

Probiotics, Prebiotics,

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Probiotics

- Probiotics are live bacteria and yeasts that have beneficial effects on your body. These species already live in your body, along with many others. Probiotic supplements add to your existing supply of friendly microbes. They help fight off the less friendly types and boost your immunity against infections"
- Probiotics are foods or supplements that contain live microorganisms intended to maintain or improve the "good" bacteria (normal microflora) in the body. Prebiotics are foods (typically high-fiber foods) that act as food for human microflora.
- "The FAO/WHO definition of a probiotic—"live microorganisms which when administered in adequate amounts confer a health benefit on the host"—was reinforced as relevant and sufficiently accommodating for current and anticipated applications"
- "Here are some fermented foods that naturally contain probiotics, and some ways to try them with your family. Yogurt and kefir (milk or non-dairy based, such as soy, coconut, and water) ...Sauerkraut, kimchi, pickles. ...Miso, tamari (soy) ...Tempeh (soy) ...Kombucha. ...Sour cream, cottage cheese, aged cheese."
- Kombucha tea is a fermented drink made with tea, sugar, bacteria and yeast. To make the drink, bacteria and yeast must first grow together to form a culture. The culture is added to the sugar and tea. Then the mix is allowed to ferment.
- Tempeh is made by fermentation using beneficial microorganisms such as mold and lactic acid bacteria (LAB). LAB has potential as a probiotic. However, generally, people consume cooked tempeh. Thus, the microorganisms are inactivated and become para probiotics.
- "Ayurveda Takra is considered as the source of Probiotic."

Prebiotics

- "Prebiotics are foods (typically high-fiber foods) that act as food for human microflora. Prebiotics are used with the intention of improving the balance of these microorganisms."
- Probiotics: Living strains of bacteria that add to the population of good bacteria in your digestive system.
- Prebiotics: Specialized plant fiber that acts as food for the good bacteria.
- "Fructo-oligosaccharides (FOS), galacto-oligosaccharides (GOS), and trans-galacto-oligosaccharides (TOS) are the most common prebiotics."
- "prebiotics, and some ways to try them with your family.
- Almonds. Whole almonds, almond butter, baked goods made with almond flour. Bananas. ...Whole grain wheat. ...Whole grain corn. ...Whole grain rye and barley. ...Flax. ...Soy. ...Cabbage."

Ergogenic aids

- "Ergogenic aids are supplements that claim to enhance the performance of athletes. They are used to enhance recovery; improve strength, speed, and endurance; reduce time to fatigue; and increase energy to give athletes a competitive advantage."
- five of the most effective ergogenic aids: creatine, beta-alanine, nitrates, caffeine, and protein. Methods: We conducted a narrative review of the literature with a focus on the sport supplements with the most robust evidence for efficacy and safety."
- While ergogenic aids may come as supplements or vitamins, many are found in the regular diet of an athlete and show little evidence of providing a significant athletic benefit. B vitamins and chromium picolinate are two examples of ergogenic aids that aim to increase energy production and build muscle in the body.
- Considering that nutrition is one of the fundamental pillars to optimize sports performance, some have suggested that Ashwagandha may provide ergogenic benefits for active individuals and athletes.

Mediterranean diet plan

- The foundation of the Mediterranean diet is plant foods. That means meals are built around vegetables, fruits, herbs, nuts, beans and whole grains. Moderate amounts of dairy, poultry and eggs are part of the Mediterranean diet, as is seafood. In contrast, red meat is eaten only once in a while“
- A good amount of fish, especially fish rich in omega-3 fatty acids. A moderate amount of natural cheese and yogurt. Little or no red meat, choosing poultry, fish or beans instead of red meat. Little or no sweets, sugary drinks or butter“.
- "Possible Health ConcernsYou may gain weight from eating fats in olive oil and nuts.You may have lower levels of iron. ...You may have calcium loss from eating fewer dairy products. ...Wine is a common part of a Mediterranean eating style but some people should not drink alcohol"

DASH Diet

- DASH stands for Dietary Approaches to Stop Hypertension. The DASH diet is a healthy-eating plan designed to help prevent or treat high blood pressure, also called hypertension. It also may help lower cholesterol linked to heart disease, called low density lipoprotein (LDL) cholesterol.
- DASH diet: Healthy eating to lower your blood pressure -
- advantages of the DASH diet- people who follow the DASH diet can reduce their: blood pressure, blood sugar, triglycerides, or fat, in the blood low-density lipoprotein (LDL), or “bad” cholesterol , insulin resistance.
- The DASH diet: The 1st phase focuses on low-carb and protein-rich food for 2 weeks. You will avoid all fruit and grains. You'll achieve this by eating non-starchy veg and lean meat. The idea is that this will “reset” your metabolism to make your body respond better to the diet's anti-hypertension benefits.
- (DASH) diet is recommended for people who want to prevent or treat high blood pressure and reduce their chance of developing heart disease.
- Those with lactose intolerance or food allergies (e.g., nuts) may need to modify the diet to include lactose-free alternatives to dairy and seeds instead of nuts.
- Eat this: vegetables, fruits, whole grains, fat-free or low-fat dairy, fish, poultry, beans, nuts and seeds, vegetable oils.
- Limit this: fatty meats, full-fat dairy, sugar sweetened beverages, sweets, sodium intake"

Keto diet

- “Ketogenic” is a term for a low-carb diet (like the Atkins diet). The idea is for you to get more calories from protein and fat and less from carbohydrates. You cut back most on the carbs that are easy to digest, like sugar, soda, pastries, and white bread.
- When you eat less than 50 grams of carbs a day, your body eventually runs out of fuel (blood sugar) it can use quickly. This typically takes 3 to 4 days. Then you'll start to break down protein and fat for energy, which can make you lose weight. This is called ketosis. It's important to note that the ketogenic diet is a short term diet that's focussed on weight loss rather than the pursuit of health benefits.
- A ketogenic diet may help you lose more weight in the first 3 to 6 months than some other diets. This may be because it takes more calories to change fat into energy than it does to change carbs into energy. It's also possible that a high-fat, high-protein diet satisfies you more, so you eat less.

Pros and Cons of keto diet

- **PROS**

- **Weight Loss**

- **No More Low-Fat**

- On paper, burning fats by eating more of them is enticing, which is why the diet has become popular. The keto diet allows many people to eat the types of high-fat foods that they enjoy, such as red meats, fatty fish, nuts, cheese and butter, while still losing weight.

- **Health Benefits for Specific People**

- The keto diet helps reduce seizures in pediatric patients with epilepsy. Endurance athletes and body builders also use it to scrap fat in short timeframes. The keto diet is being studied for mitigating symptoms for patients with progressive neurological disorders like Parkinson's disease, but scientific research has not confirmed benefits for these populations.

Cons of Keto Diet

- **Difficult to Sustain**
- Because of the stringent food restrictions, many find the keto diet hard to stick to.
- “The ketogenic diet can be effective for weight loss when used in a short time period followed by the adoption of healthier eating habits,” says Cardiologist Kameswari Maganti, MD, Northwestern Medicine Bluhm Cardiovascular Institute. “Unfortunately, it lends itself to yo-yo dieting, which increases mortality.”
- Ketosis is difficult to achieve because it’s like a light switch: either on or off. Individuals who consistently track food intake are more likely to remain in ketosis. But the only way to tell if your body is in ketosis is a blood test.
- **Calorie Depletion and Nutrient Deficiency**
- “Because the keto diet is so restricted, you’re not receiving the nutrients — vitamins, minerals, fibers — that you get from fresh fruits, legumes, vegetables and whole grains,” says Dr. Ring.
- Due to these deficiencies, people also report feeling foggy and tired. These symptoms have been dubbed “the keto flu.” Constipation is also common on the keto diet due to the lack of fiber.

- **Bad Fats in Practice**

- The high-fat nature of the diet could also have negative impacts on heart health. In practice, many people eat high amounts of saturated fats, which could increase cardiovascular disease risk. We see an increase in lipids, or fats, in the blood of patients on the keto diet within six to eight weeks.”

- **Renal Risk**

- “Patients with kidney disease have an increased risk of requiring dialysis on the keto diet due to the additional ketones that their renal system has to process.

The MIND Diet

- The MIND (Mediterranean-DASH Intervention for Neurodegenerative Delay) diet is a plant-based eating pattern that may help reduce the risk of Alzheimer's disease and cognitive decline:
- “MIND” stands for “Mediterranean-DASH Intervention for Neurodegenerative Delay.” The MIND diet aims to reduce dementia and the decline in brain health that often occurs as people get older. It combines aspects of two very popular diets, the Mediterranean diet and the Dietary Approaches to Stop Hypertension (DASH) diet.
- According to the study, the MIND diet consists of leafy greens like spinach and kale, colourful vegetables, whole grains, fish or poultry, a handful of nuts, a sprinkle of berries, and a drizzle of olive oil. The diet consists of food items that are believed to boost brain health.

While you don't have to completely cut out meats and dairy from your meals, the diet recommends eating them sparingly -- less than four times a week. Instead, the diet recommends substituting it with protein-packed beans and legumes that are important for brain health.

Vegan diet

- A vegan diet is a plant-based diet that excludes all animal products, including:
- meat, seafood, dairy, eggs, honey, gelatin.
- A **vegan diet** is based on plants (such as vegetables, grains, nuts and fruits) and foods made from plants. Vegans do not eat foods that come from animals.
- Vegan diets are made up of only plant-based foods. This type of diet includes fruits, vegetables, soy, legumes, nuts and nut butters, plant-based dairy alternatives, sprouted or fermented plant foods and whole grains. Vegan diets don't include animal foods like eggs, dairy, meat, poultry or seafood.

Ovo-Lacto- Vegetarian Diet

- A lacto-ovo vegetarian diet is a plant-based diet that includes dairy products and eggs, but excludes meat, fish, and poultry. The terms "lacto" and "ovo" come from the Latin words lac, meaning "milk", and ovum, meaning "egg".
- Lacto-ovo vegetarianism or ovo-lacto vegetarianism is a type of vegetarianism which forbids animal flesh but allows the consumption of animal products such as dairy and eggs.
- A lacto-ovo-vegetarian diet can benefit your health in a number of ways, including improving your heart health, supporting weight loss, and reducing cancer risk.
- Disdvantages-
- Although an ovo-vegetarian diet can be healthy, you may miss out on certain nutrients such as iron, calcium, zinc, omega-3 fatty acids, and vitamins D and B12 if you do not eat animal products.

pesco-vegetarian diet

- A pesco-vegetarian diet is a mostly vegetarian diet that includes fish and seafood, but excludes red meat and poultry. The term "pescatarian" is a combination of the Italian word for fish, pesce, and the word "vegetarian".
- Pesco-vegetarians eat fruits, vegetables, nuts, seeds, whole grains, beans, eggs, and dairy. Seafood is the main source of protein, but pesco-vegetarians can also include other animal products like eggs and dairy.
- Pesco-vegetarian diets are flexible and can accommodate many different food choices. This makes them a good option for people who travel or eat out often.
- Pesco-vegetarians should include plenty of plant foods like dry beans, lentils, soy foods, nuts, and seeds. These foods provide protein and other vitamins, minerals, and phytochemicals.
- Research suggests that pesco-vegetarian diets are generally better in terms of nutrient quality than omnivore diets. A study published in Diabetes Care found that a pesco-vegetarian diet can help protect against type-2 diabetes and manage blood sugar levels.

Plant-based diet

- A plant-based diet is a way of eating that emphasizes plant-based foods and limits or avoids animal products. It can include whole grains, fruits, vegetables, nuts, seeds, and legumes.
- Plant-based Indian food is rich in nutrients and can help with overall health. A plant-based ingredient that you can jazz up with herbs and spices, sauces, nut butters, vegan proteins, legumes, vegetables, rice etc.
- Plant-based diets offer all the necessary protein, fats, carbohydrates, vitamins, and minerals for optimal health, and are often higher in fiber and phytonutrients. However, some vegans may need to add a supplement (specifically vitamin B₁₂) to ensure they receive all the nutrients required.

Intermittent Diet

- Intermittent fasting is an eating plan that involves alternating between fasting and eating during specific periods of time.
- Many diets focus on what to eat, but intermittent fasting is all about when you eat. With intermittent fasting, you only eat during a specific time. Research shows fasting for a certain number of hours each day or eating just one meal a couple days a week may have health benefits.
- Intermittent fasting is an eating plan that switches between fasting and eating on a regular schedule. Research shows that intermittent fasting is a way to manage your weight and prevent — or even reverse — some forms of disease.
- here are several different ways to do intermittent fasting, but they are all based on choosing regular time periods to eat and fast. For instance, you might try eating only during an eight-hour period each day and fast for the remainder. Or you might choose to eat only one meal a day two days a week. There are many different intermittent fasting schedules.

Nordic diet

- A Nordic diet meal plan typically includes:
- **Whole grains:** Barley, oats
- **Fruits:** Berries, apples, and pears
- **Vegetables:** Root vegetables like beets, turnips, and carrots, leafy vegetables, cucumbers, cabbages, and potatoes
- **Seafood:** Fatty fish like salmon, tuna, sardines, and mackerel
- **Dairy:** Low-fat and fat-free milk products.
- **Fats:** Canola (rapeseed) oil and soft margarine.
- The Nordic diet is similar to the Mediterranean diet, but it emphasizes canola oil instead of extra virgin olive oil. It's mostly plant-based and encourages eating a variety of seasonal, locally sourced foods. The diet limits red meat, processed meats, butter, and sweets.
- While the Nordic diet can be healthier than the average American diet, it doesn't guarantee weight loss. Weight loss may not be substantial without other lifestyle changes, like increasing your activity level.

Importance of organic food

Merits and Demerits of Genetically modified Foods

- Genetically modified (GM) foods are foods that come from organisms that have had their characteristics intentionally changed. These changes can be made through:
- Conventional breeding techniques, like cross-breeding
- Mutagenesis, which is a change in an organism's genetic makeup caused by radiation or chemicals
- Modern biotechnology techniques, like genetic engineering and gene editing

Some common GMO crops in the United States include:
corn, soybean, cotton, potato, papaya, summer squash, canola, and alfalfa.

In the United States, the FDA, U.S. Environmental Protection Agency, and U.S. Department of Agriculture regulate most GMOs. Since January 2022, manufacturers must label foods that contain GMOs under the National Bioengineered Food Disclosure Standard.

Some people have concerns about GMO foods, including:

- The creation of foods that can cause allergic or toxic reactions
- Unexpected or harmful genetic changes
- Inadvertent transfer of genes from one GM plant or animal to another
- Foods that are less nutritious

Genetically modified (GM) foods have both advantages and disadvantages, including:

Advantages

- Increased crop yield:** GM crops can be more resistant to disease, insects, herbicides, and environmental stress like drought and extreme temperatures. This can increase the amount of food that can be grown, which can help with food security and reduce food prices.
- Reduced pesticide use:** GM crops can reduce the need for environmentally harmful pesticides. This can reduce pesticide exposure for farmers and rural laborers, and reduce pesticide residues for consumers.
- Nutritional value:** GM crops can be designed to have added nutrients, like protein or calcium.
- Edible vaccines:** GM plants can produce edible vaccines that have fewer side effects and lower manufacturing costs than traditional vaccines.

Disadvantages

- Health risks: There is concern that GM foods could be toxic or increase the risk of allergies. There is also concern about certain genetic traits transferring to humans, gut flora, or other crops.
- Antibiotic resistance: GM foods could increase antibiotic resistance.
- Distribution of benefits: In developed countries, where GM technologies are mostly patented, large profits accrue to biotech and seed companies.
- GMO crops are relatively new, and researchers are still investigating their long-term safety and health effects.

Inflammatory Foods

- **Signs of inflammation include:**, Pain, Heat, Redness, Swelling, Loss of function Fatigue, Weight changes, Joint pain
- **Gastrointestinal problems like constipation**
- **Foods that can contribute to inflammation include:**
- Sugary sodas
- Refined carbohydrates, like white bread and pasta
- Red meat and processed meats
- Processed foods.
- **Some foods that can help fight inflammation include:**
- Berries: Contain anthocyanins, which can reduce inflammation
- Nuts and seeds: Contain monounsaturated fatty acids, which are anti-inflammatory
- Olives and olive oil: Contain polyphenols, which can fight inflammation
- Avocados: Contain vitamin E, which is an antioxidant with anti-inflammatory benefits
- Dark leafy greens: Contain nutrients like lutein, folate, and vitamin K, which can slow inflammation
- Whole grains: Can help reduce inflammation and body weight
- Fatty fish: Contain omega-3 fatty acids, which can help fight inflammation

Inflammatory foods

- Fried foods
- Hot Dogs-Burgers, steak, and processed meats like hot dogs and sausage are high in saturated fats, which are known to cause inflammation. Trans-fatty foods. Chips, baked goods, popcorn, frozen pizza, and other similar foods often contain trans fats.
- Red Meat -eating red meat can contribute to inflammation:
- Oxidative stress: Red meat consumption can lead to changes in oxidative stress, which can trigger inflammation.
- Inflammatory biomarkers: Studies have shown that higher red meat consumption is associated with higher levels of inflammatory biomarkers in the blood.
- Immune function: Red meat can compromise immune function.
- Colitis: High red meat consumption can exacerbate colitis in mice.
- Other factors that can contribute to inflammation include: exposure to environmental toxins, a lingering virus, aging, and chronic stress.
- Refined Grains
- Pizza
- Burger

Fried Foods

- Omega-6 fatty acids: Many fried foods are cooked in oils like canola, corn, and soybean, which contain omega-6 fatty acids. High amounts of omega-6s and low amounts of omega-3s can contribute to inflammation.
- Trans fats: Fried foods often contain trans fats, which can trigger inflammation.
- Advanced glycation end products (AGEs): Fried foods produce AGEs, which directly stimulate inflammation.
- Gut microbiome: Consuming fried meats can lead to changes in gut microbiota associated with increased levels of systemic inflammation.
- Acrylamide: Frying plant-based foods leads to the formation of acrylamide, a substance linked to increased cancer risk.

Cookies

- A high intake of sugar-sweetened foods and beverages can impair immune function , leading to chronic inflammation. Over time, excess sugar intake can also lead to conditions like obesity and metabolic syndrome.
- eating cookies can cause inflammation:
 - Sugar in it causes the body to release cytokines, which are inflammatory messengers. Cookies are a type of dessert, which are high in added sugar.
 - Unhealthy fats
 - Cookies are a processed food that contain unhealthy fats that can cause inflammation.
 - Omega-6 fatty acids
 - Packaged cookies contain higher levels of omega-6 fatty acids, which promote inflammation.

Slow Food and Fast Food

- Fast food is mass-produced food that's designed for quick service, while slow food is a movement that promotes quality, sustainability, and local ingredients:
- Fast food and slow food are opposite concepts that differ in several ways, including:
- **Ingredients**
- Fast food uses highly processed ingredients, while slow food uses unprocessed ingredients.
- Preparation
- Fast food is prepared quickly, while slow food is cooked in an authentic manner.
- Values
- The slow food movement's values include:
- Good: Delicious nutrition is an everyday right.
- Clean: Protect natural resources and promote local, seasonal, and sustainably grown food.
- Fair: Build local and global collaboration, welcome to all, and fight for dignity of labor.

- The slow food movement began in Italy in the 1980s as a reaction to fast food. It was founded by Carlo Petrini and has since spread worldwide. The movement's website lists restaurants and pubs around the world that have joined the movement.
- Goals
- The slow food movement's goals include:
 - Building a sustainable food system
 - Preserving traditional and regional cuisine
 - Promoting local small businesses and sustainable foods
 - Focusing on food quality, rather than quantity
 - Speaking out against overproduction and food waste

Fast Food

- Examples include burgers, fries, pizza, sandwiches, and soft drinks. Fast food is often cheap, convenient, and quick to eat, but it's not always good for you or the environment.
- low food
- Examples include:
- Slow meat and slow fish
- Supporting meatless Monday
- Planting new seeds
- Supporting fair labor
- Eating local, seasonal, and high quality nutritious foods, such as legumes, pasta, fruit and vegetables, and meat or fish
- Promoting local small businesses and sustainable foods
- Focusing on food quality, rather than quantity
- Promoting sitting down and relaxing, savoring food, and eating slowly

Instant Food

- Maggi
- Instant noodles are very popular, thanks to their savory taste and quick preparation. However, despite their widespread love, instant noodles are not aligned with a healthy diet. They are high in sodium, preservatives, and other chemicals, making them one of the unhealthiest food choices.
- these instant ready-to-eat foods are high in carbohydrates and fat content but are also high in calories and lack essential nutrients, leading to you feeling hungry sooner rather than later. Over time, this could result in unwanted weight gain and other health complications.

Nutraceuticals

- A nutraceutical is a food or food component that provides health benefits, such as disease prevention or treatment, in addition to its basic nutritional value. The term "nutraceutical" is a combination of the words "nutrition" and "pharmaceutical".
- Nutraceutical refers to the native or processed natural compounds exhibiting health benefits, therapeutic value, and marketed as nutrition supplements. Nutraceuticals can be derived from any living organisms—ranging from microbes, plants, to animals.

- Nutraceuticals can include: Vitamins, Minerals, Pure compounds, Herbal products, and Soluble and insoluble fibers.
- Nutraceuticals can help to: Enhance health and wellbeing, Modulate immunity, and Prevent and treat various diseases and health issues.
- The term "nutraceutical" was coined by Dr. Stephen De Felice in 1989. The use of the word has increased significantly since around 2000.
- However, there are some quality issues with nutraceuticals on the global market. Lack of regulation can compromise the safety and effectiveness of products, especially those that claim to use organic or exotic ingredients.

Nutrigenomics

- Nutrigenomics is the study of how a person's genes and diet interact to affect their health. It's a growing field that uses genomics tools to analyze the effects of nutrients on genes and how genetic variations affect nutrition. The goal of nutrigenomics is to understand how specific nutrients and diets can affect a person's health and risk of disease.
- Nutritional genomics, also known as nutrigenomics, is a science studying the relationship between human genome, human nutrition and health. People in the field work toward developing an understanding of how the whole body responds to a food via systems biology, as well as single gene/single food compound relationships.
- Difference between nutrigenomics and nutrigenetics-
- The main difference between nutrigenomics and nutrigenetics lies in their focus: Nutrigenomics primarily examines how nutrients affect gene expression and molecular mechanisms. Nutrigenetics focuses on how genetic variations influence individual responses to nutrients

