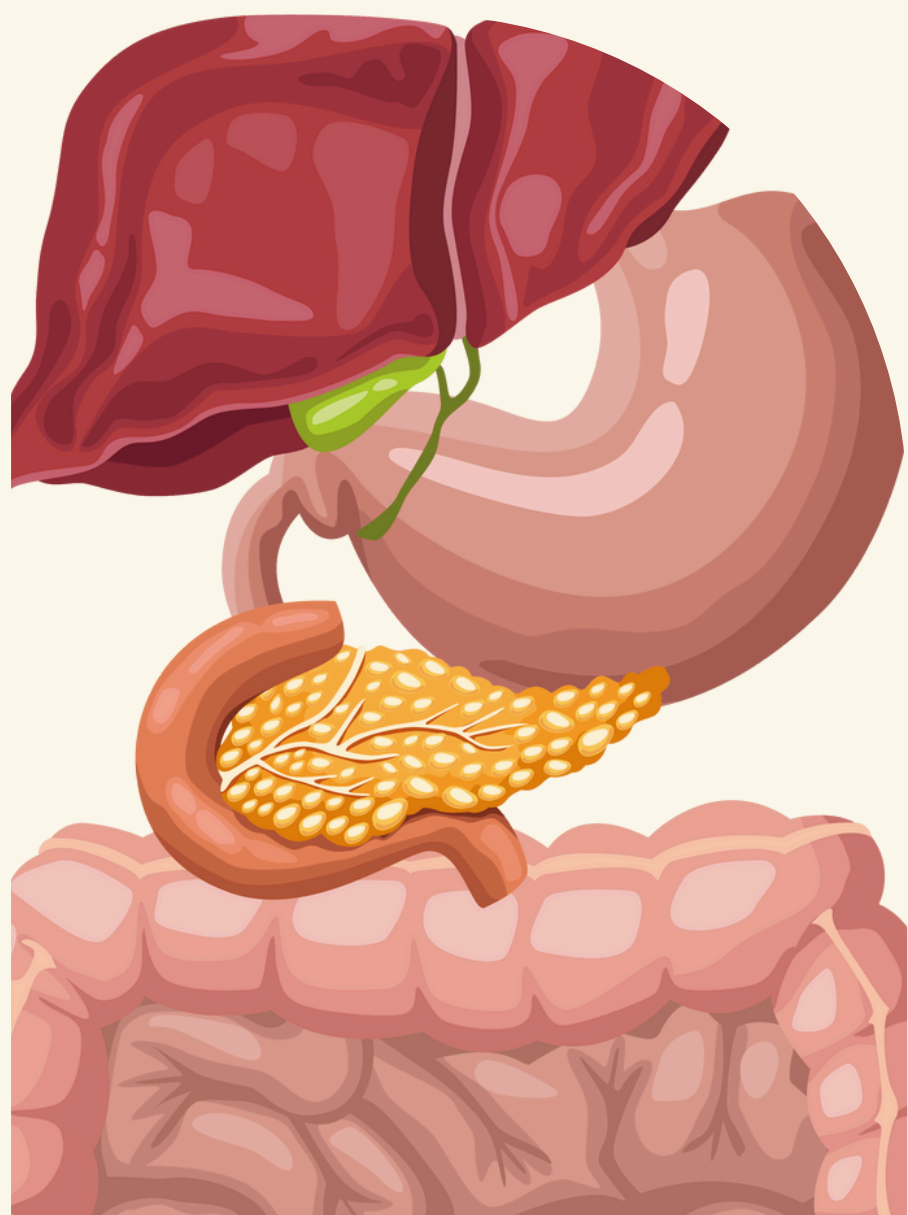
1.Improved Digestive Health

The Low FODMAP Diet is particularly effective for individuals suffering from IBS, bloating, gas, abdominal pain, and irregular bowel movements. By eliminating foods that are poorly absorbed and ferment in the gut, the diet can provide significant relief from these symptoms.

2.Better Control of IBS Symptoms

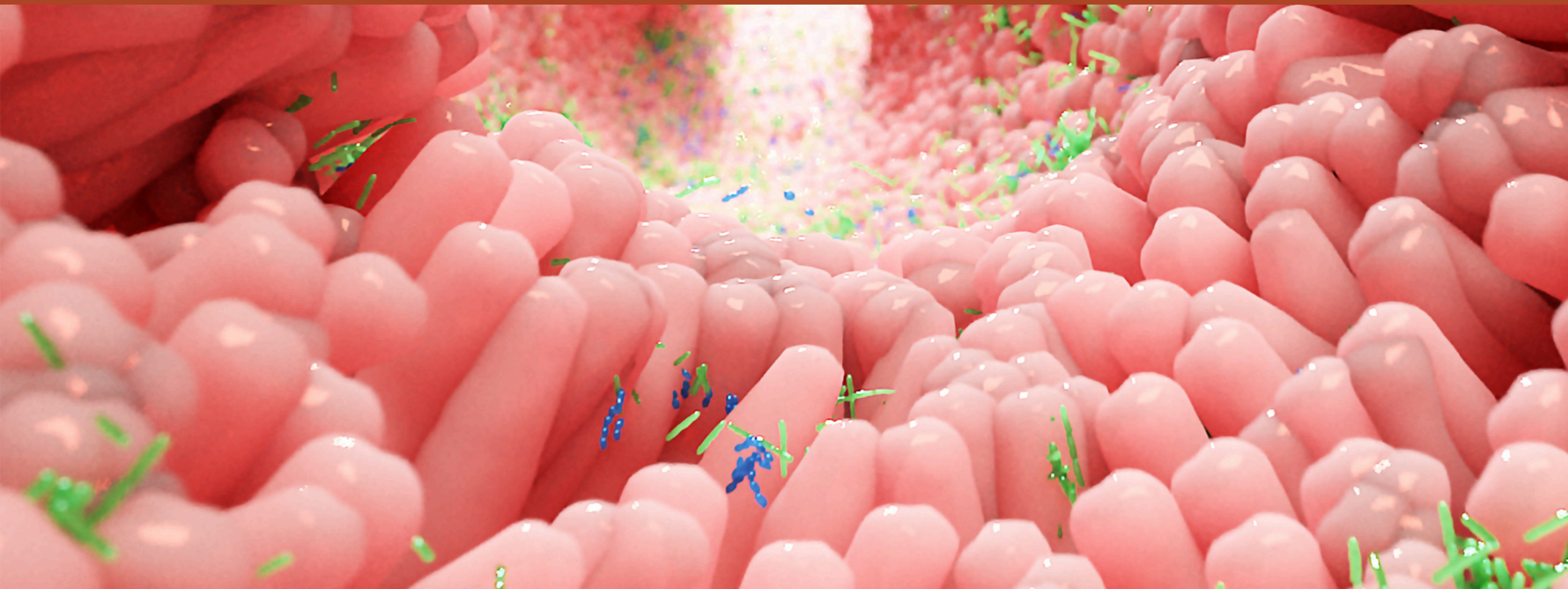
Studies have shown that the FODMAP diet can be very effective in reducing the symptoms of irritable bowel syndrome (IBS), including diarrhea, constipation, and bloating. It has been recognized as one of the most effective dietary interventions for managing IBS symptoms.

Potential Drawbacks of the Low FODMAPs Diet



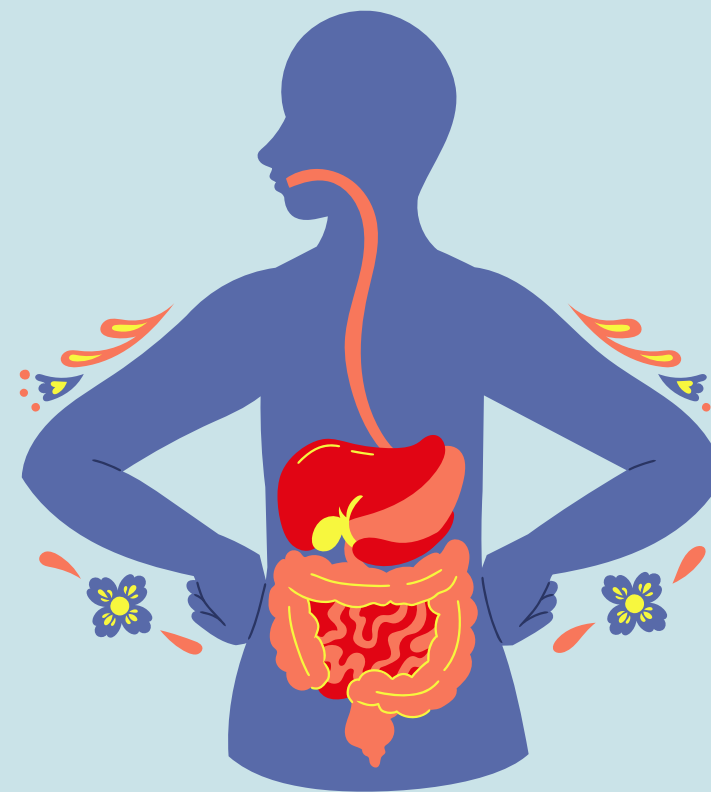
- 1. Complexity and Restrictiveness** The FODMAP diet can be difficult to follow, especially during the elimination phase, due to the need to avoid a wide variety of common foods like dairy, wheat, onions, garlic, and certain fruits. This can make meal planning more complicated and may require significant changes to shopping habits and cooking practices.
- 2. Nutritional Imbalances** Restricting high-FODMAP foods without proper guidance can lead to nutritional imbalances. For example, eliminating dairy products without replacing them with calcium-rich alternatives could lead to deficiencies in calcium and vitamin D. It is important to work with a registered dietitian to ensure nutritional adequacy.

Microbiome Diet Plan



Microbiome Diet Plan

The Microbiome Diet Plan is a dietary approach designed to promote the health of the gut microbiome, which is the diverse community of bacteria, fungi, viruses, and other microorganisms living in the digestive tract. The gut microbiome plays a crucial role in overall health, influencing not only digestion but also the immune system, metabolism, mental health, and even chronic disease risk.



Microbiome Diet Plan

The Microbiome Diet Plan focuses on eating foods that nourish beneficial gut bacteria while eliminating or reducing foods that harm the microbiome. This approach is based on research that highlights the importance of fiber, prebiotics, and probiotics for gut health.



Microbiome Diet Plan

Increase Fiber Intake

Fiber is the primary fuel source for beneficial gut bacteria. Prebiotic fiber helps promote the growth of healthy bacteria, which can improve digestion, reduce inflammation, and enhance immune function.



Incorporate Fermented Food

Fermented foods are rich in probiotics, which are live beneficial bacteria that can help balance the gut microbiome. These foods help introduce more beneficial microbes into the gut, supporting gut health and digestion.



Benefits of Microbiome Diet Plan



- 1. Improved Gut Health** By nourishing beneficial bacteria and promoting a balanced microbiome, the diet can help alleviate symptoms of digestive disorders like IBS, bloating, and constipation. A healthy gut microbiome also supports digestive efficiency and nutrient absorption.
- 2. Enhanced Immune Function** The gut microbiome plays a key role in the immune system by regulating immune responses. A balanced microbiome can help modulate inflammation and reduce the risk of autoimmune diseases and chronic inflammatory conditions.

Potential Drawbacks of Microbiome Diet Plan



1. **Food Preparation** Incorporating fermented foods and a variety of plant-based options can require more meal planning and preparation, particularly if you need to prepare fermented foods like sauerkraut or kefir at home.
2. **Digestive Sensitivities** for some individuals, certain high-fiber foods or fermented foods can initially cause digestive discomfort as the gut microbiome adapts. Gradually introducing these foods into the diet can help reduce symptoms.



Lesson Summary and Application

- **Patient Education and Counseling**

By understanding both the benefits and drawbacks of diets like the Atkins, Ketogenic, or Intermittent Fasting, students can **educate patients about realistic expectations, potential risks**, and how to follow these diets safely under supervision.

- **Promoting Long-Term Health and Healthy Aging**

The knowledge of plant-based diets, low glycemic index foods, and microbiome-diets allows nursing students to **encourage long-term eating habits** that reduce inflammation, and improve gut health. All essential in the anti-aging process.





Thank you!