



MEDIFIT EDUCATION'S

Green Protein Foods

Best Protein Sources from Plants and Vegetarian Foods

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| The Basics Of Plant Protein | The Global Importance Of Plant Proteins | Legumes - A Green Protein Powerhouse | Grains And Seeds For Protein Boost | Nuts And Dry Fruits - Protein Nutrition | Protein-Rich Vegetables | Zero-Fat Plant Protein Foods | Sprouted Foods - Unlocking Maximum Nutrition | Water-Soaked Foods - A Natural Protein Enhancer | Plant Proteins For Muscle Building | Post-Workout Plant Protein Sources | Plant Proteins For Managing Diseases | Proteins From Milk And Milk Products | Protein Supplements For Vegetarians |



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Medifit Educations

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e – Book

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Abhijnan Shil



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1A - WHAT IS PLANT PROTEIN? IMPORTANCE OF PLANT PROTEINS

PROTEIN BASICS: ANIMAL AND VEGETABLE PROTEINS IN FOOD AND HEALTH

Complementary Proteins:

Incomplete plant proteins can be matched with other incomplete or complete plant protein to complete their amino acids. This process is called protein complementation. Chefs and home cooks may unknowingly complement plant proteins in their recipes. For example, simply spreading peanut butter on whole-grain bread combines the incomplete proteins of both of these foods to produce a full spectrum of amino acids.

Food scientists may intentionally complement plant proteins through protein technology in the development of new products. For example, some wheat pastas contain soy or other legume flours that create products with all of the essential amino acids.

Plant Protein, Animal Protein, and Cardiometabolic Health

Plant Protein and Other Cardiometabolic Factors:-

Plant protein sources have been studied for their effects on blood pressure. According to a meta-analysis published in 2011, a soy protein isolate reduces systolic and diastolic blood pressures by 2.2 mm Hg and 1.4 mm Hg, respectively. However, as with the effect on plasma cholesterol, these trials involved large quantities of soy protein (~35 g/day on average). Furthermore, many of them did not use soy protein isolate but soy-containing foods versus control foods, and those using a protein isolate did not all compare their findings with a reference animal protein (such as casein) but rather with carbohydrates, thus hindering interpretation of the entire dataset.

Whether plant protein affects other parameters related to metabolic syndrome remains unknown, but many of them have been reported to be modulated in subjects with metabolic syndrome or type 2 diabetes. The favorable effects of soy protein products on insulin sensitivity have also been reported following the replacement of meat in the diet with mixed protein sources (from meat, dairy, and bread, mainly). During this meticulous study, the macronutrient intakes (including SFA, MUFA, PUFA, cholesterol, and fiber) were matched, so most of the effect could be ascribed to the protein fraction itself, although the role of subtle differences in the whole-food package could not be ruled out. The addition of soy protein to a high-fat meal prevented postprandial endothelial dysfunction, but so did casein. As discussed earlier, this effect may have been linked to the

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amount of arginine in the meal, and it can be hypothesized that both sources might have supplied sufficient quantities to prevent acute postprandial endothelial function, although soy protein is far richer than casein.

FLOCCULATION

Technology of Leaf-protein Concentrates

Leaf-protein concentrate (LPC) is one product resulting from green crop fractionation that provides the animal feed industry or food industry with a protein. Green crop fractionation offers the possibility of a greater total biological efficiency in the production of protein than can be achieved by other systems. It is possible to envisage several systems defined by the products of the process, which have as one of their products LPC in a wet or dried form. Freshly expressed juice from macerated green plants contains small amounts of fiber, minerals and proteinaceous material of leaf origin, chloroplasts or fragments thereof, and about 90% water. Removal of the protein fractions is possible through the destabilization of the colloiddally suspended particles .

Plant-Based Proteins

Concluding Remarks

The growing interest in plant proteins as an alternative to animal proteins is due to their comparative low cost as well as the increase in consumers' demands originating from health and environmental concerns, and vegetarianism trends. Numerous residues coming from the food industry, especially those from vegetable oil extraction are low-cost plant protein sources.

Due to the low solubility in water, conventional methods of recovering plant protein include the alkaline extraction and isoelectric precipitation. The classical extraction presents some drawbacks, for example, low yields and using reagents or conditions that can damage biomolecules, in addition to the disposal or final handling of chemicals representing environmental risks.

Patient and Family Education

Vegetarianism

Plant proteins lack one or more amino acids needed for protein metabolism, but through a combination of different plant foods, pregnant women can achieve complete protein needs.⁴ Lactoovovegetarians who eat vegetables, dairy products, and eggs need additional iron, zinc, and vitamin B12 but have no other nutritional problems during pregnancy. Lactovegetarians who eat only

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vegetables and dairy products need additional iron, zinc, iodine, and vitamin B12. Strict vegans who eat no animal food, dairy products, or eggs may be deficient in protein, calcium, vitamin B12, riboflavin, iron, iodine, and zinc. These latter two groups require special supplementation during pregnancy and lactation. With knowledge of these deficiencies, dietary counseling, and special care, the pregnant vegetarian can meet the recommended daily allowances for pregnancy.

ALLERGENS

Effects of Raw Material and Postharvest Handling

A number of plant protein allergens belong to multigene families, where a number of isoforms differing in only a few amino acid residues may be present. In addition, the levels of different isoforms may vary between cultivars. These changes have been demonstrated to make a difference particularly with regard to the apple allergen Mal d 1, where the IgE reactivity of certain cultivars is demonstrably higher than others. Furthermore, one variant, Mal d 1a, has a higher IgE-binding capacity than another variant Mal d 1b, which differs by only 15 amino acid residues. Allergen levels appear to increase in apples following harvest and during storage at 4 °C over 130 days, probably because of their association with the ripening process, and the fact that they are 'PR' proteins and hence synthesized in response to environmental stress.

Peptides from plants and their applications

A number of plant protein sources are associated with bioactive peptides and mild but significant health benefits such as lowering of blood pressure levels and inhibition of enzymes within the renin-angiotensin aldosterone system (RAAS) including renin and angiotensin-I-converting enzyme (ACE-I). Other bioactivities associated with plant-derived bioactive peptides include cholesterol-lowering effects ; antiinflammatory activity; anticancer; and immunomodulatory activity, as well as prevention of and protection against oxidative damage through free radical scavenging activities ; antimicrobial activity and others as reviewed recently by Cicero et al.. These bioactivities are inert within the parent protein and must be released by proteolytic enzyme activities in food-processing strategies including hydrolysis and fermentation. Once released, the peptides can exert their "hormone-like" beneficial bioactivities.

Plant Protein, Animal Protein, and Protein Quality

Introduction

This first chapter on plant protein will focus on the fundamental role of dietary protein: to supply nitrogen and amino acids that ensure normal growth and the

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normal renewal of body protein pools. This is the criterion that has always been used to evaluate protein quality. In line with this viewpoint, this chapter will therefore deal with plant and animal proteins as sources of amino acids, and not of the other nutrients and substances with which they are commonly associated. As we shall explain, protein quality as defined here mostly relates to the bioavailability of amino acids from dietary protein, the quantities of individual amino acids and the amino acid profile, the utilization of these amino acids for anabolic purposes, and their overall, final, although often theoretical, impact on body protein pools. The myriad of functions related to specific body proteins are supposed to be assured if protein pools are globally balanced by dietary protein intake. We shall be reviewing these relationships and different sources of information that range from theoretical assessments to experimental results.

LEGUMES | Legumes in the Diet

Proteins

Legumes are dense sources of plant protein that ranges from 20% to 40% (dwb). The bean storage (reserve) proteins are predominant in the globulin fractions, while the metabolic (enzymatic) proteins are primarily found in the albumin fraction. The storage proteins have high affinity for water and contribute dramatically to the nutritional and functional properties of the cooked seed. Bean proteins are relatively high in essential amino acids, in particular lysine, threonine, isoleucine, leucine, phenylalanine and valine. However, they are deficient in sulfur-containing amino acids, in particular methionine and cystine. This explains their association with cereal grains that are deficient in lysine, but are a substantial source of methionine. (See PROTEIN | Food Sources.).

The globulin fraction can be subdivided into globulin I (GI: high salt solubility) and globulin II (GII: low salt solubility). Phytohemagglutinin (PHA), the lectin of dry beans, is identified as GII with two general types of subunits: an erythrocyte reactive subunit, E, and a lymphocyte-stimulating subunit, L. PHA has relatively high levels of aspartic acid and serine, but possesses very little cystine and methionine.

Total biological utilization of the legume protein is relatively low, with digestibility less than 76%. Protein digestibility may be impaired by the presence of numerous antinutritional compounds that must be removed or destroyed during processing. There is considerable variability in protein digestibility among different commercial classes of *Phaseolus vulgaris*, and also among cultivars within a class. Heating for longer than 30 min at 121 °C results in lowered protein quality and decreased available lysine in *P. vulgaris*.

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MAGNESIUM

Magnesium is a vital component of the plant protein chlorophyll, which is responsible for fixing solar energy into chemical energy in green plants. In this respect, most life on earth is dependent on magnesium.

In humans, magnesium is an essential nutrient, and is widely available in the diet. Severe magnesium deficiency is very rare in otherwise healthy individuals, but is seen in a number of disease states, particularly renal disease, malabsorptive syndromes, and in alcoholics.

Mucoproteins and glycoproteins

The prosthetic groups in mucoproteins and glycoproteins are oligosaccharides (carbohydrates consisting of a small number of simple sugar molecules) usually containing from four to 12 sugar molecules; the most common sugars are galactose, mannose, glucosamine, and galactosamine. Xylose, fucose, glucuronic acid, sialic acid, and other simple sugars sometimes also occur. Some mucoproteins contain 20 percent or more of carbohydrate, usually in several oligosaccharides attached to different parts of the peptide chain. The designation mucoprotein is used for proteins with more than 3 to 4 percent carbohydrate; if the carbohydrate content is less than 3 percent, the protein is sometimes called a glycoprotein or simply a protein.

Metalloproteins

Proteins in which heavy metal ions are bound directly to some of the side chains of histidine, cysteine, or some other amino acid are called metalloproteins. Two metalloproteins, transferrin and ceruloplasmin, occur in the globulin fractions of blood serum; they act as carriers of iron and copper, respectively. Transferrin has a molecular weight of about 80,000 and consists of two identical subunits, each of which contains one ferric ion (Fe^{3+}) that seems to be bound to tyrosine. Several genetic variants of transferrin are known to occur in humans. Another iron protein, ferritin, which contains 20 to 22 percent iron, is the form in which iron is stored in animals; it has been obtained in crystalline form from liver and spleen. A molecule consisting of 20 subunits, its molecular weight is approximately 480,000. The iron can be removed by reduction from the ferric (Fe^{3+}) to the ferrous (Fe^{2+}) state. Many animal enzymes contain zinc ions, which are usually bound to the sulfur of cysteine. Horse kidneys contain the protein metallothionein, which contain zinc and cadmium; both are bound to sulfur. A vanadium-protein complex (hemovanadin) has been found in surprisingly high amounts in yellowish-green cells (vanadocytes) of tunicates, which are marine invertebrates.

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Nucleoproteins

When a protein solution is mixed with a solution of a nucleic acid, the phosphoric acid component of the nucleic acid combines with the positively charged ammonium groups ($-\text{NH}_3^+$) of the protein to form a protein–nucleic acid complex. The nucleus of a cell contains predominantly deoxyribonucleic acid (DNA) and the cytoplasm predominantly ribonucleic acid (RNA); both parts of the cell also contain protein. Protein–nucleic acid complexes, therefore, form in living cells.

The only nucleoproteins for which some evidence for specificity exists are nucleoprotamines, nucleohistones, and some RNA and DNA viruses. The nucleoprotamines are the form in which protamines occur in the sperm cells of fish; the histones of the thymus and of pea seedlings and other plant material apparently occur predominantly as nucleohistones. Both nucleoprotamines and nucleohistones contain only DNA.

Respiratory proteins

Hemoglobin

Hemoglobin is the oxygen carrier in all vertebrates and some invertebrates. In oxyhemoglobin (HbO_2), which is bright red, the ferrous ion (Fe^{2+}) is bound to the four nitrogen atoms of porphyrin; the other two substituents are an oxygen molecule and the histidine of globin, the protein component of hemoglobin. Deoxyhemoglobin (deoxy-Hb), as its name implies, is oxyhemoglobin minus oxygen (i.e., reduced hemoglobin); it is purple in color. Oxidation of the ferrous ion of hemoglobin yields a ferric compound, methemoglobin, sometimes called hemoglobin or ferrihemoglobin. The oxygen of oxyhemoglobin can be displaced by carbon monoxide, for which hemoglobin has a much greater affinity, preventing oxygen from reaching the body tissues.

The hemoglobins of some of the lowest fishes are monomers containing one iron atom per molecule. Hemoglobin-like respiratory proteins have been found in some invertebrates. The red hemoglobin of insects, mollusks, and protozoans is called erythrocrurin. It differs from vertebrate hemoglobin by its high molecular weight

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1B - VEGETARIAN VS. NON-VEGETARIAN PROTEIN: KEY DIFFERENCES

WHAT IS PROTEIN AND WHICH ONE OF THESE 'ANIMAL OR PLANT' IS HEALTHIER

If there is one nutrient in the whole body that determines how our bodies function, it's protein. It is one of the important nutrients and forms the building block for muscles, hormones, bones and even blood. This nutrient helps in building and repairing the various tissues present in our body. Thus it becomes inevitable to have a diet that's rich in protein. The Recommended Dietary Allowance (RDA) for protein is a modest 0.8 grams per kilogram of body weight. The RDA is the amount of a nutrient you need to meet your basic nutritional requirements. In a sense, it's the minimum amount you need to keep from getting sick and not the specific amount you are supposed to eat every day.

Difference between animal and plant protein

When talking about protein intake, we normally assume animal meat as the basic source of protein and are unaware of the fact that there are several veg foods that are rich in protein too! The main difference lies in the fact that plant protein has fewer amino acids than animal protein, because of which the latter is considered a 'complete' protein.

What is 'animal protein'

This protein is quite similar to the protein found in our bodies, so it is absorbed more easily than the protein in plants. It is mostly found in meat, eggs and dairy products. However, it doesn't mean you should cut vegetables from your diet though, it's all about balance. The 9 essential amino acids found in animal protein are what make it a 'complete' protein and help the body in building muscles and bones.

What is 'plant protein'

Vegetables are full of vitamins and minerals and have lesser calories than meat or egg. However, they don't contain as much protein per serving as meat. In addition, the proteins that they do contain are "less complete" than those in meat, as they don't contain all of the amino acids that the body needs. So how do vegetarians and vegans get all the amino acids they need? Well, they need to make sure that their diet includes a variety of different plant proteins, including nuts, legumes, soy-based products and grains as well as fruit and vegetables. This variety ensures that their bodies get the various amino acids necessary.

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Which one is healthier?

This debate is ongoing that 'which one of them is better and is something on which more research is needed. It is true that animal protein provides a complete source of protein, but research has linked it with various negative health effects. On the other hand, plant-based protein provides a wholesome amount of nutrients along with proteins. In fact, several studies have found the overall health of vegetarians to be better than that of non-vegetarians.

The amino acid content can differ

Proteins are made up of amino acids. The human body uses about 20 different amino acids to build proteins. Your body can make some amino acids itself, but you have to get nine of them — known as essential amino acids — through your diet. Protein sources can vary greatly in the types of amino acids they contain. Generally, animal proteins are known as complete proteins, meaning they contain all nine essential amino acids. While some plant proteins, including pea protein and soybeans, are also complete protein sources, many other plant foods are considered incomplete proteins (3). This means plant foods such as beans, peanuts, and wheat are rich in total protein but lack one or more of the essential amino acids. Still, you can easily combine these incomplete plant protein sources to meet your body's needs.

Rich protein sources

A wide variety of both animal and plant protein sources are available for you to enjoy.

Animal protein sources

Rich sources of animal proteins include (5):

- eggs
- fish and seafood
- lean meat
- poultry
- wild game

Dairy products such as milk, yogurt, and cheese. Generally, animal protein sources also supply other important nutrients, including vitamin B12 and a type of iron called heme iron. Heme iron is more readily absorbed than the iron found in plant foods, which is known as non-heme iron. Instead, choose nutritious

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sources of animal-based protein like whole eggs, salmon, chicken, turkey, and shellfish.

Diets high in plant protein are linked to many benefits

Plant-based diets have been associated with significant reductions in blood pressure compared with diets rich in animal protein. Furthermore, studies suggest that people eating a vegetarian diet also tend to have lower body weight, lower cholesterol levels, and lower risk of stroke, cancer, and death from heart disease than people who eat meat. However, not all plant-based diets are created equal, and not all plant foods are necessarily beneficial for heart health. One study associated plant-based diets rich in nutritious plant foods like whole grains, vegetables, nuts, and seeds with a lower heart disease risk. Meanwhile, plant-based diets rich in less nutritious options such as fried vegetables and refined grains were associated with a higher risk.

Animal protein also has health benefits

Certain animal protein sources are also associated with positive health effects. For example, eating fish regularly has been linked to many health benefits, including lower rates of cognitive decline and heart disease. Eating animal protein has also been linked to increased lean muscle mass and a reduction in the muscle loss that occurs with age. The downside of certain types of animal protein While red meat is a complete protein source, several observational studies have linked red meat consumption to an increased risk of heart disease and stroke. However, research is mixed. Some researchers suggest that these adverse health effects may not be associated with all types of red meat, but rather with processed red meat. For example, a recent review found that red meat doesn't increase the risk of heart disease if consumed within recommended portions. Nonetheless, another study found that eating large amounts of unprocessed red meat was associated with a 9% increase in relative risk of heart disease, while eating large amounts of processed meat was associated with an 18% increase. It's important to note that these health risks don't appear to be linked to eating fish or lean meats such as turkey and chicken.

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1C - BENEFITS OF PLANT PROTEIN INTAKE

PLANT PROTEIN BENEFITS & MANAGING ITS SIDE EFFECTS

WOW Life Science's plant-based protein powder is an excellent source of protein, made with natural and high-quality ingredients. It contains all the essential amino acids required for muscle growth and repair, making it an optimal choice for vegans and those with dietary restrictions. Plant-based protein powders are a natural, high-quality source of protein that can boost health, support muscle growth, and promote sustainability.

Great for muscle building: Plant-based protein powders are especially beneficial for muscle building and recovery because they are rich in essential amino acids, which are vital for the growth and repair of muscle tissue.

Sustainable and earth-friendly: Additionally, plant-based protein supplements are sustainable and do not require the use of harmful animal products. Pea and brown rice proteins are complete proteins, meaning they contain all essential amino acids that the body needs but cannot produce on its own.

Easy to digest: Plant-based protein powders also contain enzymes like papain and bromelain, which aid in digestion and nutrient absorption, and can help alleviate digestive issues like bloating and constipation.

The Different Types of Protein Powders To Choose From

When it comes to protein powder, you are spoilt for choice. With so many options to choose from, it becomes overwhelming for fitness enthusiasts to pick one that suits their needs. There are different types of protein powders available, such as whey, casein, and plant-based proteins. Here are some pointers to help you make the right choice for you.

How to Consume Protein Powder

It's essential to know how to consume protein powder to eliminate any chance of side effects. It's recommended to consume 1-2 scoops of plant-based protein powder daily, depending on your individual protein needs. You can mix it with just water or milk or add it to your daily smoothie or oatmeal. It's essential to

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consume protein powder at the right time to maximize its benefits. Consuming it after a workout can help with muscle recovery while consuming it before bed can help with muscle growth overnight. Never consume more than the prescribed amount for safe and solid results.

Combining Protein Powder with Other Supplements for Maximum Benefits

The WOW Plant-based protein powder and Testo Boost Capsules are a pair that maximizes the results of the protein intake in your body. Combining protein powder with other nutrients such as carbohydrates and healthy fats can provide maximum benefits. Carbohydrates help with the absorption of protein and provide the body with energy. Healthy fats can help with hormone production and overall health. It's important to balance nutrient intake to get the most out of your protein powder. WOW Science's plant-based protein powder is an excellent source of protein that is easy to digest and perfect for vegans and those with dietary restrictions. When consumed properly, it can help with muscle growth, recovery, and overall health.

Plant-Based Protein Powder

Emerging from the realms of health-conscious fitness enthusiasts and vegans, plant-based protein powders have started to make a remarkable impact in the broader landscape of nutritional supplements.

Essentially, plant-based proteins are derived from various plant sources such as peas, spirulina, quinoa, and certain medicinal mushrooms. They undergo extraction and purification processes to isolate the protein, delivering a potent nutrient packet that's vegan-friendly and packed with other dietary essentials like fiber, antioxidants, and more.

The Protein Showdown: Plant-Based Vs. Whey Protein

Whey protein, a dairy-derived supplement, has historically enjoyed the limelight among fitness aficionados, chiefly for its quick absorbency and rich amino-acid profile. However, issues such as allergies, digestion problems, and ethical considerations have made many opt for gentler, more sustainable alternatives like plant-based protein powders. Moreover, advancing research evidence leverages the plant protein benefits against these minor flaws associated with whey protein, making plant-based protein powders an exciting prospect for many.

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Advantages Of Plant-Based Protein Powders:-

Plant-based protein powders, such as Rooted Actives' Premium Plant Protein, are formidable powerhouses of vital nutrients, boasting benefits that render them far more valuable than their animal-derived alternatives:

Promotes Healthy Digestion: With a high fiber quotient, plant-based protein powders can boost gut health by enhancing bowel regularity and promoting a healthy gut microbiome.

Hypoallergenic: Plant proteins are generally hypoallergenic, making them an ideal choice for individuals with common food allergies and sensitivities.

Nutrient-Rich: Apart from being protein-dense, plant-based powders often retain other nutrients inherent to their source, providing ancillary advantages like antioxidants, essential minerals, and vitamins.

Anti-Inflammatory Properties: Certain plant-based proteins house natural compounds with anti-inflammatory capabilities, thus helping alleviate chronic inflammation and related health issues.

Aids Weight Management: Given their low-calorie and high-fiber composition, these proteins can facilitate a satiating effect, aiding weight management goals.

Boosts Heart Health: The low saturated fat and cholesterol content in most plant proteins can contribute to healthier heart functions, reducing the risk of cardiovascular diseases.

Environmentally Sustainable: One of the less spotlighted benefits is the comparatively lower environmental impact of plant-based proteins, considering factors like land usage, water consumption, and greenhouse gas emissions.

Wards off Disease: Many plant proteins are abundant in antioxidants, which help strengthen the immune system, minimizing the risk of diseases.

Enhances Energy Levels: They are also rich in complex carbohydrates and B vitamins, both of which play a pivotal role in energy production.

Promotes Hormonal Balance: Phytochemicals present in certain plant proteins can facilitate a healthy hormonal balance in the body, critical for numerous aspects of health.

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Choosing the Right Plant-Based Protein Powder:-

When it comes to selecting the best plant protein has to offer, several key aspects deserve your attention. Here are some pointers to guide your selection process

Ingredients: Aim to choose plant protein powders with no added sugars or artificial additives. It's worth examining how the ingredients are sourced as well. Prefer protein powders that derive their components from high-quality plant sources.

Digestibility: The bioavailability or digestibility of proteins can vary. Some proteins are easier for your body to break down, absorb, and utilize than others. Check the product's digestibility and opt for brands that indicate high bioavailability.

Taste and Texture: While nutrition is paramount, never underestimate the importance of sensory factors. An off-putting taste or a texturally unpleasant protein powder could ultimately deter you from consuming it regularly. Look for options that offer a pleasant taste and smoother texture.

Value for Money: The most expensive product on the shelf doesn't necessarily guarantee the best quality. It's vital to analyze whether the price aligns with the nutritional value and quality of the ingredients.

Brand Reputation and Certifications: Invest in products from trustworthy brands known for their commitment to purity and quality. Watch out for certifications that are relevant to you, such as organic, non-GMO, gluten-free, or vegan certifications. These can reassure you that the product meets specific quality standards.

Myths on Plant-Based Proteins:-

"Plant Proteins are Inferior": In reality, they're nutrient-rich with substantial antioxidants and fiber.

"Plant Proteins are Incomplete": A mix of plant proteins or using complete ones like quinoa or soy resolves this.

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"Plants lack Flavor": The way a product tastes is highly subjective, and Rooted Actives works to create plant-based protein powders that customers enjoy both in flavor and texture.

Rooted Actives' Premium Plant Protein

Embodying all the virtues of plant-based proteins, we introduce the Rooted Actives Premium Plant-Based Protein Powder.

This powerhouse supplement offers a protein-packed (24g per serving), vegan-friendly solution, derived from a blend of nutritious sources like peas, brown rice, medicinal mushrooms, and spirulina. A complete protein matrix, this plant-based pea protein powder houses all the essential amino acids, BCAAs, and glutamine. Its domineering formula enriched with beneficial mushrooms and digestive enzymes makes this protein all the more suitable for individuals with lactose intolerance, vegans, or those seeking weight loss. Free of added sugars, naturally sweetened with Stevia, and devoid of artificial ingredients, this protein powder offers a tasteful, sustainable, and nutrient-rich detour from conventional protein sources.

1D - COMMON MYTHS ABOUT PROTEIN IN A VEGETARIAN DIET

MEDICAL MYTHS: VEGETARIAN AND VEGAN DIETS

1. Plant-based diets are always healthful

In recent decades, an increasing number of studies have demonstrated links between red meat consumption and poorer health outcomes. For instance, processed and red meat intake is associated with colon cancer [Trusted Source](#), obesity [Trusted Source](#), heart disease [Trusted Source](#), and diabetes [Trusted Source](#). This might suggest that a diet without meat is better for the body. But, just as not all meat is red, not all vegetarian or vegan diets are healthful. To use an extreme example, if an individual only ate potato chips, they would be vegan, but certainly not brimming with vitality, energy, and health.

Additionally, lean white meat and fish are not associated with the same health issues as processed and red meats.

And certain meat substitute products can be high in salt. In 2018, Action on Salt, a “group concerned with salt and its effects on health,” carried out a survey of meat substitutes.

They investigated products from several major retailers in the United Kingdom. When they looked at burgers, they found that the average salt content of beef burgers was 0.75 grams (g), compared with 0.89 g for vegetarian burgers, including bean burgers. According to their findings, a veggie burger has “more salt than a large portion of McDonald’s fries.”

2. Vegetarianism guarantees weight loss

Sadly, no. As the section above makes clear, not all vegetarian and vegan diets are equally healthful. It is incredibly easy to consume thousands of calories each day without any of them being associated with animals. The key to weight loss is a healthful diet and regular exercise, and neither requires the avoidance of animal products. This finding held true for healthy participants, people with obesity, and individuals with type 2 diabetes.

To give another example, another review, published in *BMJ Open Diabetes Research and Care*, looked at the impact of plant-based diets on people with

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diabetes. Among other benefits, the authors found that these diets were associated with a “significant improvement” in weight.

3. Vegetarians and vegans cannot get enough protein

This is perhaps the most common of all the myths that we cover today. But it is still a myth Trusted Source. In the world of food, protein abounds. For people who eat them, dairy products and eggs are high in protein. Vegans also have an array of options, including seitan, tofu, lentils, chickpeas, many types of bean, spelt, spirulina, quinoa, oats, wild rice, seeds, and nuts. Even some vegetables contain protein, including spinach, asparagus, broccoli, artichokes, potatoes, peas, brussels sprouts, and sweet potatoes.

4. You can’t build muscle without meat

This myth follows on from the protein myth above. In short, the most important nutrient for building muscle is protein, which can easily be found in abundance beyond the animal kingdom.

5. Dairy is essential for strong bones

Dairy is not essential for strong bones, but calcium is. In fact, calcium is important for a number of bodily functions, including maintaining blood pressure, muscle contraction, transmitting signals along nerves, and blood clotting. Vegans, therefore, need to ensure that they take in enough calcium from plant-based sources.

6. You cannot get B12 from a vegetarian diet

This is a myth. While vegans often take B12 supplements to ensure that they have adequate levels, vegetarians have a wealth of other options. Vegetarians can derive B12 from eggs and milk products, including cheese. Meanwhile, a range of vegan-friendly foods are fortified with B12, including some cereals, tofu, nondairy milks, and spreads.

B12: An interesting aside

Cows need B12, too, and they rely on gut bacteria to produce it. To produce B12, gut bacteria need cobalt, which a cow normally derives from grazing. However, many cows destined to become meat only spend the beginning of their

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lives in pasture before being brought inside where they are fed on grain. Because of this unnatural diet, their gut bacteria are starved of cobalt and cannot produce B12. But the cow still needs B12 to thrive, so farmers must provide them with either cobalt or B12 supplements.

7. Soy increases the risk of breast cancer

As it stands, there is no convincing evidence that eating soy-based foods increases the risk of breast cancer in humans. This misunderstanding might stem from earlier studies Trusted Source in rodents. Scientists showed that when these animals received large amounts of soy compounds called isoflavones, they were more likely to develop breast cancer. However, humans process soy differently from rodents. A study published in February 2020 searched for associations between soy, dairy intake, and breast cancer risk. The scientists had followed 52,795 cancer-free women in the U.S. for an average of 7.9 years.

They found no clear association between soy intake and breast cancer, but they did identify a link between dairy milk and breast cancer.

However, the full picture is, perhaps, slightly more complex. Some women use soy-based supplements as a natural alternative to hormone therapy during menopause. One large study Trusted Source investigated whether these supplements might be associated with breast cancer risk.

8. Pregnant people need meat and dairy

During pregnancy, it is important to take in all the nutrients that a growing baby needs. But, as we have seen along the way, plant-based foods can provide the vast majority of them.

Someone who is vegetarian or vegan may need to do a little extra planning to be sure that have enough nutrients, especially at the beginning of pregnancy. As we mentioned above, it is important Trusted Source to ensure an adequate intake of vitamin B12, through supplements or fortified foods, and this is especially true during pregnancy and breastfeeding. The American Dietetic Association recommend vitamin B12 supplementation throughout pregnancy and breastfeeding for people with vegan or vegetarian diets.

Vegetarians and vegans have a hard time getting enough protein.

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As meat has become synonymous with protein, many people struggle to identify non-meat sources of this essential nutrient. Despite this, adequate protein can easily be obtained without meat through a well-planned and varied diet. Plant-based sources of protein typically contain more dietary fiber and less saturated fat than animal-based sources of protein. These two factors are cornerstones of a heart-healthy diet.

There are many versatile plant-based sources of protein that fit into a healthy eating plan: beans, lentils, peas, soy products, nuts and seeds. There's even protein in whole grains. For lacto-ovo vegetarians, low-fat or fat-free dairy and eggs can be an important protein source. For high-protein vegan options, some familiar foods may include bean burritos, tofu and vegetable stir-fries, or lentil chili.

To build strong bones, you must include dairy in your diet.

Dairy is not the only food that can help build and protect strong bones. A number of nutrients are needed for bone health, including calcium, vitamin D and protein. Calcium can be found in a variety of plant foods such as kale, broccoli, bok choy, calcium-set tofu and fortified soymilk. Some vegetables such as spinach and rhubarb have a higher calcium content, but they also are high in oxalates, which decrease calcium absorption. Include a wide variety of other leafy green vegetables throughout the day to help promote calcium absorption.

If you are forgoing dairy, ensure that you get the recommended amounts of both calcium and vitamin D by choosing fortified foods and beverages such as plant-based milk alternatives, ready-to-eat cereals and 100% fruit juices. Mushrooms treated with ultraviolet light are another possible source of vitamin D. For some individuals, a calcium and vitamin D supplement may be recommended. In addition to following a nutrient-rich diet, weight-bearing activities such as yoga, running, brisk walking and strength training are an essential component of increasing bone strength.

Eating soy increases the risk of breast cancer.

For vegans and vegetarians, incorporating fortified soy products in the diet is an easy way to meet both protein and calcium requirements. Despite news headlines to the contrary, there is no proof soy causes cancer. Actually, there is evidence that consuming soy in childhood and adolescence produces a lower lifetime risk for breast cancer, whereas beginning soy in adulthood doesn't appear to offer the same level of protection. No matter your diet preference, variety is key. Swapping animal-based protein for soy is a good way to add variety to your meals. Aim for less processed sources of soy such as tempeh, edamame and tofu.

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Vegetarian diets are not appropriate for pregnancy, childhood or athletics.

A well-planned vegetarian or vegan diet can meet the nutrient needs of people during all stages of life, including pregnancy, lactation and childhood, as well as for those who participate in competitive sports. It's just about making sure you get the nutrients you need.

Fortified foods and beverages can help to increase the intake of certain nutrients. For nutrients that are primarily found in animal foods, like vitamin B12, or when nutrient requirements increase during certain life stages, a supplement may be needed. During pregnancy, for example, more iron is needed, but iron is not absorbed as well from plant-based sources. Pregnant individuals should eat plenty of iron-rich foods, plus a source of vitamin C to help increase absorption, and discuss the possible need for a supplement with their health care provider. Try these iron and vitamin C combinations: beans and salsa, broccoli and tofu, black-eyed peas and collard greens.

For infants, children and adolescents, a well-planned vegetarian diet can promote normal growth. Calorie and nutrient needs typically can be fulfilled if the diet provides enough calories and diversity of foods. Incorporating fortified foods and beverages and/or supplements may be needed in order to get the recommended amount of certain nutrients.

And while most competitive athletes require increased energy, protein and nutrient needs for optimal performance, there's no reason they can't get everything they need nutritionally from plant sources. All it takes is a little carefulness with menu planning.

If something is vegetarian, it means it is healthy.

Foods that are "vegetarian" or "vegan" don't automatically equal good health. While some cookies, chips and sweetened cereal might be vegetarian options, they also can be high in added sugars or sodium. Meatless eaters might find it easy to load up on processed foods such as veggie burgers, but less processed options should make up the bulk of a vegetarian diet.

So what is the best way to ensure a food is a good choice? Load up on veggies, fruits, whole grains and lean protein foods. Also, read the Nutrition Facts Label. Look for low levels of saturated fat, added sugars and sodium. These are much better indicators of a food's health than whether or not it is vegetarian.

2A - RISING POPULARITY OF VEGETARIAN DIETS WORLDWIDE

HOW ATTITUDES TO VEGETARIANISM ARE CHANGING AROUND THE WORLD

Vegetarianism is increasing slowly in several developed economies around the world, such as Europe and the United States.

But it is declining in large emerging economies such as India, where traditional diets are becoming less popular.

Vegetarian diets can have a profound influence on health and carbon footprints.

Whether vegetarianism is pursued with the aim of protecting animals, preserving environmental resources, leading a healthier life or because of cultural traditions, the practice can have a profound influence on health and carbon footprints.

While vegetarianism is expanding slowly in several countries around the world, for example in Europe or the United States, large emerging economies are doing it the other way around. Here, vegetarianism is in decline – for example in India, where traditional vegetarian diets are increasingly swapped for an omnivore approach to eating. While in 2018/19 around a third of urban Indians said they were vegetarians, this decreased to approximately one quarter by 2021/22.

Vegetarian diets have become more popular in the last three years overall, but some countries are more steadfast than others in their love for meat. In Mexico and Spain, the rate of vegetarians hovered below 3 percent most recently. The same is true for South Korea, even though here, the rate vegetarians rose from an extremely low 0.9 percent in 2018/19.

What is the World Economic Forum doing to help ensure global food security?

Two billion people in the world currently suffer from malnutrition and according to some estimates, we need 60% more food to feed the global population by 2050. Yet the agricultural sector is ill-equipped to meet this demand: 700 million of its workers currently live in poverty, and it is already responsible for 70% of the world's water consumption and 30% of global greenhouse gas emissions.

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New technologies could help our food systems become more sustainable and efficient, but unfortunately the agricultural sector has fallen behind other sectors in terms of technology adoption.

Launched in 2018, the Forum's Innovation with a Purpose Platform is a large-scale partnership that facilitates the adoption of new technologies and other innovations to transform the way we produce, distribute and consume our food.

With research, increasing investments in new agriculture technologies and the integration of local and regional initiatives aimed at enhancing food security, the platform is working with over 50 partner institutions and 1,000 leaders around the world to leverage emerging technologies to make our food systems more sustainable, inclusive and efficient.

Vegan, vegetarian or flexitarian? 3 ways to eat more sustainably

Plant-based sales are booming

Our decisions about what to put on our plates begin with what we choose to put in our shopping carts. Data from the Good Food Institute shows that the plant-based food market in the US alone is now worth \$7.4 billion. Of course, that figure includes the fruit and vegetables we have always bought, but other categories tell a wider story.

As the chart above shows, US sales of plant-based meat and milk reached \$4 billion in 2021. Sales of plant-based meat rose by 74% in the three years to 2021 while milk alternatives saw a 33% increase in the same period. This data suggests we're becoming more willing to shake up our diets and reduce the amount of animal products we eat. In a December 2021 poll of more than 1,000 US adults, Statista found that 28% had opted for plant-based milk and 22% had tried plant-based alternatives to meat.

Health benefits:-

It's now widely accepted that reducing or eliminating meat from our diets can bring a number of health benefits. The American Heart Association (AHA) says cutting out meat or eating less of it reduces the risk of heart disease, stroke, obesity, high blood pressure, type 2 diabetes and many forms of cancer. If the

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thought of going vegan seems a step too far, there are other options. The AHA has defined a number of diets that are lower in animal products and all can reduce the health risks associated with eating too much meat and dairy. These are the AHA's options

A vegan diet is entirely plant-based. It excludes meat, fish, dairy and eggs – basically anything that comes from animals.

Vegetarians also eat a plant-based diet, but their menu may include dairy and eggs.

A flexitarian is a vegetarian that sometimes eats meat or fish but mostly sticks to plant-based foods.

Plant-forward is a style of cooking and eating that emphasizes plant-based foods but is not strictly limited to them. Meat may be included but it's usually not the main feature.

Healthy people, healthy planet:-

Going vegan or reducing the amount of animal products in our diets can contribute significantly to our efforts to build more sustainable economies. As the chart below from Our World in Data shows, producing 100 grams of beef emits an average of 25 kilograms of CO2 equivalents. Lamb and farmed shrimp are other major emitters. At the other end of the scale are plant-based proteins. "Producing 100 grams of protein from peas emits just 0.4 kilograms of carbon dioxide equivalents," the researchers say. "To get the same amount of protein from beef, emissions would be nearly 90 times higher."

Producing nutritious food by farming animals ties up an enormous amount of land compared to the space required for plant-based food products, as the chart below shows. World in Data's research shows that 119 square metres of land is required to generate 1,000 kilocalories from a herd of beef cattle. The same amount of calories from cow's milk takes up almost 15 square metres. Compare that to rice, a staple for much of the world, which requires less than one square metre of land for a yield of 1,000 kilocalories.

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2B - ENVIRONMENTAL AND HEALTH BENEFITS OF PLANT-BASED PROTEINS

SURPRISING BENEFITS OF PLANT-BASED PROTEIN POWDER FOR HEALTH:-

The importance of protein, a fundamental building block of life, cannot be overstated. Besides its crucial role in tissue repair and growth, proteins also function as enzymes, hormones, and transporters, empowering every biological action that sustains life. While animal proteins have traditionally been touted as the go-to source for this vital macronutrient, a growing body of evidence challenges this notion. A new player, plant-based protein powders, strives not only to equal but also to exceed the potential of their animal protein counterparts in many ways.

Plant-Based Protein Powder

Emerging from the realms of health-conscious fitness enthusiasts and vegans, plant-based protein powders have started to make a remarkable impact in the broader landscape of nutritional supplements.

Essentially, plant-based proteins are derived from various plant sources such as peas, spirulina, quinoa, and certain medicinal mushrooms. They undergo extraction and purification processes to isolate the protein, delivering a potent nutrient packet that's vegan-friendly and packed with other dietary essentials like fiber, antioxidants, and more.

The Protein Showdown: Plant-Based Vs. Whey Protein

Whey protein, a dairy-derived supplement, has historically enjoyed the limelight among fitness aficionados, chiefly for its quick absorbency and rich amino-acid profile. However, issues such as allergies, digestion problems, and ethical considerations have made many opt for gentler, more sustainable alternatives like plant-based protein powders.

Moreover, advancing research evidence leverages the plant protein benefits against these minor flaws associated with whey protein, making plant-based protein powders an exciting prospect for many.

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Bustling With Benefits: 10 Advantages Of Plant-Based Protein Powders

Plant-based protein powders, such as Rooted Actives' Premium Plant Protein, are formidable powerhouses of vital nutrients, boasting benefits that render them far more valuable than their animal-derived alternatives:

1.Promotes Healthy Digestion: With a high fiber quotient, plant-based protein powders can boost gut health by enhancing bowel regularity and promoting a healthy gut microbiome.

2.Hypoallergenic: Plant proteins are generally hypoallergenic, making them an ideal choice for individuals with common food allergies and sensitivities.

3.Nutrient-Rich: Apart from being protein-dense, plant-based powders often retain other nutrients inherent to their source, providing ancillary advantages like antioxidants, essential minerals, and vitamins.

4.Anti-Inflammatory Properties: Certain plant-based proteins house natural compounds with anti-inflammatory capabilities, thus helping alleviate chronic inflammation and related health issues.

5.Aids Weight Management: Given their low-calorie and high-fiber composition, these proteins can facilitate a satiating effect, aiding weight management goals.

6.Boosts Heart Health: The low saturated fat and cholesterol content in most plant proteins can contribute to healthier heart functions, reducing the risk of cardiovascular diseases.

7.Environmentally Sustainable: One of the less spotlighted benefits is the comparatively lower environmental impact of plant-based proteins, considering factors like land usage, water consumption, and greenhouse gas emissions.

8.Wards off Disease: Many plant proteins are abundant in antioxidants, which help strengthen the immune system, minimizing the risk of diseases.

9.Enhances Energy Levels: They are also rich in complex carbohydrates and B vitamins, both of which play a pivotal role in energy production.

10.Promotes Hormonal Balance: Phytochemicals present in certain plant proteins can facilitate a healthy hormonal balance in the body, critical for numerous aspects of health.

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Choosing the Right Plant-Based Protein Powder

When it comes to selecting the best plant protein has to offer, several key aspects deserve your attention. Here are some pointers to guide your selection process

Ingredients: Aim to choose plant protein powders with no added sugars or artificial additives. It's worth examining how the ingredients are sourced as well. Prefer protein powders that derive their components from high-quality plant sources.

Digestibility: The bioavailability or digestibility of proteins can vary. Some proteins are easier for your body to break down, absorb, and utilize than others. Check the product's digestibility and opt for brands that indicate high bioavailability.

Taste and Texture: While nutrition is paramount, never underestimate the importance of sensory factors. An off-putting taste or a texturally unpleasant protein powder could ultimately deter you from consuming it regularly. Look for options that offer a pleasant taste and smoother texture.

Value for Money: The most expensive product on the shelf doesn't necessarily guarantee the best quality. It's vital to analyze whether the price aligns with the nutritional value and quality of the ingredients.

Brand Reputation and Certifications: Invest in products from trustworthy brands known for their commitment to purity and quality. Watch out for certifications that are relevant to you, such as organic, non-GMO, gluten-free, or vegan certifications. These can reassure you that the product meets specific quality standards.

Remember, your health is your investment, and selecting the right plant-based protein powder is a vital step towards reaping maximum health benefits. Do your research, understand what works for your body, and make an informed decision. Make your health the priority it deserves to be.

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Myths on Plant-Based Proteins

"Plant Proteins are Inferior": In reality, they're nutrient-rich with substantial antioxidants and fiber.

"Plant Proteins are Incomplete": A mix of plant proteins or using complete ones like quinoa or soy resolves this.

"Plants lack Flavor": The way a product tastes is highly subjective, and Rooted Actives works to create plant-based protein powders that customers enjoy both in flavor and texture.

These misconceptions shouldn't deter you from the benefits that plant-based proteins offer.

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Free of added sugars, naturally sweetened with Stevia, and devoid of artificial ingredients, this protein powder offers a tasteful, sustainable, and nutrient-rich detour from conventional protein sources.

2C - CULTURAL SIGNIFICANCE OF VEGETARIAN DIETS ACROSS THE GLOBE

PLANT BASED DIETS AROUND THE WORLD: CULTURAL INSIGHTS

plant based diets are gaining popularity worldwide due to their numerous health benefits, ethical considerations, and environmental sustainability. Understanding the cultural contexts in which these diets thrive can provide valuable insights into their global appeal. This article delves into the historical, cultural, and modern aspects of plant based diets around the world, shedding light on the various factors that influence dietary choices.

Early Plant Based Practices

Ancient civilizations often relied on Plant Based diets due to the availability of resources and agricultural practices. In regions like Asia, Africa, and the Mediterranean, plants formed the staple diet, complemented by locally available herbs and spices.

Religious Influences

Religious practices have significantly influenced dietary choices. For instance, Hinduism and Buddhism promote vegetarianism as a means of non-violence and compassion towards all living beings. Similarly, Jainism strictly adheres to a Plant Based diet, avoiding any harm to animals.

Why Some Cultures Eat Mostly Plant Based

Historical and Socioeconomic Factors

Historically, Plant Based diets have been more economical and sustainable for many cultures. In regions where agriculture was the primary source of food, Plant Based diets became the norm. Economic factors also play a role, as plant based foods are often more affordable and accessible than meat and dairy products.

Religious and Ethical Reasons

Religious teachings and ethical beliefs are powerful motivators for adopting Plant Based diets. Many cultures emphasize the importance of compassion and non-violence, leading to dietary practices that avoid animal products.

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Cultural Practices and Regional Insights

Asia

In Asia, countries like India and China have rich traditions of Plant Based diets. In India, vegetarianism is widely practiced, with a variety of flavorful and nutritious dishes. In China, traditional diets emphasize vegetables, tofu, and grains, with minimal use of animal products.

Europe

European diets, particularly in the Mediterranean region, are known for their emphasis on fresh vegetables, fruits, legumes, and whole grains. Modern trends also show a growing interest in vegan and vegetarian diets, driven by health and environmental concerns.

Africa

Traditional African diets are predominantly Plant Based, featuring staple foods like grains, legumes, and vegetables. These diets are often rich in nutrients and have been associated with lower rates of chronic diseases.

Americas

In the Americas, Native American diets were historically Plant Based, incorporating a variety of fruits, vegetables, and grains. Contemporary shifts towards Plant Based diets are influenced by health trends and environmental awareness.

Vegan and Vegetarian Cuisines

Popular Dishes

Plant Based cuisines offer a wide array of delicious and nutritious dishes. Popular vegan and vegetarian dishes include Indian curries, Mediterranean salads, Japanese sushi, and Mexican tacos, all made with Plant Based ingredients.

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Regional Specialties

Each region has its unique Plant Based specialties. For instance, Italy is known for its pasta dishes with vegetable sauces, while Mexico offers a variety of bean-based dishes. Exploring these regional specialties can inspire new and exciting Plant Based meals.

Foods for Plant Based Diets

Essential Ingredients

A balanced Plant Based diet includes a variety of essential ingredients such as legumes, nuts, seeds, whole grains, and vegetables. These foods provide essential nutrients and support overall health.

Nutritional Benefits

Plant Based foods are rich in vitamins, minerals, and antioxidants. They offer numerous health benefits, including improved digestion, lower risk of chronic diseases, and better weight management. Including high-protein snacks like nuts and seeds can help meet protein needs, while low calorie foods like fruits and vegetables support healthy weight loss.

Motivations Behind Plant Based Diets

Health Reasons

Health is a major motivator for adopting a Plant Based diet. Studies have shown that Plant Based diets can reduce the risk of heart disease, diabetes, and certain cancers. They are also beneficial for weight management and Muscle Recovery, making them popular among athletes and fitness enthusiasts.

Environmental Impact

Plant Based diets are more sustainable and environmentally friendly compared to diets high in animal products. They require fewer resources, produce less greenhouse gas emissions, and have a lower ecological footprint. As awareness of climate change grows, more people are turning to Plant Based diets as a way to reduce their environmental impact.

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Ethical Considerations

Ethical concerns about animal welfare and the conditions of factory farming are driving many people to adopt Plant Based diets. Veganism, in particular, emphasizes the avoidance of all animal products as a stance against animal cruelty.

2D - INNOVATIONS IN PLANT-BASED PROTEIN PRODUCTS

INNOVATIONS IN PLANT-BASED PROTEINS: NUTRITIONAL VALUE AND CONSUMER ACCEPTANCE

INTRODUCTION

Plant-based proteins have become increasingly significant in modern diets due to their potential health benefits and environmental sustainability. Historically, legumes and pulses have been primary sources of plant-based proteins, known for their rich nutritional profiles and affordability. The nutritional adequacy of plant proteins is well-documented, providing essential amino acids necessary for human health. Innovations in extraction and processing technologies have improved the functional properties of plant proteins, making them suitable alternatives to animal proteins.

Despite their advantages, consumer acceptance of plant-based proteins varies, influenced by factors such as taste, texture, and psychological reactance. Health benefits, including lower cholesterol levels and reduced cardiovascular risks, further drive their adoption. Additionally, the fermentation process enhances the quality and digestibility of plant proteins, making them more functional for diverse food applications. Thus, plant-based proteins represent a versatile and nutritionally valuable component of sustainable diets, contributing to improved public health and environmental outcomes. Moreover, plant-based proteins have gained significant importance in the food industry due to their health benefits and sustainability. They are rich in bioactive compounds and essential nutrients, which contribute to reducing chronic diseases and improving overall human health. Additionally, plant-based proteins are seen as sustainable alternatives, offering lower environmental conditions.

The food industry has embraced plant-based proteins for their versatility and adaptability in creating new food products. For example, pseudocereals are highly valued for their nutritional profiles and potential as functional food ingredients. Technological advancements, such as plant polymer-based solid foams and nano-delivery systems, have enhanced the functional applications of plant-based proteins in food packaging and shelf-life improvement. Consumer demand for healthier and more sustainable food options has further driven the adoption of plant-based proteins. These proteins cater to various dietary preferences, including vegetarian and vegan diets, and address food

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allergies . Consequently, the food industry continues to innovate and expand its use of plant-based proteins to meet evolving consumer needs and sustainability goals. The purpose of this paper is to explore the innovations in plant-based proteins, their nutritional value, and the factors influencing consumer acceptance. The growing popularity of plant-based diets and the increasing demand for sustainable and healthy food alternatives underscore the importance of understanding these aspects comprehensively. The scope of this paper encompasses the historical development of plant-based proteins, technological advancements in their production, and their nutritional benefits. It also examines the market trends, consumer perceptions, and challenges associated with plant-based proteins. By providing a detailed analysis of these areas, the paper aims to highlight the potential and limitations of plant-based proteins in the current food industry. This paper begins with an introduction that highlights the background and significance of plant-based proteins. It then traces the historical context and evolution of plant-based proteins, followed by an exploration of innovations and technological advances in this area. A comprehensive analysis of the nutritional value of plant-based proteins is provided. The paper also examines consumer acceptance and market trends, featuring case studies of successful plant-based protein products. Finally, it concludes by discussing future directions and potential innovations in the field.

- **Historical Context and Evolution** The use of plant-based proteins dates back to ancient civilizations, where they were integral to diets primarily due to their accessibility and nutritional value. Legumes, such as beans and lentils, were staple foods in many cultures and provided essential nutrients . Early agricultural societies relied heavily on these proteins to meet their dietary needs, as they were abundant and easily cultivated . In Asia, soybeans were extensively used not only as a food source but also for their versatile applications in products like tofu and soy sauce, demonstrating early innovations in plant protein utilization . Similarly, ancient Mesoamerican civilizations cultivated and consumed amaranth and chia, recognizing their high protein content and health benefits . These early uses laid the foundation for the diverse applications of plant-based proteins seen today. They were not only crucial for nutrition but also for cultural and economic reasons, showcasing their importance in human history and development .

The traditional knowledge and practices surrounding these plant proteins continue to influence modern dietary patterns and food technology advancements. The development of plant-based proteins has seen significant evolution over the decades, driven by advances in food science, technology, and changing consumer preferences. In the mid-20th century,

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plant-based proteins were primarily utilized in their raw forms, such as soybeans and lentils, valued for their nutritional content and affordability . During the 1970s and 1980s, technological advancements enabled the production of more refined plant protein isolates and concentrates, which were incorporated into various food products to enhance protein content .This period also saw the introduction of textured vegetable proteins.

which mimicked the texture of meat and expanded the culinary applications of plant-based proteins. In recent decades, the rise of health and environmental awareness has spurred a surge in demand for plant-based proteins. Innovative processing technologies, such as extrusion and fermentation, have been developed to improve the sensory attributes and nutritional profiles of plant-based meat analogues . The integration of biotechnology has further enhanced the functionality and bioavailability of plant proteins, making them viable substitutes for animal proteins. Therefore, the development of plant-based proteins reflects a dynamic interplay between technological innovation and evolving consumer demands, leading to their prominent role in the modern food industry. The evolution of plant-based proteins has been marked by several key milestones. In the 1960s and 1970s, the development of soy protein isolates and textured vegetable proteins (TVP) was a significant breakthrough, providing a versatile ingredient for various food products . This period also saw the introduction of TVP as a meat extender, enhancing its utility in the food industry.

- **Legumes and Pulses** Legumes and pulses have been central to human diets for millennia, providing essential nutrients and serving as a primary source of plant-based proteins. Key types include beans, lentils, chickpeas, peas, and various underutilized legumes like lupins and moth beans. These legumes are highly valued for their nutritional content and environmental benefits . Beans, such as common beans and soybeans, are among the most widely consumed legumes. Soybeans, in particular, have been extensively studied and utilized in the production of various plant-based protein products, including tofu, soy milk, and textured vegetable protein . Lentils and chickpeas are also crucial, known for their versatility and high protein content. Innovations in processing techniques, such as extrusion and fermentation, have enhanced the functional properties of these legumes, making them suitable for a wider range of food products . Underutilized legumes like lupins and moth beans are gaining attention for their unique nutritional profiles and potential health benefits. Australian sweet lupins, for example, are high in protein and fiber, with studies showing their positive effects on blood pressure, lipid profiles, and gut health . Moth beans, rich in protein and bioactive compounds, have been

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highlighted for their role in preventing obesity, diabetes, and cardiovascular diseases.

- **Grains and Seeds** Grains and seeds are fundamental sources of plant-based proteins, offering significant nutritional benefits and playing a crucial role in food security. Key types include quinoa, amaranth, millet, flaxseed, chia seeds, and hemp seeds. These grains and seeds are increasingly utilized in various innovative food products to meet the growing demand for plant-based diets. Quinoa and amaranth are pseudocereals known for their high protein content and balanced amino acid profiles. These grains have been integrated into various food products, including protein bars, cereals, and flour blends, to enhance nutritional value. Millet, particularly pearl millet and finger millet, is another significant grain, valued for its rich content of dietary fiber, proteins, and essential micronutrients. Innovations in processing millet have led to the development of gluten-free products suitable for individuals with celiac disease or gluten intolerance.

- **Nuts** Nuts and various other plant sources offer substantial nutritional benefits and have been the focus of numerous innovations in the realm of plant-based proteins. Key types include almonds, walnuts, cashews, and other lesser-known sources like seeds from fruits and vegetables. These sources are highly valued for their rich nutrient profiles and versatility in food applications. Almonds are among the most popular nuts used in plant-based diets. They are incorporated into a variety of products, such as almond milk, almond butter, and protein bars. Innovations in processing have enhanced the texture and flavor of almond-based products, making them more appealing to consumers. Walnuts are another significant nut, known for their high omega-3 fatty acid content. They are often used in baking, cooking, and as a snack, providing a healthful alternative to other more processed foods.

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3A - LENTILS (RED, GREEN, BROWN)

WHAT'S THE DIFFERENCE BETWEEN BROWN, GREEN, AND RED LENTILS?

Brown Lentils

This is by far the most common variety of lentil, and probably the one that you see at your local grocery store. They can range in color from khaki-brown to dark black, and generally have a mild, earthy flavor. They cook in about 20 to 30 minutes and hold their shape very well. Common varieties are Spanish Brown, German Brown, or Indian Brown. The blackest and tiniest lentils you find are usually Beluga lentils, which have a rich and deeply earthy flavor.

Green Lentils

These can be pale or mottled green-brown in color with a glossy exterior. They have a robust, somewhat peppery flavor. Green lentils generally take the longest to cook, upwards of 45 minutes, but they keep a firm texture even after cooking. This makes them ideal for salads and other side dishes. Look for Lentilles du Puy, Puy lentils, or French Green lentils.

Red Lentils

With colors ranging from gold to orange to actual red, these are the sweetest and nuttiest of the lentils (to our mind, at least!). They're somewhere in the middle in terms of cooking time and are usually done in about 30 minutes. They tend to get mushy when cooked through, so they're perfect for Indian dals and other curries, or for thickening soups. A few varieties are Red Chief and Crimson, and you'll often find them in Indian or Middle Eastern markets labeled as masoor (red lentils) or channa (yellow lentils).

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3B - BEANS (KIDNEY, BLACK, CHICKPEAS)

Chickpea

Chickpeas are high in protein. The chickpea is a key ingredient in Mediterranean and Middle Eastern cuisines, used in hummus, and, when soaked and coarsely ground with herbs and spices then made into patties and fried, falafel. As an important part of Indian cuisine, it is used in salads, soups and stews, and curry, in chana masala, and in other food products that contain channa (chickpeas). In 2022, India accounted for 75% of global chickpea production.

Etymology

Chickpeas have been cultivated for at least ten thousand years. Cultivation spread from the Fertile Crescent eastward toward South Asia and into Europe through the Balkans. Historical linguistics have found ancestral words relating to chickpeas in the prehistoric Proto-Indo-European language family that evolved into the Indo-European languages. The Proto-Indo-European roots *kek- and *k'ik'- that denoted both 'pea' and 'oat' appeared in the Pontic–Caspian steppe of Eastern Europe between 4,500 and 2,500 BCE. As speakers of the language became isolated from each other through the Indo-European migrations, the regional dialects diverged due to contact with other languages and dialects, and transformed into the known ancient Indo-European languages. The Old Prussian word kekêrs, appearing between 1 and 100 CE, retained the 'pea' meaning of the word, but in most cases, the word came to be used to denote chickpeas. In Old Macedonian, the word kikeppoi appeared between 1000 and 400 BCE, and may have evolved from the Proto-Hellenic word *kikpiōs. In Ancient Rome, the Latin word cicer for chickpeas appeared around 700 BCE, and is probably derived from the word kickere used by the Pelasgians that inhabited north Greece before Greek-speaking tribes took over. The Old Armenian word siseŕn for chickpeas appeared before 400 CE. Over time, linkages between languages led to other descendant words, including the Albanian word qiqër, the Swedish word kikärt, the Slovak word cícer, the Estonian word kikerhernes, the Basque word txitxirio, and the Maltese word cicra.

The Latin word cicer evolved into words for chickpeas in nearly all extinct and living Romance languages, including the Mozarabic word chíchar; the Catalan words ceirons, cigró, cigronera, cigrons and ciurons; the Walloon words poes d' souke; the Old French words ceire and cice; and the Modern French terms cicérole, cicer tete-de-belier, and pois chiche. The word pease, like the modern words for wheat and corn, was both singular and plural, but since it had an "s" sound at the end of it which became associated with the plural form of

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nouns, English speakers by the end of the 17th century were starting to refer to a single grain of peace as a pea.

Taxonomy

Chickpea (*Cicer arietinum*) is a member of the genus *Cicer* and the legume family, *Fabaceae*. Linnaeus classified the plant in the genus *Cicer*, which was the Latin term for chickpeas, Tournefort himself repeated the names the plant that had been used since antiquity. The specific epithet *arietinum* is based on the shape of the seed resembling the head of a ram. In Ancient Greece, Theophrastus described one of the varieties of chickpea called "rams" in *Historia Plantarum*. Pliny the Elder expanded further in *Naturalis Historia* that this name was due to the seed's resemblance to the head of a ram. *Cicer arietinum* is the type species of the genus. The wild species *C. reticulatum* is interfertile with *C. arietinum* and is considered to be the progenitor of the cultivated species. *C. echinospermum* is also closely related and can be hybridized with both *C. reticulatum* and *C. arietinum*, but generally produce infertile seeds.

Varieties

The most common variety of chickpea in South Asia, Ethiopia, Mexico, and Iran is the desi type, also called Bengal gram. It has small, dark seeds and a rough coat. It can be black, green or speckled. In Hindi, it is called desi chana 'native chickpea' or kala chana 'black chickpea', and in Assamese and Bengali, it is called boot or chholaa boot. It can be hulled and split to make chana dal, Kurukshetra Prasadam and bootor daali.

Around the Mediterranean and in the Middle East, the most common variety of chickpea is the kabuli type. It is large and tan-colored, with a smooth coat. It was introduced to India in the 18th century from Afghanistan and is called kabuli chana in Hindi.

An uncommon black chickpea, ceci neri, is grown only in Apulia and Basilicata, in southern Italy. It is around the same size as garbanzo beans, larger and darker than the 'desi' variety.

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Culinary

Chickpeas are usually rapidly boiled for 10 minutes and then simmered for longer. Dried chickpeas need a long cooking time (1–2 hours) but will easily fall apart when cooked longer. If soaked for 12–24 hours before use, cooking time can be shortened by around 30 minutes. Chickpeas can also be pressure cooked or sous vide cooked at 90 °C (194 °F).

Mature chickpeas can be cooked and eaten cold in salads, cooked in stews, ground into flour, ground and shaped in balls and fried as falafel, made into a batter and baked to make farinata or socca, or fried to make panelle. Chickpea flour is known as gram flour or besan in South Asia and is used frequently in South Asian cuisine.

In the Middle East, chickpeas are also roasted, spiced, and eaten as a snack, such as leblebi.

Chickpeas and Bengal grams are used to make curries. They are one of the most popular vegetarian foods in the Indian subcontinent and in diaspora communities of many other countries, served with a variety of bread or steamed rice. Popular dishes in Indian cuisine are made with chickpea flour, such as mirchi bajji and mirapakaya bajji. In India, as well as in the Levant, unripe chickpeas are often picked out of the pod and eaten as a raw snack, and the leaves are eaten as a leaf vegetable in salads. In India, desserts such as besan halwa and sweets such as mysore pak, and laddu are made.

Chickpea flour is used to make "Burmese tofu", which was first known among the Shan people of Burma. In South Asian cuisine, chickpea flour (besan) is used as a batter to coat vegetables before deep frying to make pakoras. The flour is also used as a batter to coat vegetables and meats before frying or fried alone, such as panelle (little bread), a chickpea fritter from Sicily. Chickpea flour is used to make the Mediterranean flatbread socca and is called panisse in Provence, southern France. It is made of cooked chickpea flour, poured into saucers, allowed to set, cut into strips, and fried in olive oil, often eaten during Lent. In Tuscany, chickpea flour is used to make an oven-baked pancake: the flour is mixed with water, oil and salt. Chickpea flour, known as kadlehittu in Kannada, is used for making sweet dish Mysore pak.

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Animal feed

Chickpeas are an energy and protein source as animal feed. Raw chickpeas have a lower trypsin and chymotrypsin inhibitor content than peas, common beans, and soybeans. This leads to higher nutrition values and fewer digestive problems in nonruminants. Nonruminant diets can be completed with 200 g/kg of raw chickpeas to promote egg production and growth of birds and pigs. Higher amounts can be used when chickpeas are treated with heat.

Experiments have shown that ruminants grow equally well and produce an equal amount and quality of milk when soybean or cereal meals are replaced with chickpeas. Pigs show the same performance, but growing pigs experience a negative effect of raw chickpea feed; extruded chickpeas can increase performance even in growing pigs. Only young broilers (starting period) showed worse performance in poultry diet experiments with untreated chickpeas. Fish performed equally well when extruded chickpeas replaced their soybean or cereal diet. Chickpea seeds have also been used in rabbit diets.

Medical

Ancient people also associated chickpeas with Venus because they were said to offer medical uses such as increasing semen and milk production, inducing menstruation and urination, and helping to treat kidney stones. "White cicers" were thought to be especially strong and helpful. The 17th-century botanist Nicholas Culpeper noted "chick-pease or cicers" are less "windy" than peas and more nourishing.

Heat and nutrient cultivation:-

Agricultural yield for chickpeas is often based on genetic and phenotypic variability, which has recently been influenced by artificial selection.[56] The uptake of macronutrients such as inorganic phosphorus or nitrogen is vital to the plant development of *Cicer arietinum*, commonly known as the perennial chickpea. Heat cultivation and macronutrient coupling are two relatively unknown methods used to increase the yield and size of the chickpea. Recent research has indicated that a combination of heat treatment along with the two vital macronutrients, phosphorus and nitrogen, are the most critical components to increasing the overall yield of *Cicer arietinum*.

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Perennial chickpeas are a fundamental source of nutrition in animal feed as they are high-energy and protein sources for livestock. Unlike other food crops, the perennial chickpea can change its nutritional content in response to heat cultivation. Treating the chickpea with a constant heat source increases its protein content almost threefold. Consequently, the impact of heat cultivation affects the protein content of the chickpea itself and the ecosystem it supports. Increasing the height and size of chickpea plants involves using macronutrient fertilization with varying doses of inorganic phosphorus and nitrogen.

The level of phosphorus that a chickpea seed is exposed to during its lifecycle has a positive correlation relative to the height of the plant at full maturity. Increasing the levels of inorganic phosphorus at all doses incrementally increases the height of the chickpea plant. Thus, the seasonal changes in phosphorus soil content, as well as periods of drought that are known to be a native characteristic of the dry Middle-Eastern region where the chickpea is most commonly cultivated, have a strong effect on the growth of the plant itself. Plant yield is also affected by a combination of phosphorus nutrition and water supply, resulting in a 12% increase in crop yield.

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3C - SOYBEANS (EDAMAME, TOFU, TEMPEH)

Tofu, tempeh and edamame are all products of soybeans. They are a complete protein. These soybean products are also full of fiber, antioxidants, and omega-3 fatty acids.

Spectacular Soybeans

Soybeans in any form make a great addition to most diets. Here are just a few of their many benefits

A three-ounce (85 grams) serving of edamame or tofu provides eight grams of protein, while the same serving size of tempeh has eleven grams of protein.

They are low in carbohydrates, and also have a low glycemic index (GI).

Soybeans are a good source of several vitamins and minerals, such as vitamin K1, folate, copper, phosphorus, and thiamine.

They are low in calories. Three and a half ounces (100 grams) of boiled soybeans only contain 173 calories.

Soybeans contain a lot of water!

An Abundance of Recipes:-

There are so many wonderful recipes you can prepare for breakfast, lunch and dinner using tofu, tempeh or edamame.

From tofu scramblers to asparagus and smoked salmon wraps with bacon-flavored tempeh, tofu lettuce wraps to tofu veggie stir fry, Vegan tempeh Reuben sandwiches, and no-tunafish tofu salad ... the recipes are endless! These healthy options are most often mentioned throughout my recipes and under the "Melissa's Modifications" section at the bottom of recipes. I use them as replacements for fish, chicken. A Vegan Reuben made with tempeh. You can marinate the tempeh or buy it already bacon-flavored. The taste is a spot-on match to the traditional sandwich. Working in healthcare, I tend to fixate on inconsistencies which lead to errors, which in turn lead to bad outcomes, such as illness or death.

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Inconsistencies Are Everywhere:-

Inconsistencies even happen within larger healthcare systems. Here is an example of a recent experience During the beginning of the coronavirus pandemic, I had been assigned to work in a different location than my usual. This building was larger and had more offices and staff members. Therefore, they also had a larger break room to accommodate the staff for lunch breaks. One day during my week at this facility, I noticed a medical assistant eating a take-out hamburger in the break room. (She later admitted the burger and fries cost about eight dollars.) The following day, the same medical assistant brought a salad to work which she had prepared at home.

Her rationale was related to the recent birth of her baby. She was having difficulty losing the “baby weight” and decided to go on a low-sugar and low-carbohydrate healthy diet. She indicated that she had lost weight before and felt much better, adding that she has Lupus and the dietary changes improve the discomfort associated with her condition.

Summer salads are a staple for hot summer days, great for lunch, dinner or dessert. This recipe focuses on delicious refreshing salads! There are many variations to choose from—fruit salads, vegetable salads, or even a combination of fruits and vegetables. We love watermelon. Because of our love, I’m starting this month with this cool, crisp, juicy, and delicious fruit. I saw an article and several demonstrations for roasting or grilling watermelon! I thought it sounded so crazy, so I decided to take the challenge. You should prepare it too and see how it tastes!

Vegetarian chili of all varieties has always been a family favorite. There’s nothing like a recipe full of protein, fiber, and beneficial spices. However, some may prefer not to eat chili as the beans may bring on intestinal discomfort.

Because of the tremendous benefits, though, I encourage you to give ‘em another chance!

Here are 5 things you can do to help reduce the less-than-desirable effects (gas & bloating) of beans in your diet ...

Go slow — Add beans into your diet slowly. Start with just a few tablespoons and build up to more.

Soak and rinse beans well (4-6 hrs.) before you cook them. If you use canned beans, rinse them even more.

Cook the beans until they are very soft.

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Chew — Eat slowly and chew each bite well.

Add the following spices to reduce gas: ginger, fennel, cumin, chili powder, garlic.

To Healthy Eating!

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4A - WHOLE GRAINS: WHEAT, BAJRA (PEARL MILLET), JOWAR (SORGHUM), BROWN AND WHITE RICE, OATS

WHOLE GRAINS: HEARTY OPTIONS FOR A HEALTHY DIET

Whole-grain foods are good choices for a nutritious diet. Whole grains provide fiber, vitamins, minerals and other nutrients. Whole-grain foods help control of cholesterol levels, weight and blood pressure. These foods also help lower the risk of diabetes, heart disease and other conditions.

The Dietary Guidelines for Americans recommends that at least half of all the grains you eat are whole grains. Most people in the United States don't eat enough whole grains.

What is a grain?

Grains are the seeds of grasses grown for food. These plants also are called cereals. Examples of grains include wheat, oats and rice. Each grain, also called a kernel, is made of three parts:

Bran. Bran is the hard outer coating of a kernel. It has most of the kernel's fiber. It also has vitamins and minerals.

Germ. The germ is the part that sprouts into a new plant. It has many vitamins, healthy fats and other natural plant nutrients.

Endosperm. The endosperm is the energy supply for the seed. It mostly contains starches. It has small amounts of proteins and vitamins. The endosperm has very little fiber.

What nutrients are in whole grains?

The bran from any kind of whole grain is a good source of fiber. Nutrients in whole grains vary. They may include the following nutrients and others:

- Vitamin A.
- Vitamin B-1, also called thiamin.
- Vitamin B-2, also called riboflavin.
- Vitamin B-3, also called niacin.
- Vitamin B-6, also called pyridoxine.
- Vitamin B-9, also called folate.
- Vitamin E.

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- Iron.
- Magnesium.
- Phosphorus.
- Selenium.

Types of grains:-

Cross section of whole grain showing bran, endosperm and germ

Foods made from grains fall into these categories:

Whole grains:-

Whole grains have all parts of the grain. Whole-grain flour is ground from whole grains. Examples of whole-grain food include brown rice, oatmeal and whole-grain breads.

Refined grains:-

Refined grains have the germ and bran removed. These grains have a finer texture and a longer food storage life. This process takes out nearly all of the fiber and many other nutrients. Food with refined grains include white rice and most white breads, pastries, cakes, and crackers.

Enriched grains. The nutrients removed from refined grains may be added back. These refined grains are called enriched grains. For example, when rice is refined, it loses vitamins, minerals and fiber. Enriched white rice has these vitamins and minerals added back. Fiber usually isn't replaced in enriched grains.

Fortified grains:-

Foods also may have nutrients added that aren't naturally there. Or food may get a boost in the nutrients that are naturally there. Foods with these extra nutrients are called fortified foods. For example, many breads and breakfast cereals are fortified with folic acid and iron.

The terms "enriched" and "fortified" are often used to mean the same thing. The important point is that whole grain is the most nutritious choice. "Enriched" and "fortified" mean that there is some added benefit.

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Benefits of whole-grain foods:-

The vitamins and minerals in whole grains are important for your overall health. Also, the high fiber content of whole grains may help with:

Lowering bad cholesterol levels.

Raising good cholesterol levels.

Lowering insulin levels.

Lowering blood pressure.

Creating a feeling of fullness that can help with weight loss or control.

Studies show high-fiber diets lower the risk of:-

Heart and blood vessel diseases.

Stroke.

Type 2 diabetes.

Cancer of the large intestine and rectum, also called colorectal cancer.

Choosing whole grains:-

Make at least half the grains in your diet whole grains.

You can find whole-grain versions of rice, bread, cereal, flour and pasta at most grocery stores. Examples of whole grains and whole-grain foods include:

- Barley.
- Bulgur, also called cracked wheat.
- Farro.
- Millet.
- Quinoa.
- Black rice.
- Brown rice.
- Red rice.
- Wild rice.

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- Oatmeal.
- Popcorn.
- Whole-wheat flour.
- Whole-grain breakfast cereals.
- Whole-wheat bread, pasta or crackers.

Ingredient labels can help you choose whole-grain foods. Tips for reading labels include the following:

Ingredients on a food label are listed from the greatest to least amount.

The words "whole grain" should be at the beginning of the list of ingredients.

If there's more than one whole grain, the grains should be near the start of the list.

If you get all of your grains from whole grains, choose some whole-grain breads or breakfast cereals fortified with folic acid. Folic acid is a form of folate. Folate is very important during a pregnancy.

If you buy foods with refined grains, look for the words "enriched" and "fortified."

If you like white bread, try a whole-grain white bread. The flour is made from wheat that has a light-colored bran with a finer texture and milder flavor than regular whole-wheat flour.

How to enjoy more whole grains in your diet:-

Try these tips to add more whole grains to your meals and snacks:

Enjoy breakfasts that include whole-grain cereals, such as whole-wheat bran flakes, shredded wheat or oatmeal.

1.Substitute whole-wheat toast or whole-grain bagels for plain bagels. Substitute low-fat, whole-grain muffins for pastries.

2.Make sandwiches using whole-grain breads or rolls.

3.Use whole-wheat tortillas instead of white-flour tortillas.

4.Use whole-grain pastas.

5.Replace white rice with brown rice, wild rice, bulgur, barley or other grains.

6.Use wild rice or barley in soups, stews, casseroles and salads.7.

7.Add whole grains, such as cooked brown rice or whole-grain breadcrumbs, to ground meat or poultry for extra bulk.

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8. Use rolled oats or crushed whole-wheat bran cereal in recipes instead of dried breadcrumbs.

9. Eating a variety of whole grains ensures that you get more health-promoting nutrients. A variety also helps make your meals and snacks more interesting.

4B - SUPER GRAINS: QUINOA AND AMARANTH

ANCIENT' SUPER GRAINS

Grain-based foods make an essential contribution to the diet of Australians. Wheat, oats and rice predominate but interest is increasing in 'ancient' grains such as quinoa.

Ancient grains such as quinoa, amaranth and millet are often referred to as 'super grains' – a reputation that stems from their excellent nutritional attributes. The heritage of these grains goes far back to biblical times. Not technically true cereal grains, pseudo cereals are broadleaf plants used in much the same way as grains like wheat, barley, rye, oats and rice. Nutritionally superior in some aspects but very similar in others, they offer a wealth of essential vitamins and minerals as well as fibre and phytonutrients.

Quinoa (pronounced keen-wa) is a small disc-shaped grain first cultivated in the Andes of South America. A staple food of the Inca peoples and referred to as the "mother of all grains", quinoa has a slightly higher protein content than other grains, and a more 'complete' amino acid profile. Like other grains, quinoa is low in fat and high in fibre and also gluten free for those with coeliac disease. With a light fluffy texture and slightly nutty flavour quinoa can be eaten as an alternative to rice, pasta, barley, cracked wheat and even porridge. You should always soak and rinse quinoa before eating or cooking as the grain has a naturally bitter-tasting outer layer, designed to deter birds from enjoying the crop.

Amaranth is one of North America's oldest crops and a staple grain of the Aztec people that has been cultivated for over 8,000 years. A tiny, (1-2mm) round ball, amaranth is one of the highest protein grains (14%) and has a slightly peppery taste. The protein found in amaranth is of very high quality – containing the essential amino acid lysine (often lacking in many grains). Amaranth is versatile and can be used for a variety of food uses – as a substitute for rice, popped like pop corn as a snack, or puffed for use in breakfast cereals. Amaranth flour can be used as a gluten free alternative to wheat flour for baking.

Millet is a staple in the diets of some African and Asiatic people but eaten much less commonly in the western world. It features in the traditional cuisine of western India in flat breads, sweet desserts or savoury stews with meat, beans and vegetables. The protein content of millet compares favourably with that of corn and wheat. The tiny grain comes in a variety of colours and has a mild flavour, which is why it is often toasted before cooking. You will find millet in the health foods aisle of the supermarket in some gluten free breakfast cereals and as an alternative to wheat flour for baking.

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Buckwheat is most familiar to Australians in the form of Japanese 'soba' noodles. The name buckwheat comes from its triangular seeds which can be toasted to bring out their earthy rich nutty flavour, made into honey or even flour – commonly used to make buckwheat pancakes. Buckwheat is more closely related to rhubarb than to wheat, but has similar nutritional properties to other wholegrains in terms of quality protein, fibre and is rich in antioxidants. Buckwheat, like other pseudo cereals, is also gluten free for people with coeliac disease.

Chia was first used as food as early as 3500BC by the Mayans, Aztecs and Southwest Native Americans. Chia seeds were eaten as a grain, drunk as a beverage when mixed with water, ground into flour, included in medicines, pressed for oil and used as a base for face and body paints. Chia seeds have a bran, germ and endosperm. What makes them so special is that they are full of fibre, protein and omega 3 fats as well as vitamins, minerals and antioxidants. The protein in chia is of high quality, containing all 8 essential amino acids, which is rare for a plant source of protein. Chia can be sprinkled over salads, cereals and muesli or incorporated into breads, muffins, slices, cookies or porridge.

If you are keen to add variety to your diet, most pseudo cereals are available from health food stores or the health food aisle of your supermarket. They tend to be more expensive than traditional grains such as wheat, oats and rice which although perhaps less trendy, are just as nutritious but more affordable.

Go Grains Health & Nutrition recommends all Australian adults and teens aim for at least 48g of wholegrains every day. The amount for smaller children is less; however children should increase the amount of wholegrains as they grow. For more information on wholegrains and your health.

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4C - PROTEIN-PACKED SEEDS: CHIA, FLAX, HEMP, SUNFLOWER, AND PUMPKIN

Seeds, including flax seeds and hemp seeds, can provide key nutrients and health benefits. They can contain compounds that may reduce your risk of certain health conditions.

Seeds contain all the starting materials necessary to develop into complex plants. Because of this, they are extremely nutritious.

Seeds are great sources of fiber. They also contain healthy monounsaturated fats, polyunsaturated fats and many important vitamins, minerals and antioxidants.

When consumed as part of a healthy diet, seeds can help reduce blood sugar, cholesterol and blood pressure. This article will describe the nutritional content and health benefits of six of the healthiest seeds you can eat.

1. Flaxseeds:-

Flaxseeds, also known as linseeds, are a great source of fiber and omega-3 fats, particularly alpha-linolenic acid (ALA).

However, the omega-3 fats are contained within the fibrous outer shell of the seed, which humans can't digest easily.

Therefore, if you want to increase your omega-3 levels, it's best to eat flaxseeds that have been ground.

A 1-ounce (28-gram) serving of flaxseeds contains a wide mix of nutrients:-

Calories:

152

Fiber:

7.8 grams

Protein:

5.2 grams

Monounsaturated fat:

2.1 grams

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Omega-3 fats:

6.5 grams

Omega-6 fats:

1.7 grams

Manganese:

35% of the RDI

Thiamine (vitamin B1):

31% of the RDI

Magnesium:

28% of the RDI

Flaxseeds also contain a number of different polyphenols, especially, which act as important antioxidants in the body. Lignans, as well as the fiber and omega-3 fats in flaxseeds, can all help reduce cholesterol Trusted Source and other risk factors for heart disease.

2. Chia Seeds

Chia seeds are very similar to flaxseeds because they are also good sources of fiber and omega-3 fats, along with a number of other nutrients.

A 1-ounce (28-gram) serving of chia seeds contains:

Calories:

137

Fiber:

10.6 grams

Protein:

4.4 grams

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Monounsaturated fat:

0.6 grams

Omega-3 fats:

4.9 grams

Omega-6 fats:

1.6 grams

Thiamine (vitamin B1):

15% of the RDI

Magnesium:

30% of the RDI

Manganese:

30% of the RDI

Like flaxseeds, chia seeds also contain a number of important antioxidant polyphenols.

Interestingly, a number of studies have shown that eating chia seeds can increase ALA in the blood. ALA is an important omega-3 fatty acid that can help reduce inflammation.

Your body can convert ALA into other omega-3 fats, such as eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA), which are the omega-3 fats found in oily fish. However, this conversion process in the body is usually quite inefficient.

3. Hemp Seeds

Hemp seeds are an excellent source of vegetarian protein. In fact, they contain more than 30% protein, as well as many other essential nutrients.

Hemp seeds are one of the few plants that are complete protein sources, meaning they contain all the essential amino acids that your body can't make. Studies have also shown that the protein quality of hemp seeds is better than most other plant protein sources.

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A 1-ounce (28-gram) serving of hemp seeds contains:

Calories: 155

Fiber:

1.1 grams

Protein:

8.8 grams

Monounsaturated fat:

0.6 grams

Polyunsaturated fat:

10.7 grams

Magnesium:

45% of the RDI

Thiamine (vitamin B1):

31% of the RDI

Zinc:

21% of the RDI

The proportion of omega-6 to omega-3 fats in hemp seed oil is roughly 3:1, which is considered a good ratio. Hemp seeds also contain gamma-linolenic acid, an important anti-inflammatory fatty acid.

For this reason, many people take hemp seed oil supplements. Hemp seed oil may have a beneficial effect on heart health by increasing the amount of omega-3 fatty acids in the blood. The anti-inflammatory action of the omega-3 fatty acids may also help improve symptoms of eczema.

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4. Sesame Seeds

Sesame seeds are commonly consumed in Asia, and also in Western countries as part of a paste called tahini.

Similar to other seeds, they contain a wide nutrient profile. One ounce (28 grams) of sesame seeds contains:

Calories:

160

Fiber:

3.3 grams

Protein:

5 grams

Monounsaturated fat:

5.3 grams

Omega-6 fats:

6 grams

Copper:

57% of the RDI

Manganese:

34% of the RDI

Magnesium:

25% of the RDI

Like flaxseeds, sesame seeds contain a lot of lignans, particularly one called sesamin. In fact, sesame seeds are the best known dietary source of lignans.

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A couple of interesting studies have shown that sesamin from sesame seeds may get converted by your gut bacteria into another type of lignan called enterolactone. Enterolactone can act like the sex hormone estrogen, and lower-than-normal levels of this lignan in the body have been associated with heart disease and breast cancer. Another study found that postmenopausal women who ate 50 grams of sesame seed powder daily for five weeks had significantly lower blood cholesterol and improved sex hormone status. Sesame seeds may also help reduce inflammation and oxidative stress, which can worsen symptoms of many disorders, including arthritis.

5. Pumpkin Seeds

Pumpkin seeds are one of the most commonly consumed types of seeds, and are good sources of phosphorus, monounsaturated fats and omega-6 fats.

A 1-ounce (28-gram) serving of pumpkin seeds contains:

Calories:

151

Fiber:

1.7 grams

Protein:

7 grams

Monounsaturated fat:

4 grams

Omega-6 fats:

6 grams

Manganese:

42% of the RDI

Magnesium:

37% of the RDI

Phosphorus:

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33% of the RDI

Pumpkin seeds are also good sources of phytosterols, which are plant compounds that may help lower blood cholesterol. These seeds have been reported to have a number of health benefits, likely due to their wide range of nutrients.

6. Sunflower Seeds

Sunflower seeds contain a good amount of protein, monounsaturated fats and vitamin E. One ounce (28 grams) of sunflower seeds contains:

Calories:

164

Fiber:

2.4 grams

Protein:

5.8 grams

Monounsaturated fat:

5.2 grams

Omega-6 fats:

6.4 grams

Vitamin E:

47% of the RDI

Manganese:

27% of the RDI

Magnesium:

23% of the RDI

Sunflower seeds may be associated with reduced inflammation in middle-aged and older people, which may help reduce the risk of heart disease.

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An observational study of more than 6,000 adults found that a high intake of nuts and seeds was associated with reduced inflammation. In particular, consuming sunflower seeds more than five times per week was associated with reduced levels of C-reactive protein (CRP), a key chemical involved in inflammation. Another study examined whether eating nuts and seeds affected blood cholesterol levels in postmenopausal women with type 2 diabetes.

The women consumed 30 grams of sunflower seeds or almonds as part of a healthy diet every day for three weeks. By the end of the study, both the almond and sunflower seed groups had experienced reduced total cholesterol and LDL cholesterol. The sunflower seed diet reduced triglycerides in the blood more than the almond diet, though. However, “good” HDL cholesterol was also reduced, suggesting that sunflower seeds may reduce both good and bad types of cholesterol.

5A - IMPORTANCE OF NUTS AND DRY FRUITS PROTEINS

WHEN IS THE PERFECT TIME TO EAT NUTS AND DRIED FRUITS?

Obviously, we're biased and think that any time is a good time to add nuts and dried fruits into your diet, but, these delicious treats are great to add to your breakfast or as a mid-morning or afternoon snack. These are the times our body needs energy, to start the day and then to help us get to our main meals without incurring energy drops, which can lead us to reach for those sugary snacks.

Nuts and dried fruit are little nutrient power-houses and therefore adding them to your breakfast can provide you with a nutrient boost before you even start the day. They are also very versatile and therefore, can be used for both sweet or savoury recipes and can be used as an integral part of a recipe, such as in smoothies (here are some delicious nut smoothies), or as breakfast topper. You can even use nut butters or spreads to give your toast a delicious twist, just make sure it is natural and with no added sugars.

Mid-morning or afternoon can also be a time when energy levels can start to drop, and you need a boost to keep you going and get back into the groove. Nuts and dried fruits may provide you with just that. Many nuts contain a blend of protein, fats, and some carbohydrates to provide energy throughout the day and dried fruits are a good source of fibre making them perfect snacks to munch on in between meals.

Nuts and dried fruits to add in to your day-to-day diet:-

All nuts and dried fruits are delicious and each and every one contributes as part of a healthy diet. Below are some quick ideas of how to add them to your meal plan and what they can do for you.

Adding dates to your salad will not only give it a sweet taste but as dates are high in fibre mixing them in with your salad may also help prevent constipation and help your overall digestive health.

Eating almonds during work or school break will help boost those energy levels to keep your mind sharp for the day. They are also a very easy snack to take with you on the go, remember 23 makes up a healthy handful.

Dried Figs are remarkable for their phenolic content, a type of antioxidant. Antioxidants help protect our cells against damage which in turn may help prevent some diseases. Dried figs are a great ingredient to sweeten up a dish as you will see in our recipe below.

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Raisins can be great as a topping to sweeten up your oatmeal. Raisins are high in potassium, which contributes to the maintenance of normal blood pressure, helpful if you're about to have a stressful day ahead.

Walnuts can add a lovely bit of flavour into your snack. Walnuts have many health benefits and eating the recommended daily allowance of 30 g (14 walnut halves) every day contributes to the improvement of the elasticity of blood vessels which helps blood flow.

Healthy recipes with nuts & dried fruits:-

Live it up and make this delicious walnut, pecan & dried fig banana bread! It's easy to make and great for breakfast to give you a nutritional boost to start the day. This recipe is a great way to use up overripe bananas, it's bursting with sweet banana, cinnamon, dried figs and walnuts. This will last a few days and is even better toasted, and spread with a layer of peanut butter!

Nut and dried fruit trail mix anyone? Roasted nuts and dried fruits, tumbled with spices.

Roasted nuts and dried fruits, tumbled with spices. The key to this recipe is toasting the nuts well, to really bring out the rich, nutty flavours. You can do this in a dry pan over a medium heat, or in a pre-heated oven like we have. All the nuts are unroasted and unsalted.

8 Health Benefits of Consuming Dry Fruits and Nuts

Consuming dry fruits and nuts can have a significant impact on our bodies if taken properly and in insufficient amounts. They can help us in improving our health and prevent us from a lot of diseases. Consume dry fruits and nuts in between your meals or before your breakfast to supplement your regular diet. Importance of dry fruits in our diet holds a lot of nutritional benefits as they are rich in vitamins, proteins, fibers and minerals. To increase their effectiveness, you must try to soak them overnight before consuming them in the morning.

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Benefits of Dry Fruits and Nuts for Your Health

There are plenty of benefits for your overall nutritional health. Down below we have listed 8 of these:

1. Helps in fighting diseases and boosts immunity :

The benefits of dry fruits and nuts cannot be overlooked as they are loaded with a lot of essential nutrients. Dry fruits being rich in nutrients such as potassium, magnesium, calcium and iron can assist you in boosting your immunity and fighting off various diseases. Some of the antioxidants found in dry fruits such as walnuts and almonds give a boost to your immunity making your body free from frequent illness.

2. Combating Cancer :

Having soaked almonds helps in fighting off cancer, and if you have been doing this from a young age then you have been fighting off cancer for a long time now. People diagnosed with breast cancer are told to eat almonds and cashew as it helps in curtailing it. Pistachios and other nuts prevent the growth of tumours, especially in the lungs and prostate. Apricots, walnuts and Brazil nuts also assist in preventing the growth of cancer-causing cells in the body.

Looking to buy dry fruits online in Bangalore order from Healthy Buddha today and get your favourite dry fruits delivered at your doorsteps.

3. Helps in Reducing weight :

People consulting dietitians might have been told about the dry fruit's benefits for weight loss. Dry fruits and nuts when consumed in a proper and moderated way, can help in losing weight. Most of these are low in sugar, carbohydrates and provide essential nutrients for a faster metabolism.

4. Improves bowel Movement :

Curing constipation and improving bowel movements is yet another dried fruit benefit when it comes to our body. Some of the dry fruits such as anjeer, figs,

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pistachios and dates being rich in fiber ensure that you have a healthy bowel movement.

5. Improves Heart Health :

There are a lot of advantages of dry fruits when it comes to heart health. Raisins and dates help in reducing overall cholesterol in the body thereby maintaining healthy blood pressure. Almonds being rich in vitamin E prevent sudden spikes in the cholesterol levels in the body. The risk of heart disease, strokes and heart attacks is reduced to a significant extent if you add nuts and dry fruits in your diet.

6. Improves Bone Health :

Bone marrow health is quite an unknown and one of the best dry fruits advantages. Dry plums enhance bone health and support bone formation. Some of the dry fruits also improve bone density thereby making the bones stronger and preventing them from frequent wear and tear. If you are wondering where you can order dry fruits online in Bangalore, then you must order them online from Healthy Buddha.

7. Prevent Depression and Anxiety :

Some of the dry fruits are a rich source of beta carotene. Beta carotene is an antioxidant that battles and relieves one's body from depression and anxiety. This antioxidant is also known to improve memory and is present in huge amounts in figs and dried plums.

8. Keeps Your Skin Healthy :

Having a dry fruit-rich diet can have a good impact on your skin. Some of the benefits of eating dry fruits for skin are:

They prevent the skin from ageing.

They provide a different radiant glow to the skin.

Dry fruits such as raisins and dates contain various oils and antioxidants which can help you in improving your overall skin health. These are just some of the

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dry fruits benefits for the skin. Eating nuts and dry fruits can have other positive effects on your overall skin health as well.

So, these are some of the dry fruits uses and benefits on the human body. You must try to have a diet with a good and adequate number of dry fruits and nuts in it to prevent you from any serious disease and maintain a healthy body.

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5B - NUTS: ALMONDS, WALNUTS, CASHEWS, PISTACHIOS, PEANUTS, HAZELNUTS

WHAT ARE THE BENEFITS OF EATING NUTS?

Nuts are a good source of nutrients and can have several health benefits when consumed as part of a balanced diet. Some of the benefits of eating different types of nuts include:

Heart health: Some types of nuts, such as almonds and walnuts, are high in monounsaturated fats and polyunsaturated fats, which are known to be heart-healthy. Studies have shown that consuming nuts can help lower cholesterol levels and reduce the risk of heart disease.

Weight management: Although nuts are high in calories, research has shown that people who regularly consume nuts are less likely to be overweight or obese. This may be due to the fact that nuts are high in fibre, which helps to keep you feeling full and satisfied.

Diabetes management: Some nuts, such as almonds and pistachios, are high in fibre and protein, which can help to regulate blood sugar levels. Studies have shown that consuming nuts may help to lower the risk of developing type 2 diabetes.

Brain health: Nuts are a good source of antioxidants and polyphenols, compounds that can help protect against oxidative stress and inflammation in the body. Some research has suggested that consuming nuts may have a protective effect on brain health and may even help to reduce the risk of developing Alzheimer's disease.

Cancer prevention: Some nuts, such as Brazil nuts and almonds, are high in selenium, a mineral that has been shown to have anti-cancer properties. Some studies have also suggested that consuming nuts may help to reduce the risk of certain types of cancer, including breast cancer.

Almonds:-

Almonds are high in monounsaturated fats, which are heart-healthy fats. They are also a good source of protein, fibre, and vitamin E, an antioxidant that can help protect against oxidative stress and inflammation.

Walnuts:-

Walnuts are a good source of omega-3 fatty acids essential for brain and heart health. They are also a good source of antioxidants and have been shown to help lower cholesterol levels and reduce the risk of heart disease.

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Cashews:-

Cashews are a good source of monounsaturated fats and vitamin E. They are also high in copper, an important mineral for producing collagen and iron absorption.

Pistachios:-

Pistachios are a good source of protein, fibre, and antioxidants. Ideal for gifting, they are also high in potassium, essential for maintaining normal blood pressure.

Peanuts:-

Peanuts are a good source of antioxidants and have been shown to help lower cholesterol levels. They are also high in monounsaturated fats and have a high ratio of polyunsaturated to saturated fats, which is thought to be beneficial for heart health.

Hazelnuts:-

Hazelnuts are a good source of monounsaturated fats and vitamin E. They are also high in manganese, which is needed for bone health and metabolism.

How to Add Nuts in Your Daily Diet?

There are many ways to add different types of nuts to your daily diet:

As a snack: Nuts make a convenient and satisfying snack on their own or in combination with other healthy foods like fruit or whole grain crackers.

As a topping: Sprinkle nuts over oatmeal, yogurt, or salads for a crunchy texture and added flavour.

In baking: Nuts can be used in various baked goods like bread, cookies, and muffins for added flavour and texture.

In savoury dishes: Nuts can be used to add crunch and flavour to savoury dishes like stir-fries, salads, and pasta dishes.

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As a spread: Nut butter like peanut butter or almond butter can be used as a spread on toast, crackers, or fruit for a protein-packed snack.

It's important to remember that different types of nuts are high in calories, so it's important to be mindful of portion sizes. A serving of nuts is generally considered to be 1 ounce (28 grams), or about a handful. It's also a good idea to choose a variety of nuts to get the most health benefits of nuts.

The Ultimate Check List to Buy Nuts:-

Quality

Look for nuts that are fresh, not rancid or stale. They should be evenly colored and free from blemishes or discoloration.

Packaging

Choose nuts that are sold in airtight packaging or bulk bins. This will help to keep them fresher for longer. Avoid nuts that are sold in open bins or bags, as they may have been handled by multiple people and could be contaminated.

Variety

Choose a variety of nuts to get the most health benefits. Here are all types of nuts to consider include almonds, walnuts, hazelnuts, cashews, pistachios, Brazil nuts, macadamia nuts, pinenuts, and pecannuts.

Raw or roasted

Both raw and roasted nuts can be healthy, but it's important to consider the type of oil and seasoning used on roasted nuts. Choose nuts roasted in healthy oil, such as olive oil, and avoid those coated in sugar or other unhealthy additives.

Organic or conventional

Both organic and conventional nuts can be healthy, but organic nuts may be more environmentally friendly and may be grown without the use of synthetic pesticides.

Budget

Consider your budget when you buy nuts online. Nuts can be expensive, so comparing prices and choosing the most cost-effective option may be helpful.

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Storage

Keep nuts in an airtight container in a cool, dry place to help extend their shelf life. They can also be stored in the refrigerator or freezer to help them stay fresh longer.

Almonds:-

Almonds are popular due to their flavor, impressive nutrient profile, and relatively cheap cost. You can eat them raw or roasted, and they're often made into almond butter, flour, and milk.

A 1-ounce (28-gram) serving of roasted almonds :

Calories: 170

Fat: 15 grams

Protein: 6 grams

Carbs: 6 grams

Fiber: 3 grams

Vitamin E: 45% of the Daily Value (DV)

Magnesium: 19% of the DV

Manganese: 27% of the DV

These nuts are especially rich in vitamin E, a fat-soluble nutrient that functions as an antioxidant to protect your cells against oxidative damage. This vitamin also immune function and cellular communication.

Pistachios

Pistachios — whose name is derived from the Greek word pistákion, which means “the green nut” — have been eaten since 6,000 B.C. These vibrant nuts are packed with nutrients but lower in calories and fat than many other nuts.

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Just 1 ounce (28 grams) of pistachios :

Calories: 159

Fat: 13 grams

Protein: 6 grams

Carbs: 8 grams

Fiber: 3 grams

Vitamin B1 (thiamine): 21% of the DV

Vitamin B6: 28% of the DV

Phosphorus: 11% of the DV

Pistachios are a good source of numerous nutrients, including vitamin B6, which your body for nutrient metabolism and immune function.

Cashews:-

Cashews have a crunchy texture and creamy mouthfeel that pair well with both savory and sweet dishes. You can eat them raw, roasted, or as nut butter.

Only 1 ounce (28 grams) of raw cashews

Calories: 157

Fat: 12 grams

Protein: 5 grams

Carbs: 9 grams

Fiber: 1 gram

Vitamin K: 8% of the DV

Magnesium: 20% of the DV

Manganese: 20% of the DV

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These nuts are a good source of several nutrients that are essential to bone health.

protein

vitamin K

magnesium

manganese

A review of five studies also found that eating cashews led to reductions in blood pressure and triglyceride levels.

Hazelnuts

Hazelnuts are highly nutritious, packing healthy fats, protein, and fiber. Only 1 ounce (28 grams)

Calories: 178

Fat: 17 grams

Protein: 4 grams

Carbs: 5 grams

Fiber: 3 grams

Vitamin E: 28% of the DV

Magnesium: 11% of the DV

Manganese: 76% of the DV

In addition to being a good source of vitamins and minerals, hazelnuts may have antioxidant and anti-inflammatory effects because they're loaded with beneficial plant compounds, such as:

gallic acid

epicatechin

caffeic acid

quercetin

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A 2016 review of 9 studies also suggests that regularly eating hazelnuts may help reduce heart disease risk factors like elevated LDL cholesterol and total cholesterol.

Walnuts

Walnuts are linked to multiple health benefits and have an impressive nutrient profile.

Just 1 ounce (28 grams) .

Calories: 185

Fat: 18.5 grams

Protein: 4 grams

Carbs: 4 grams

Fiber: 2 grams

Copper: 50% of the DV

Magnesium: 11% of the DV

Manganese: 42% of the DV

These nuts are an excellent source of copper, a mineral that your body needs to produce enzymes involved in energy production and neurotransmitter synthesis. Copper also aids immune function and blood vessel development.

peanuts technically belong to the legume family, they have a nutrient profile similar to that of tree nuts, as well as comparable health benefits and related culinary uses.

One ounce (28.35 grams) of raw peanuts roughly:

Calories: 162

Fat: 13.5 grams

Protein: 7 grams

Carbs: 6 grams

Fiber: 2.5 grams

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Vitamin B3 (niacin): 23% of the DV

Vitamin B9 (folate): 17% of the DV

Magnesium: 12% of the DV

Peanuts are a rich source of plant protein, which may help you feel full. They're packed with polyphenol antioxidants and are also high in folate, a B vitamin that's especially important during pregnancy due to its role in fetal and placental development.

5C - DRY FRUITS: RAISINS, FIGS, DATES, APRICOTS

DRIED FRUIT: GOOD OR BAD?

Dried fruit can boost your fiber and nutrient intake and supply your body with large amounts of antioxidants. But it's also a high carb food, containing sugar and many calories and can cause problems if you eat too much.

What is Dried Fruit?

Dried fruit is fruit that has had almost all of the water content removed through drying methods.

The fruit shrinks during this process, leaving a small, energy-dense dried fruit.

Raisins are the most common type, followed by dates, prunes, figs and apricots.

Other varieties of dried fruit are also available, sometimes in candied form (sugar coated). These include mangoes, pineapples, cranberries, bananas and apples.

Dried fruit can be preserved for much longer than fresh fruit and can be a handy snack, particularly on long trips where refrigeration is not available.

Dried Fruit is Loaded With Micronutrients, Fiber and Antioxidants Dried fruit is highly nutritious.

One piece of dried fruit contains about the same amount of nutrients as the fresh fruit, but condensed in a much smaller package.

By weight, dried fruit contains up to 3.5 times the fiber, vitamins and minerals of fresh fruit.

Therefore, one serving can provide a large percentage of the daily recommended intake of many vitamins and minerals, such as folate .

However, there are some exceptions. For example, the vitamin C content is significantly reduced when the fruit is dried .

Dried fruit generally contains a lot of fiber and is a great source of antioxidants, especially polyphenols .

Polyphenol antioxidants are associated with health benefits such as improved blood flow, better digestive health, decreased oxidative damage and reduced risk of many diseases.

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Health Effects of Dried Fruit:-

Several studies have shown that people who eat dried fruit tend to weigh less and ingest more nutrients, compared to individuals not eating dried fruit.

However, these studies were observational in nature, so they can not prove that the dried fruit caused the improvements. Dried fruit is also a good source of many plant compounds, including powerful antioxidants.

Raisins May Reduce the Risk of Certain Diseases

Raisins are dried grapes.

They are packed with fiber, potassium and various health-promoting plant compounds.

They have a low to medium glycemic index value, and a low insulin index .

This means that raisins should not cause major spikes in blood sugar or insulin levels after meals.

Studies show that eating raisins may :-

Lower blood pressure.

Improve blood sugar control.

Decrease inflammatory markers and blood cholesterol.

Lead to increased feeling of fullness.

All of these factors should contribute to a reduced risk of developing type 2 diabetes and heart disease.

Prunes are Natural Laxatives and May Help Fight Diseases

Prunes are dried plums.

They are highly nutritious, being rich in fiber, potassium, beta-carotene (vitamin A) and vitamin K.

They are known for their natural laxative effects.

This is caused by their high content of fiber and a sugar alcohol called sorbitol, which is found naturally in some fruit.

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Eating prunes has been shown to help improve stool frequency and consistency. Prunes are considered to be even more effective at relieving constipation than psyllium, which is another common remedy .

As a great source of antioxidants, prunes may inhibit the oxidation of LDL cholesterol and help prevent heart disease and cancer .

Prunes are also rich in a mineral called boron, which can help fight osteoporosis .

Furthermore, prunes are very filling and should not cause rapid spikes in blood sugar levels.

Dates May Benefit Pregnancy and Help Prevent Several Diseases

Dates are incredibly sweet. They are a great source of fiber, potassium, iron and several plant compounds.

Of all the dried fruit, they are one of the richest sources of antioxidants, contributing to reduced oxidative damage in the body .

Dates have a low glycemic index, which means that eating them should not cause major spikes in blood sugar levels .

Date consumption has also been studied in relation to pregnant women and labor.

Eating dates regularly during the last few weeks of pregnancy may help facilitate cervical dilation, as well as decrease the need for induced labor.

One study had women eat dates during the last few weeks of pregnancy. Only 4% of the date-eating women required induced labor, compared to 21% of those who did not consume dates .

Dates have also shown promising results in animal and test-tube studies as a remedy for infertility in males, but human studies are lacking at this point .

Dried Fruit is High in Natural Sugar and Calories

Fruit tend to contain significant amounts of natural sugars.

Because the water has been removed from dried fruit, this concentrates all the sugar and calories in a much smaller package.

For this reason, dried fruit is very high in calories and sugar, including both glucose and fructose.

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Below are some examples of the natural sugar content of dried fruit .

Raisins: 59%.

Dates: 64–66%.

Prunes: 38%.

Apricots: 53%.

Figs: 48%.

About 22–51% of this sugar content is fructose. Eating a lot of fructose may have negative health effects. This includes increased risk of weight gain, type 2 diabetes and heart disease . A small 1-ounce portion of raisins contains 84 calories, almost exclusively from sugar.

Because dried fruit is sweet and energy-dense, it is easy to eat large amounts at a time, which can result in excess sugar and calorie intake.

Avoid Dried Fruit with Added Sugar (Candied Fruit):-

To make some dried fruit even more sweet and appealing, they are coated with added sugar or syrup before being dried.

Dried fruit with added sugar are also referred to as “candied” fruit. Added sugar has repeatedly been shown to have harmful effects on health, increasing the risk of obesity, heart disease and even cancer . To avoid dried fruit that contains added sugar, it is very important to read the ingredients and nutrition information found on the package.

Dried Fruit May Also Contain Sulfites, and May be Contaminated With Fungi and Toxins

Some producers add preservatives called sulfites to their dried fruit.

This makes the dried fruit look more appealing, because it preserves the fruit and prevents discoloration.

This applies mainly to brightly colored fruits, such as apricots and raisins.

Some individuals may be sensitive to sulfites, and may experience stomach cramps, skin rashes and asthma attacks after ingesting them . To avoid sulfites, choose dried fruit that is brown or grayish rather than brightly colored .Dried fruit that is improperly stored and handled may also be contaminated with fungi, aflatoxins and other toxic compounds.

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Nutritional profile of dried fruit:-

Dried fruits can be a source of antioxidants in the diet. Dried apricots and peaches are also good sources of carotenoids, which your body turns into vitamin A.

Prunes, raisins and apricots also contain iron.

Many dried fruits are also a source of fibre. Take a look at how much fibre there is in ¼ cup of these dried fruits:

Dried Fruit

Fibre (g)

Raisins

2.5

Dried apricots

2.9

Prunes

3.1

Dried figs

3.7

Dates

8.0

Dried fruit and dental health :-

While dried fruit can be enjoyed as part of a balanced diet, be careful as it can stick to teeth and cause dental decay. It is best to enjoy dried fruit as part of a

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meal to prevent it from sticking to teeth or you can also make sure to brush your teeth after enjoying them.

Buy dried fruit at it's best:-

Check out your local bulk food store - dried fruit may be less expensive and it will save packaging.

Buy dried fruits without added sugar. Check the ingredient list to see whether or not sugar has been added.

Tips for storing dried fruit:-

Store dried fruits in an airtight container to keep them fresh.

Dried fruit can be stored tightly wrapped at room temperature for several months. Store in a cool, dry place like a cupboard.

For prolonged storage (up to a year), they should be refrigerated in a tightly sealed plastic bag.

Things to Do with Dried Fruit:-

Raisins

Bake apples with raisins and walnuts.

Make homemade trail mix with raisins, high fibre cereal and unsalted almonds like in this Kids Pix Trail Mix.

Sprinkle raisins onto a salad.

Add as a topping to oatmeal.

Dried Apricot

Top high fibre cereal with dried apricots and almonds.

Layer a yogurt parfait with chopped dried apricots.

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Add dried apricots to stews.

Make a quinoa pilaf with dried apricots and toasted almonds.

Prunes

Toss chopped prunes into a stir-fry dish.

Add prunes to curried chicken.

Pureed prunes can also be used to replace half the amount of fat used in baking.

Dried figs

After dinner, enjoy a serving of fresh fruit and dried figs.

Add dried figs to a stir-fry dish.

Layer chopped dried figs onto pear slices. Top with crumbled blue cheese.

Dates

Add to batters and doughs for quick breads and muffins.

Use to make fibre-filled granola bars.

Slice dates lengthwise and fill them with peanut, almond or soy butter.

Cook up rice with green lentils, dates and raisins.

Add to your favourite tagine recipe for some extra flavour.

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5D - PEANUT BUTTER & ITS IMPORTANCE

This increased time spent learning more about sport and nutrition and the healthcare system shifting massively from a reactive to a preventive attitude led to a new interest in everything labeled as healthy. However, this came with a cost: the sparkling ads and colorful voiceovers for superfoods and supplements started popping up everywhere, hurting wallets more than improving body composition. Evidence also shows that most supplements harm one's body more than improve performance. Don't get me wrong; a handful of supplements can maximize one's athletic performance - but not more.

Even if superfood is a definition that doesn't exist per se, some ingredients shine more than others for their nutritional value. One has been out there forever, mainly as the cornerstone of any healthy breakfast (cit.): Peanut Butter.

Peanut butter has five main factors that make it beneficial for healthy nutrition:

Healthy fats: peanut butter's monounsaturated and polyunsaturated fats greatly sustain a healthy heart. The ratio between monounsaturated and polyunsaturated is similar to olive oil, a well-known healthy heart contributor.

Phosphorus: this element is abundant in peanut butter and helps the human body build healthy cells and bones, aside from assisting cells to produce energy.

Zinc: 100g of peanut butter contains 3.06mg (milligram) of zinc. Therefore, a serving of peanut butter consists of about 8% for men and 11% for women of their RDA (Daily Recommended Allowance). Zinc is necessary for immunity, protein synthesis, and DNA formation.

Niacin: Peanut butter is an excellent source of Niacin. It benefits digestion and nerve function and helps produce energy.

Vitamin B-6: A key player in over 100 enzyme reactions in the body and may be necessary for heart and immune system health. Peanut Butter is full of Vitamin B-6.

How does peanut butter improve your performance and recovery? We have three main reasons for it:

Proteins: 100g of peanut butter contains 25g of protein. 25g of protein is a target

amount for your recovery after any effort.

Magnesium: Magnesium is essential for health, as it plays a role in over 300

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chemicals in-body processes. 154mg (milligram) of magnesium per 100g peanut butter gives you a solid bang for your buck.

Calcium: muscle work, blood clotting, the excitability of nerves and muscles control,

heart rhythm, bone formation, and many other metabolic processes in cells are positively affected by calcium.

In a nutshell (pun intended), Peanut butter provides a good amount of fiber, proteins, and essential vitamins and minerals, such as magnesium, calcium, potassium, and zinc—all elements of a solid foundation to remain healthy and train efficiently day after day

Peanut butter from a nutritionist perspective

As a nutritionist, I like to use peanut butter on different occasions:

For bodybuilding or to recover after a hard training session: Thanks to its high-calorie content, peanut butter is an easy way to increase calorie intake. One also benefits from the anti-inflammatory unsaturated fat intake. Peanut butter also provides a great source of protein, which is essential for building and repairing muscles.

For managing blood sugar levels: Peanut butter is a relatively low-carbohydrate food that contains good fats, protein, and essential fibers. Because of these qualities, peanut butter (without added sugar) doesn't significantly affect blood sugar levels.

Thus, people with diabetes may find it a good choice as a nutritious food. As a means to increase daily unsaturated fat intake, which is anti-inflammatory, stabilizes heart rhythms, and improves cholesterol levels.

Eating peanut butter is easy. And as it is delicious, one can easily overeat it, so be mindful of your intake to avoid eating more calories than you need daily. Remember that two tablespoons of peanut butter are close to 200 calories.

You can include peanut butter in any diet by:

.1.Making a classic peanut butter and jelly sandwich. Use whole-fruit, low-sugar jelly, and whole-grain bread.

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2. Spreading peanut butter on rice cakes and top with banana slices. It is perfect before or during a long training session.

3. Whipping up a Thai peanut salad dressing, using lime juice, rice vinegar, soy sauce, and honey.

4. Adding a spoonful to your recovery smoothies.

5. Dipping apple and pear slices into peanut butter for an easy snack.

6. Stirring peanut butter into yogurts or warm oatmeal.

peanut butter is an ideal ingredient for any breakfast because:

It stabilizes one's blood sugar levels.

One digests it slowly; thus, it remains in one's stomach longer, which helps one feel full and satiated, allowing one to go longer between meals.

A spoonful of crunchy peanut butter requires more chewing. This action sends satiety signals, which may help to avoid overeating.

It will boost the protein value of one's breakfast, and muscles will love it.

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6A - MUSHROOMS PROTEIN

Global concerns about population growth, economic, and nutritional transitions and health have led to the search for a low-cost protein alternative to animal origins. This review provides an overview of the viability of exploring mushroom protein as a future protein alternative considering the nutritional value, quality, digestibility, and biological benefits.

Recent Findings

Plant proteins are commonly used as alternatives to animal proteins, but the majority of them are low in quality due to a lack of one or more essential amino acids. Edible mushroom proteins usually have a complete essential amino acid profile, meet dietary requirements, and provide economic advantages over animal and plant sources. Mushroom proteins may provide health advantages by eliciting antioxidant, antitumor, angiotensin-converting enzyme (ACE), inhibitory and antimicrobial properties over animal proteins. Protein concentrates, hydrolysates, and peptides from mushrooms are being used to improve human health. Also, edible mushrooms can be used to fortify traditional food to increase protein value and functional qualities. These characteristics highlight mushroom proteins as inexpensive, high-quality proteins that can be used as a meat alternative, as pharmaceuticals, and as treatments to alleviate malnutrition.

Summary

Edible mushroom proteins are high in quality, low in cost, widely available, and meet environmental and social requirements, making them suitable as sustainable alternative proteins.

Mushrooms provide a range of antioxidants and other nutrients that may contribute to heart health and protect the body from cancer. Nutritional profiles vary between types of mushrooms.

What are the health benefits of mushrooms?

Cancer

Antioxidants, like many found in mushrooms, may help prevent numerous types of cancer. These can include prostate, colorectal, and breast cancer. However, more studies are necessary to confirm this

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Some sources have suggested that selenium may help prevent cancer, but a 2017 review found no evidence to confirm this.

Mushrooms also contain a small amount of vitamin D. There is some evidence that vitamin D supplementation may help prevent or treat some kinds of cancer. However, according to a 2018, the effect may vary from person to person.

Choline is another antioxidant in mushrooms. Some studies have suggested that consuming choline can reduce the risk of some types of cancer, but at least one other study has indicated that it may increase the risk of lethal prostate cancer.

Diabetes

Dietary fiber may help manage a number of health conditions, including type 2 diabetes.

A 2018 review of meta-analyses concluded that people who eat a lot of fiber may have a lower risk of developing type 2 diabetes. For those who already have it, fiber may help reduce blood glucose levels.

A cup of sliced raw mushrooms, weighing 70 grams (g), provides 0.7 g of fiber.

The Dietary Guidelines for Americans 2020–2025 recommend that adults consume around 20–30 g of dietary fiber each day, depending on sex and age.

Learn about foods to eat and avoid with diabetes.

Heart health

The potassium, vitamin C, and fiber in mushrooms may contribute to cardiovascular health.

Learn about the best foods for heart health.

Potassium

Potassium can help regulate blood pressure, and this may decrease the risk of hypertension and cardiovascular disease. The American Heart Association (AHA) recommends reducing the intake of added salt in the diet and eating more foods

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that contain potassium. Mushrooms appear on the AHA's list of foods that provide potassium.

A person should aim to consume around 2,600 milligrams (mg) of potassium per day for females, and 3,400 mg per day for males. One cup of mushrooms contains around 223 mg of potassium. However, people with certain conditions such as kidney disease may need to consume less potassium. A person's doctor can advise on how much potassium they should consume each day.

Vitamin C

A 2016 study concluded that people with a vitamin C deficiency were more likely to experience cardiovascular disease and suggested that consuming vitamin C may help prevent this illness.

A person should consume around 75–90 mg of vitamin C per day. One cup of mushrooms contains around 1.47 mg of vitamin C.

Fiber

There is some evidence that consuming a type of fiber called beta-glucans may lower blood cholesterol levels. Beta-glucans occur in the cell walls of many types of mushrooms.

The stem of shiitake mushrooms (*Lentinula edodes*) is a good source of beta-glucans.

In pregnancy

Many people take folic acid, or folate, supplements during pregnancy to boost fetal health, but mushrooms can also provide folate.

A cup of sliced raw mushrooms contains 11.9 micrograms (mcg) of folate. Current guidelines recommend that adults consume 400 mcg of folate each day. Pregnant people should aim for around 600 mcg.

Other benefits

Mushrooms are rich in B vitamins, such as:

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- riboflavin, or B-2
- folate, or B-9
- thiamine, or B-1
- pantothenic acid, or B-5
- niacin, or B-3

B vitamins help the body get energy from food and form red blood cells. A number of B vitamins also appear to be important for a healthy brain.

The choline in mushrooms can help with muscle movement, learning, and memory. Choline assists in maintaining the structure of cellular membranes and plays a role in the transmission of nerve impulses.

Mushrooms are also the only vegan, non-fortified dietary source of vitamin D.

Several other minerals that may be difficult to obtain from a vegan diet are available in mushrooms. These include:

- selenium
- copper
- iron
- phosphorus

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6B - CRUCIFEROUS VEGETABLES (GOITROGENS): BROCCOLI, KALE, BRUSSELS SPROUTS

Brussels sprouts are hearty with a strong, nutty flavour. You can purchase a fresh Brussels sprout stalk, which hosts small heads neatly aligned side by side in rows, or you can buy a bag of loose sprouts, fresh or frozen. Enjoy them raw and shredded in a salad or roasted to perfection.

A lot of people believe Brussels sprouts to be spelt and pronounced "brussel sprouts" however, it is always spelt with a capitalised "B" as it is named after the Belgian city of Brussels, hence the "S" on the end of Brussels as well.

Brussels sprouts are low in carbohydrates with lots of filling fibre. While it's no surprise that Brussels sprouts are a healthy food, they aren't always prepared in the healthiest way. Many Brussels sprouts recipes call for ingredients like bacon, butter, or maple syrup, quickly racking up the saturated fat and sugar content. Be mindful of your preparation to get the maximum benefits from this nutritional powerhouse.

Brussels Sprouts Nutrition Facts

The following nutrition information is provided by the USDA for 1 cup (156g) of Brussels sprouts cooked with no added fat or sodium.

Calories: 56

Fat: 0.8g

Sodium: 16mg

Carbohydrates: 11g

Fibre: 4.1g

Sugars: 2.7g

Protein: 4g

Carbs

Of the 11 grams of carbohydrates in a 1 cup of cooked Brussels sprouts, a little over 4 grams are from fibre. Fibre is an indigestible carbohydrate that helps

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keep you full, reduces cholesterol, regulates bowels, and helps stabilise blood sugar.

Brussels sprouts have a very low glycemic index and are a great choice for those on a low-carb diet or anyone who is watching their blood sugar.

Fats

Brussels sprouts contain negligible amounts of fat with a greater percentage coming from unsaturated fats than saturated fats.

Protein

With about 4 grams of protein per 1 cup cooked, Brussels sprouts are a decent source of plant-based protein, especially if you have multiple servings. Brussels sprouts are not a complete source of all the essential amino acids, however, so it is important to eat a variety of protein sources rather than relying on Brussels sprouts alone.

Vitamins and Minerals

Brussels sprouts are a source of the B-vitamins necessary for cellular energy production, including vitamin B6, thiamine, and folate. Brussels sprouts contain 24% of the daily recommended amount of vitamin A, which is great for your eyes and internal organs. They also contain manganese, which helps with the metabolism of carbohydrates, amino acids, and cholesterol.

Health Benefits

Brussels sprouts are an excellent source of vitamin C and vitamin K. They're rich in fibre and beneficial phytonutrients which offer a host of health benefits.

Aids Healing

Brussels sprouts are a great source of vitamin K. If you cut yourself, vitamin K helps your blood clot to prevent excessive bleeding. Furthermore, vitamin C promotes tissue repair by promoting collagen.

Promotes Immunity

Vitamin C has long been studied for its role in preventing colds. Despite its reputation as a cold-fighter, the true immune system benefits of Brussels sprouts more likely come from its numerous phytochemicals. Bioactive compounds in cruciferous vegetables, like Brussels sprouts, reduce inflammation, induce immune functions, and stimulate natural detoxification.

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Supports Strong Bones

The vitamin K in Brussels sprouts also plays an important role in bone formation. There are multiple vitamin K-dependent proteins involved in bone mineralisation, turnover, and calcification. Brussels sprout's protein content also helps support muscle and bone strength.

Reduces Risk of Metabolic Syndrome

The fibre in Brussels sprouts and other vegetables has long been associated with appetite control and maintaining a healthy weight. Plant-based eating plans have been shown to reduce circulating levels of the appetite hormone, leptin. Although leptin sends fullness cues to the brain, high leptin levels can cause resistance to leptin's message. Including Brussels sprouts as part of a high-vegetable menu reduces this effect and protects against metabolic syndrome.

Prevents Cancer

Brussels sprouts are one of the cruciferous vegetables shown to have anti-cancer properties. There is some evidence that this may in part be due to the activation of certain enzymes in the liver that binds to carcinogens. Research seems particularly promising in the prevention of breast and ovarian cancer. Dose-dependent associations have been observed between the intake of cooked cruciferous vegetables and the development of ovarian cancer.

Allergies

People with an intolerance to histamine-rich foods may experience allergy-like symptoms after eating Brussels sprouts. There is potential for cross-reactivity in people with allergies to cabbage, peaches, or mustard.

Adverse Effects

Brassica vegetables (crucifers) such as Brussels sprouts can cause gastrointestinal issues in some people, especially when eaten raw. Cooking Brussels sprouts makes them easier to digest. Brussels sprouts are not recommended for people following a low-FODMAP diet to manage gastrointestinal symptoms.

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Cruciferous vegetables like Brussels sprouts are goitrogenic, which means they might interfere with iodine uptake, disrupting the thyroid gland's production of hormones necessary for regulating metabolism. There is a weak association between thyroid cancer, goitres, and the intake of cruciferous vegetables in some populations, particularly in women with iodine deficiencies. There is not sufficient evidence to warrant a dietary restriction of Brussels sprouts though.

If you take the medication Coumadin (warfarin) as a blood thinner, your doctor may advise you to eat a consistent amount of green leafy vegetables, like Brussels sprouts, to keep your clotting levels stable. Be sure to discuss your eating habits with your doctor when taking blood thinners.

Storage and Food Safety

Whole, uncut Brussels sprouts can be stored in the refrigerator for three to five weeks, but after a couple of days, the quality starts to decrease. For longer-term storage, blanch and freeze Brussels sprouts for up to one year. Before cutting fresh Brussels sprouts, wash your hands well and remove the damaged outer leaves. Rinse Brussels sprouts under running water and dry with a clean paper towel.

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6C - LEAFY GREENS: SPINACH AND ASPARAGUS

Asparagus is a popular vegetable in many parts of the world. Depending on the type of asparagus, people eat it raw or cooked, and in dishes such as soups, stews, salads, or on its own.

The nutrients in asparagus can support heart and bone health, while the folate and iron that it contains may be especially beneficial during pregnancy. The vegetable's nutritional contents, possible health benefits, and how to incorporate it into the diet.

Benefits

The nutrients in asparagus can provide a range of health benefits.

Supporting fetal development:-

Asparagus is rich in folate also known as vitamin B-9. This nutrient plays an essential role in cell development.

Folate is an essential nutrient, and it is especially important at times of rapid growth, such as during gestation, infancy, and adolescence.

Taking folic acid supplements during pregnancy appears to help prevent pregnancy loss and protect the growing fetus from neural tube abnormalities.

Also, people who do not get enough folate from their diets may experience weakness and tiredness due to folate deficiency anemia.

Lower risk of depression:-

Folate may also reduce the risk of depression, It may do so by preventing too much homocysteine from forming in the body. Homocysteine is an amino acid that can block blood and nutrients from reaching the brain.

If too much homocysteine is present, it may also interfere with the production of the feel-good hormones serotonin, dopamine, and norepinephrine. These hormones regulate mood, sleep, and appetite.

Stroke:-

Using folate to manage homocysteine levels may reduce the risk of stroke, according to research reviewed by the Office of Dietary Supplements (ODS).

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The evidence comes from studies in which people took folate supplements. However, dietary sources of folate may also be beneficial.

Cardiovascular health

Asparagus contains fiber, potassium, and antioxidants, all of which may promote heart health.

Fiber:-

Authors of a 2017 review found that people who consume a high fiber diet appear to have lower blood pressure and less low-density lipoprotein, or “bad,” cholesterol in their blood.

A cup of asparagus can provide around 10% of an adult’s daily fiber needs .

Potassium

The American Heart Association (AHA) urge people to reduce their consumption of added salt, or sodium, while increasing their intake of potassium, as this can help manage blood pressure and reduce the risk of cardiovascular disease.

Antioxidants

The body naturally produces toxic molecules known as free radicals, and if too many build up, they can cause damage. Cardiovascular disease may be one result of this.

The antioxidants in asparagus — including beta carotene, tocopherol, and selenium — may contribute to cardiovascular health because antioxidants may combat free radicals.

Preventing osteoporosis:-

Asparagus contains phosphorus, iron, vitamin K, and some calcium, all of which contribute to bone health.

A cup of asparagus can provide almost half of an adult’s daily requirement of vitamin K, and a 2018 review, for example, concludes that vitamin K supports bone health in various ways and may help prevent osteoporosis.

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Meanwhile, iron, potassium, phosphorus, zinc, and magnesium are among the minerals that support bone health, and asparagus contains all of these.

One cup of asparagus provides almost 10% of a person's daily requirement of phosphorus and between one-sixth and one-third of their requirement of iron.

Cancer prevention:-

High levels of free radicals in the body can lead to cell damage that may result in cancer. Asparagus provides a range of antioxidants that may help the body eliminate these unwanted substances.

According to the ODS, scientists have found links between low folate levels and various forms of cancer. However, they note that more research is necessary to identify what role dietary folate may play.

Fiber may help prevent colorectal cancer, according to results of a population-based screening trial published in 2015. The investigators found that people with high fiber diets were significantly less likely to develop colorectal cancer than those who ate low amounts of fiber.

Digestion:-

Asparagus is rich in fiber and water. Both help prevent constipation and maintain a healthy digestive tract.

Nutrition

Asparagus is available in various forms — it may be frozen, raw, precooked, or preserved. The nutritional contents vary accordingly.

The table below shows the amount of each nutrient in 1 cup, or 134 grams (g), of raw asparagus, according to the United States Department of Agriculture (USDA).

Diet:-

Asparagus can be green, white, or purple. People should buy it when the stalks are dry and tight, not soft, limp, or wilted. A person can eat it raw or cooked.

To keep asparagus fresh, wrap the stem ends in a wet paper towel, and store the asparagus in a plastic bag in the refrigerator.

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A person can eat young asparagus whole. However, it may be a good idea to remove the bottoms of older, larger, thicker stems, as these can be tough and woody.

Risks:-

People with certain health conditions should not eat too much asparagus.

Vitamin K plays a role in blood clotting. Anyone who is taking a blood thinner, such as warfarin (Coumadin), should not suddenly increase or decrease their consumption of vitamin K. It is important to discuss any major dietary changes with a doctor first.

Also, asparagus extract supplements are available for purchase, but speak to a doctor before trying these or any other supplements.

Supplements can interfere with medication or be otherwise unsuitable for some people.

6D - SAUERKRAUT (FERMENTED CABBAGE) PROTEINS

Sauerkraut:-

Sauerkraut is a fermented product made from cabbage and has its roots in central Europe. Germans and the Alsatians prepare sauerkraut as their national dish (Sauerkraut, 2009). Sauerkraut has also been used in Germany for medicinal purposes; traditionally in many parts of southern Germany, some families would feed their children raw sauerkraut two times every week – this was believed to support and strengthen the intestines of the sick children. Sauerkraut is also traditionally produced in the Balkans using whole heads of cabbage instead of shredded cabbage. It is usually produced by spontaneous fermentation. In spontaneous sauerkraut fermentation, *Leuconostoc mesenteroides* initiate the fermentation process, followed by the growth of other lactic acid bacteria (LAB), mainly *Lactobacillus brevis*, *Pediococcus pentosaceus*, and *Lactobacillus plantarum* species, among which *L. plantarum* is responsible for the second phase of fermentation and high acidity of the produced sauerkraut. The dominant species, present in the fermentation, shift within 1 week from less acid-tolerant heterolactic to more acid-tolerant homolactic fermentation LAB species. Shredded cabbage fermentations start with 10^6 colony-forming units (cfu) g^{-1} aerobic microorganisms, 10^6 cfu g^{-1} enterobacteriaceae, and less than 10^2 cfu g^{-1} yeasts and molds. Each of these populations reaches concentrations of 10^8 – 10^9 cfu g^{-1} . The fermentation is complete in 2 weeks and at that time the most acid-resistant *L. plantarum* predominates. Salt concentration and fermentation temperature can also affect the growth of the naturally present microorganisms and the sensory properties of the sauerkraut. Two percent of salt is usually added to the traditional fermentation, and to reduce salt waste.

Brief History of Sauerkraut

Salted and fermented vegetables have a long history in human nutrition since ancient times, with sauerkraut being one of the most popular vegetable fermented products. Sauerkraut, a traditional dish in Central and Eastern Europe, the United States, and Asia, results from the lactic acid fermentation of chopped and salted white cabbage (*Brassica oleracea* var. *capitata*).

The word sauerkraut originates from the German term for “sour cabbage.” The first mention of sauerkraut dates from 2000 years ago in China, where cabbage was fermented in rice wine, and was introduced 1000 years later in Europe by Genghis Khan after invading China. Europeans substituted wine with salt in sauerkraut.

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The health benefits of sauerkraut were well-known in early civilizations. Moreover, Captain James Cook, an English navigator and explorer, replenished the food supplies of his ships with sauerkraut on his lengthy voyages, as he noticed that it did not need refrigeration and prevented scurvy in sailor.

Abstract:-

Sauerkraut is a traditional vegetable product usually produced by spontaneous fermentation that relies on lactic acid bacteria (LAB) naturally present in white cabbage. However, current trends on sauerkraut production propose the application of starter cultures in order to ensure a uniform quality of the product. Besides its high nutritional value, there are numerous in vitro investigations and some epidemiological data suggesting the potential positive effects of sauerkraut on health. These health-promoting properties are supported by strong evidence obtained from experimental studies, demonstrating that specific phytochemicals of sauerkraut have antioxidant, antiinflammatory, and a chemopreventive action against certain types of cancer. This chapter provides an overview of the production process of sauerkraut and its nutritional and phytochemical composition. The scientific data supporting the health benefits of sauerkraut will be also reviewed.

Canning of pickled products:-

Sauerkraut is defined as "the clean, sound product, of characteristic acid flavour, obtained by the full fermentation, chiefly lactic, of properly prepared and shredded cabbage in the presence of not less than 2%, nor more than 3%, of salt. It contains, upon completion of the fermentation, not less than 1.5% of acid, expressed as lactic acid. Sauerkraut, which has been rebrined in the process of canning or repacking, contains not less than 1% of acid, expressed as lactic acid."

The two styles are 'shredded', which means canned sauerkraut prepared from cabbage cut into shreds, and 'chopped', which is canned sauerkraut prepared from cabbage that is cut or chopped into small pieces.

Cabbage wilts somewhat during storage, and thus, during cutting, the shreds do not break as readily as crisp fresh cabbage. The cabbage is cored with a type of corer that shreds the core but does not remove the pieces. The outer leaves are then removed at trimming tables. In some operations, some of the leaves are removed by a mechanical scrubber, and at the same time the cabbage may be washed with sprays of water. The cabbage is cut by a rotary cabbage cutter. The knives are generally set to cut shreds about 0.8 mm (1/32 in.) in thickness. This thickness varies with individual companies, although most prefer a fine cut. Shred length will depend on the size of head, the condition of the cabbage, and

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the sharpness and set of the blades. The cut cabbage is conveyed, usually by a cart or belts, to the fermentation tanks.

The industry uses reinforced concrete epoxy-coated or inert lined vats or fiberglass tanks. The tanks should be cleaned thoroughly between fillings. Sauerkraut tanks should be placed within well-constructed buildings on firm foundations on a well-drained floor. The tanks should be arranged carefully in the building to facilitate handling of shredded cabbage and finished sauerkraut.

Fermented Foods: Fermented Vegetables and Other Products:-

Sauerkrauts, widely consumed in many European countries and in the United States, are manufactured by spontaneous lactic fermentation of white cabbage . After removal of the core and outer leaves, fresh cabbage is shredded and mixed with 2–3% (w/w) salt before allowing for natural fermentation. Cabbage are quickly surrounded by brine and covered with plastic sheeting draped over the tank, to ensure air exclusion. Sauerkraut production typically relies on a sequential microbial process that involves hetero- and homofermentative lactic acid bacteria, such as *Leuconostoc* spp. and *Weissella* spp. in the early phase and *Lactobacillus* spp., *Lactococcus lactis*, and *Pediococcus* spp. in the subsequent phases. *Lactobacillus plantarum* prevails during late fermentation, leading to further acidification and a final pH of ~ 3.5–3.8. Sauerkraut brine is an important by-product of the cabbage fermentation industry and may be used as a substrate for the production of carotenoids by *Rhodotorula rubra*. Sauerkraut fermentation lasts several weeks, depending on the fermentation conditions, sensory attributes, the autochthonous microbiota of cabbages, and the related sugar contents. Secondary fermentations, such as those carried out by yeasts, are undesirable.

Pickling:-

Acidity and salt levels greatly influence the sensory quality of this product. Ideal ranges for titratable acidity (1.1–1.5%), salt (1.7–2.4%), salt/acid ratio (1.0–1.7), and lactic/acetic acid ratio (3.0–5.0) have been proposed for canned sauerkraut. Textural characteristics of the final product are influenced by the salt concentration. Less than 1.8% (w/w) NaCl produces sauerkraut of soft texture, whereas applications in excess of 2.5% impart fibrous and tough textural properties to the product. It suggests that salt may serve to partially inactivate pectinolytic enzymes inherent in cabbage and/or reduce the pectinase activities of salt-intolerant microorganisms. Volatile sulfur compounds, such as hydrogen sulfide, methanethiol, dimethyl sulfide, carbon disulfide, dimethyl disulfide, allyl isothiocyanate, and dimethyl trisulfide, can be detected in the headspace of sauerkraut, having a great impact on the product flavor.

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Sauerkraut is usually considered to be a healthy product. A health-promoting effect of sauerkraut may be linked to the high content of glucosinolates (up to 1% of dry weight) of the white cabbage. These compounds are hydrolyzed by the enzyme myrosinase during fermentation, resulting in the formation of indoles and isothiocyanates. The latter compounds were shown to be powerful inhibitors of carcinogenesis in animals. Ascorbigen, a compound formed from the reaction of a degradation product of indole glucosinolate (glucobrassicin) and ascorbic acid, is the dominant glucosinolate degradation product in sauerkraut, and is considered to be one of the most potent anticarcinogens of the glucosinolates family. Because sauerkraut is not desalted before use, good retention of water-soluble vitamins (especially vitamin C) would be expected. In fact, during the last centuries, sauerkraut was one of the major sources for vitamin C in the diet. The losses of this vitamin from the fresh cabbage to canned and pasteurized sauerkraut have been reported to range from 13% to 53%.

VEGETABLES OF TEMPERATE CLIMATES | Cabbage and Related Vegetables:-

Domestic and Industrial Use

Cabbages may be cooked by boiling or stir-fried, or used raw in salads and in the preparation of coleslaw. Red types are generally sliced and pickled in vinegar. Sauerkraut is manufactured industrially from sliced white cabbage by controlled anaerobic fermentation and the addition of salt. A small proportion of the crop may be dried.

Nutritional and Phytochemical Composition of Sauerkraut:-

Cabbage is recognized as a health-promoting vegetable due to its high nutritional value and its large levels of bioactive compounds. The main constituents of white cabbage are carbohydrates (4.18–5.51 g/100 g) and dietary fiber (1.9–2.9 g/100 g) followed by proteins (1.27–1.37 g/100 g), minerals (0.3–0.7g/100 g), fat (0.06–0.20 g/100 g), and vitamins, especially vitamin C (0.03–0.04 g/100 g) . Cabbage also contains phytochemicals, mainly phenolic compounds and glucosinolates (GLS). GLS, a distinctive feature of Brassica vegetables, are a group of nitrogen- and sulfur-containing plant secondary metabolites that are responsible for the characteristic flavor and odor of these vegetables . GLS are among the most-studied bioactive compounds in Brassica vegetables and they are associated with their cancer-protective properties.

7A - IMPORTANCE OF ZERO-FAT VEGETARIAN PROTEIN

A common concern about vegetarian and vegan diets is that they may lack sufficient protein. But vegans can get protein from various plant sources, though some may be better than others.

The vegan diet has been linked to several health benefits in terms of nutrients, weight loss, and a lower chance of various health problems. In fact, many experts agree that a well-planned meatless diet can provide all the nutrients you need, including protein.

However, certain plant foods contain significantly more protein than others, and research suggests that higher protein diets can promote muscle strength, feelings of fullness, and weight loss.

In addition, while well-planned vegan diets made up of mostly minimally processed foods are considered beneficial for all stages of life, those including large amounts of ultra-processed plant foods are not.

Poorly planned or highly processed vegan diets may increase your chance of developing nutrient deficiencies, especially in vitamin B12, iodine, iron, calcium, zinc, and long-chain omega-3s.

The following are 18 plant foods that contain a high amount of protein per serving. That said, speak with your doctor to see if you can benefit from supplements and fortified foods to bridge any nutritional gaps that might arise.

1. Seitan:-

Seitan is a popular protein source for many vegetarians and vegans. Unlike many soy-based mock meats, it closely resembles the look and texture of meat when cooked.

Also known as wheat meat or wheat gluten, it contains about 25 grams (g) of protein per 3.5 ounces (oz) or 100 g, making it one of the richest plant protein sources available.

Seitan is also a good source of selenium and contains small amounts of iron, calcium, and phosphorus. However, because it's made from gluten, the main protein in wheat, people with gluten-related disorders should avoid it.

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2. Tofu, tempeh, and edamame:-

Tofu, tempeh, and edamame all contain iron, calcium, and 12–20 g of protein per 3.5 oz (100 g) serving.

All three originate from soybeans, which are considered a whole source of protein, providing your body with all the essential amino acids it needs.

Edamame is also rich in folate, vitamin K, and fiber, which can help support digestion and regularity.

On the other hand, tempeh contains probiotics, B vitamins, and minerals, such as magnesium and phosphorus.

3. Lentils:-

With 18 g of protein per cooked cup (198 g), lentils are a great source of protein and fiber, providing over half of your recommended daily fiber intake in a single cup (198 g).

Furthermore, the type of fiber found in lentils has been shown to feed the good bacteria in your colon, which can help promote a healthy gut. Lentils may also reduce your chance of heart disease, diabetes, excess body weight, and certain types of cancer. In addition, lentils are rich in folate, manganese, iron, antioxidants, and other health-promoting plant compounds.

4. Beans:-

The Picture Pantry/Offset Images

Kidney, black, pinto, and most other varieties of beans are extremely important staple foods across cultures and contain high amounts of protein per serving. This also includes chickpeas.

Most types of beans contain about 15 g of protein per cooked cup (170 g). They're also excellent sources of complex carbs, fiber, iron, folate, phosphorus, potassium, manganese, and several beneficial plant compounds. Moreover, research shows that a diet rich in beans and other legumes can help decrease cholesterol levels, manage blood sugar, lower blood pressure, and even reduce belly fat.

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5. Nutritional yeast:-

Nutritional yeast is a deactivated strain of *Saccharomyces cerevisiae* yeast, which is sold commercially as a yellow powder or flakes.

Half an oz (16 g) of this complete source of plant protein provides 8 g of protein and 3 g of fiber. Fortified nutritional yeast is also an excellent source of zinc, magnesium, copper, manganese, and all the B vitamins, including vitamin B12.

6. Spelt and teff:-

Spelt and teff belong to a category known as ancient grains. Other ancient grains include einkorn, barley, sorghum, and farro.

Spelt is a type of wheat and contains gluten, whereas teff originates from an annual grass, meaning that it's naturally gluten-free.

Spelt and teff provide 10–11 g of protein per cooked cup (250 g), making them higher in protein than other ancient grains.

Both are excellent sources of various nutrients, including complex carbs, fiber, iron, magnesium, phosphorus, and manganese. They also contain B vitamins, zinc, and selenium.

7. Hemp seeds:-

Hemp seeds come from the *Cannabis sativa* plant, which is sometimes maligned for belonging to the same family as the cannabis plant. However, hemp seeds contain only trace amounts of tetrahydrocannabinol (THC), the compound that produces the psychoactive effects of cannabis.

Although hemp seeds aren't as well-known as other seeds, they contain 9 g of protein in each 3-tablespoon (tbs) or 30 g serving.

They also contain high levels of magnesium, iron, calcium, zinc, and selenium. What's more, they're a good source of omega-3 and omega-6 fatty acids in the ratio considered optimal for human health.

8. Green peas:-

Green peas contain nearly 9 g of protein per cooked cup (160 g), which is slightly more than a cup (237 milliliters (mL)) Trusted Source of dairy milk. What's more, a serving of green peas covers more than 25% of your daily fiber,

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thiamine, folate, manganese, and vitamin C and K needs. Green peas are also a good source of iron, magnesium, phosphorus, zinc, copper, and several other B vitamins.

9. Spirulina:-

This blue-green algae is definitely a nutritional powerhouse. A 2 tbs (14 g) serving provides 8 g of complete protein, in addition to covering 22% of your daily requirements for iron and 95% of your daily copper needs (60Trusted Source).

Spirulina also contains high amounts of magnesium, riboflavin, manganese, potassium, and small amounts of most of the other nutrients your body needs, including essential fatty acids. According to some test-tube and animal research, phycocyanin, a natural pigment found in spirulina, may have powerful antioxidant, anti-inflammatory, and anti-cancer properties.

Furthermore, research links consuming spirulina to health benefits ranging from a stronger immune system and reduced blood pressure to improved blood sugar and cholesterol levels.

10. Amaranth and quinoa:-

Although amaranth and quinoa are often referred to as ancient or gluten-free grains, they don't grow from grasses like other cereal grains do. For this reason, they're technically considered pseudocereals.

Nevertheless, similarly to more commonly known grains, they can be prepared or ground into flours.

Amaranth and quinoa provide 8–9 g of protein per cooked cup (246 g and 185 g respectively) and are complete sources of protein, which is uncommon among grains and pseudocereals.

11. Ezekiel bread and other breads made from sprouted grains:-

Ezekiel bread is made from organic, sprouted whole grains and legumes. These include wheat, millet, barley, and spelt, as well as soybeans and lentils.

Two slices of Ezekiel bread contain approximately 8 g of protein, which is slightly more than most other types of bread. Sprouting grains and legumes increases

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the number of healthy nutrients they contain and reduces their content of antinutrients, which are compounds that can affect your body's absorption of certain vitamins and minerals.

12. Soy milk:-

Soy milk is made from soybeans and is usually fortified with vitamins and minerals. Not only does it contain 6 g of protein per cup (244 g), but it's also an excellent source of calcium, vitamin D, and vitamin B12 . However, keep in mind that soy milk and soybeans do not naturally contain vitamin B12, so picking a fortified variety is a good idea.

Additionally, some types may contain added sugar, so it's best to opt for unsweetened varieties whenever possible.

13. Oats and oatmeal:-

Eating oats is an easy and delicious way to add protein to any diet. Half a cup (40 g) of dry oats provides approximately 5 g of protein and 4 g of fiber. Oats also contain magnesium, zinc, phosphorus, and folate. Although oats are not considered a complete protein, they do contain higher quality protein than other commonly consumed grains like rice and wheat.

14. Wild rice:-

Unlike white rice, wild rice is not stripped of its bran. That's great from a nutritional perspective, as bran contains fiber and plenty of vitamins and minerals. A cooked cup (164 g) provides nearly 7 g of protein, in addition to healthy amounts of fiber, manganese, magnesium, copper, phosphorus, and B vitamins.

15. Chia seeds:-

Chia seeds are derived from the *Salvia hispanica* plant, which is native to Mexico and Guatemala. They contain 5 g of protein and 10 g of fiber per ounce (28 g)Trusted Source. These little seeds also contain high levels of iron, calcium, selenium, and magnesium, as well as omega-3 fatty acids, antioxidants, and other beneficial plant compounds.

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16. Nuts, nut butter, and other seeds:-

Nuts, seeds, and their derived products are great sources of protein. One ounce (28 g) contains 5–7 g of protein, depending on the variety. For example, almonds contain 6 g. Nuts and seeds are also great sources of fiber and healthy fats, along with iron, calcium, magnesium, selenium, phosphorus, vitamin E, and certain B vitamins. They likewise contain antioxidants, among other beneficial plant compounds.

17. Protein-rich fruits and vegetables:-

Although all fruits and vegetables contain protein, some contain more than others. Vegetables with the most protein include broccoli, spinach, asparagus, artichokes, potatoes, sweet potatoes, and Brussels sprouts, which typically contain 4–5 g of protein per cooked cup. Although technically a grain, sweet corn is another common food that contains about as much protein as these high protein vegetables.

18. Mycoprotein:-

Mycoprotein is a non-animal-based protein derived from *Fusarium venenatum*, which is a type of fungus. It's often used to produce meat substitutes, including veggie burgers, patties, cutlets, and fillets. Its nutritional value can range a bit depending on the specific product, but most contain 15–16 g of protein per 3.5 oz (100 g) serving, along with 5–8 g of fiber. Although there are concerns about the safety of mycoprotein related to food allergies, research shows that adverse reactions are very rare.

7B - BEST ZERO-FAT PROTEIN SOURCES

As a vegetarian, you have chosen a path that is compassionate and incredibly healthy. However, are your nutritional needs, especially protein, really being met?

Protein is a nutrient that helps build and repair tissues, supports your immune system, and keeps you feeling full and energised.

Women should aim for at least 46 grams of protein per day, while men should target around 56 grams. However, your protein needs may vary depending on your weight and activity level.

Protein Rich Food For Vegetarians

Eating a protein rich vegetarian diet offers several health benefits compared to meat-based protein.

Plant-based protein is lower in saturated fat and cholesterol, making it a heart-healthier option.

They contain more fibre, vitamins, minerals, and antioxidants, which contribute to overall health by helping you reduce your body weight. It also reduces the risk of chronic diseases such as heart disease, diabetes, and cancer.

Here's a list of veg protein sources waiting to fuel your journey towards optimal health. Let's check the protein rich food veg:

1. Lentils

Lentils or dals are a staple in every Indian kitchen. With 18 grams of protein per cooked cup (198 grams), they are a very good source of protein and fibre.

2. Legumes

Beans, chickpeas, and peas are excellent sources of protein and fibre. Every cooked cup of legumes contains 18 grams of protein. Whether you enjoy them in soups, salads, or curries, legumes are a nutritional addition to any meal.

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3. Nuts

Almonds, walnuts, and cashews are not only crunchy and delicious but also rich in protein and healthy fats. Every 28 grams of nuts contains 5 to 7 grams of protein based on the variety of nuts. Sprinkle them over the salad or enjoy them as snacks between the meals.

4. Soy Milk

Soy milk is a great alternative to dairy milk. It is fortified with calcium and protein, making it a valuable addition to your diet. It contains 6 grams of protein per cup, which is 244 grams of soy milk. Pour it over your morning cereal, or use it in smoothies for an extra protein boost.

5. Green Peas

Do not underestimate the nutritional power of these vibrant green gems. They are excellent vegetable protein sources, with around 9 grams of protein per 160 grams of cooked cup of peas. They are a tasty way to sneak in some extra protein.

6. Quinoa

Often hailed as a superfood, quinoa is a complete protein, meaning it contains all nine essential amino acids. Quinoa contains 8 to 9 grams of protein per cooked cup (185 grams). Swap out rice or pasta for quinoa in your favourite dishes to up your protein intake.

7. Chia Seeds

These tiny seeds are packed with protein, fibre, and omega-3 fatty acids. They contain 5 grams of protein and 10 grams of fibre per 28 grams of chia seeds. Add them to your yoghurt, oatmeal, or smoothies for an extra nutritional boost.

8. Oats

Starting your day with a hearty bowl of oatmeal not only provides you with sustained energy but also a good dose of protein. 40 grams of oats contain 5

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grams of protein and 4 grams of fibre. Customise your oats with fruits, nuts, and seeds for a nutritious breakfast.

9. High Protein Vegetables

Broccoli, spinach, and kale are not only rich in vitamins and minerals but also surprisingly high in protein. It contains 4 to 5 grams of protein per cooked cup. Incorporate them into your meals to add nutritional value and flavour.

10. Fruits

While not as protein-dense as other foods on this list, fruits like guava, bananas, and avocados still contribute to your overall protein intake. They contain around 2 to 4 grams of protein per cup. Plus, they're packed with vitamins, minerals, and antioxidants.

11. Edamame

These young soybeans are not only delicious but also excellent veg protein sources. They contain 10 to 12 grams of protein per 100-gram serving. Enjoy them steamed as a snack or added to salads and stir-fries.

12. Brussels Sprouts

These miniature cabbages are not only cute but also nutritious. With approximately 4 to 5 grams of protein per cooked cup, Brussels sprouts are a great addition to any meal.

13. Wild Rice

Unlike white rice, wild rice is not stripped of its bran. It is higher in protein and fibre, making it a healthier choice for vegetarians. The cooked cup (approx. 100 grams) of wild rice contains nearly 4 grams of protein. Use it as a base for grain bowls for a satisfying meal.

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14. Sweet Corn

Bursting with sweetness and flavour, sweet corn is a summertime favourite and a good source of protein. 100 grams of sweet corn contains 3.2 grams of protein. Enjoy it grilled, steamed, or tossed into salads and salsas.

15. Cottage Cheese

If you include dairy in your diet, cottage cheese is an excellent source of protein. Every 100 grams of cottage cheese contains around 11 grams of protein. Enjoy it on its own, or mix it with fruits and vegetables.

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7C - TIPS TO INCORPORATE ZERO-FAT PROTEINS

Protein is an essential macronutrient that helps with muscle growth, tissue repair and even your immune system. Most types of protein-rich food come from animal sources, so this is harder to accomplish if you don't eat meat, poultry, dairy or eggs. The upside is that there are plenty of ways to make sure you're still getting enough protein daily if you're vegan.

How do vegans get enough protein?

According to the US Department of Agriculture's current version of Dietary Guidelines for Americans, the recommended daily amount of protein to prevent deficiency is 0.8 grams per kilogram of body weight.

For instance, if you weigh 190 pounds (86 kilograms), you should aim for 68.8 grams of protein per day. Keep in mind that this recommendation applies to average sedentary adults. Older adults and physically active individuals will need slightly more protein each day.

If you follow a plant-based lifestyle, you can reach this recommended amount by adding some of these vegan protein sources into your diet:

- Beans
- Lentils
- Nuts
- Seeds
- Quinoa
- Oats
- Tofu
- Tempeh
- Nutritional yeast

Use quinoa instead of rice

While both of these grains are good sources of carbohydrates and fiber, quinoa is the better choice if you're aiming to increase your protein intake. When cooked, quinoa contains 8 grams of protein per cup, compared with 5 grams of protein per cup of brown rice.

On top of that, quinoa is also a complete protein, meaning that it has all nine types of essential amino acids that your body can't produce but needs for key

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functions like energy production, tissue repair and immunity. Most other complete proteins come from animal sources, which makes quinoa stand out in terms of its nutritional benefits for vegan diets.

Utilize vegan protein powder

Incorporating vegan protein powder into your diet is a quick and easy way to crank up your protein intake -- especially if you're in a rush to get moving in the morning.

Many plant-based protein powders are available today, and you can use them in all kinds of ways. For example, you can get an energizing start to your day by mixing your protein powder with water or non-dairy milk. For a more substantial vegan-friendly meal, you can stir the powder into oatmeal, add it to baked goods or blend it into a smoothie or protein shake.

Provide your body with essential amino acids

Protein is made up of 20 amino acids, 11 of which the body can produce on its own. The other nine can be found in food products. As we've mentioned, when foods contain all nine essential amino acids, they're called complete proteins.

Most complete proteins are animal-based products (including meat, eggs and dairy). For vegans, there aren't many foods that contain all nine amino acids that aren't created in the body. Some plant-based proteins are high in certain essential amino acids, such as soybeans, tofu, seeds, nuts, beans and lentils. By upping your intake of these amino acid-rich foods, you can get closer to hitting your daily protein goals.

Beans alone lack all of the essential amino acids. Consider combining beans and rice to make a complete protein. When eaten together, each food contributes to what the other is missing.

Start each day with protein:-

If you kick off your morning with a protein-rich meal, there's less pressure to figure out how to reach your protein target for the rest of the day. Plus, eating protein at breakfast time will help you feel full and satisfied and give you the energy to take on the day.

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Oatmeal is a great example of a protein-rich vegan breakfast. Compared with other grains, oats are high in protein and have a nice balance of essential amino acids. For a little more flavor, you can add things like fruit, nut butter or seeds. Other protein-forward breakfast options include a tofu or tempeh scramble or fruit smoothies with nondairy milk and vegan protein powder.

Add beans to everything :-

Beans and legumes are one of the most exciting plant-based protein sources simply because there are so many varieties and no shortage of ways to use them in your meals. Plus, in terms of protein content, they pack a serious punch. For example, cooked chickpeas contain 14.5 grams of protein per cup, while a cup of cooked lentils has 17.9 grams of protein.

Need some inspiration on how to incorporate more beans and legumes into your vegan diet? If you enjoy soup, you can add kidney beans or lentils to kick up the protein. Or you can make vegan-friendly bean tacos with black beans or pinto beans. You can also bulk up your salads with peas or chickpeas. (No matter what you're whipping up, these kitchen tools can help with vegan meal prep.)

Sprinkle nutritional yeast on your meals:-

Nutritional yeast is a plant-based food product with a savory flavor and a high protein content. (There are 3 grams of protein in every two teaspoons of nutritional yeast.) It's also a complete protein, featuring all nine essential amino acids that you have to get from food.

Although nutritional yeast is plant-based, it has a nutty, cheese-like flavor -- which is ideal for vegans who want a little taste of something savory. You can sprinkle nutritional yeast on everything from popcorn to soups to pasta, simultaneously enhancing the flavor of your food while also increasing its protein content. On top of that, nutritional yeast is very high in vitamin B12 -- a common deficiency in vegans since B12 is often found in animal products.

7D - HEALTH BENEFITS OF ZERO FAT PLANT PROTEIN FOODS

WHAT IS PLANT PROTEIN?

Protein is an essential building block made up of amino acids. They are vital for cell growth, repair, and overall bodily function and are especially important for the growth and development of children, teenagers, and pregnant women. Protein is found in various foods and must be included in your daily diet.

Protein comes from both plant and animal sources. Animal proteins include meat, fish, and eggs, while plant proteins are found in foods such as pulses, tofu, soy, tempeh, seitan, nuts, seeds, certain grains, and peas. Plant-based proteins are not only rich in protein but also provide additional nutrients like fibre, vitamins, and minerals. Although plant proteins may not contain all essential amino acids in one source, combining different plant-based foods can meet your body's needs.

Benefits of plant protein

Plant protein, found in foods like beans, nuts, seeds, and grains, offer many benefits for your overall health. Know 7 key reasons to include more plant protein in your diet:

1. Packed with antioxidants

Consuming antioxidant-rich foods can help reduce inflammation and lower the risk of chronic diseases such as heart disease. As per the study published by the journal Antioxidants, most plant-based proteins, such as those found in beans, lentils, and nuts, are often packed with vitamins and phytochemicals like flavonoids and carotenoids that contribute to their antioxidant properties. They can help protect your body from damage caused by harmful free radicals.

2. Boosts gut health

Due to their rich fibre content, plant protein is great for digestion as well. "Foods such as legumes and whole grains are rich in dietary fibre, which may help promote regular bowel movements, support beneficial gut bacteria, and reduce the risk of digestive disorders,". Maintaining gut health boosts nutrient absorption, boosting immunity and well-being.

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3. Good for your heart

Plant-based foods tend to be lower in unhealthy fats and cholesterol compared to animal products, which makes them great for improving heart health. Add foods such as beans, nuts, and seeds that are not only low in unhealthy fats but also rich in heart-healthy nutrients like omega-3 fatty acids, potassium, and magnesium. As per the journal *Nutrients*, a plant-based protein-rich diet packed with these nutrients can lower blood pressure and reduce inflammation, lowering your risk of heart disease.

4. May lower cancer risk

A plant-based protein-rich diet is full of fibre, vitamins, and other essential nutrients that may protect you against certain types of cancer, especially breast cancer, reveals a study published in the *BMC Women's Health*. For instance, cruciferous vegetables like broccoli and Brussels sprouts, rich in plant protein, are linked to a lower cancer risk. Additionally, plant proteins are typically free from the harmful compounds in some animal products, which may contribute to a reduced cancer risk.

5. Helps with weight management

"Plant proteins can also be beneficial if you are trying to lose weight. They are often more filling than animal proteins, which can help you eat less and stay satisfied for a longer period," says Wahi. The fibre in plant protein also helps you feel full, reducing the risk of overeating and helping with weight loss.

6. Supports muscle health

Both animal and plant-based proteins can help build muscle mass but you have to exercise regularly. Add plant protein foods, such as quinoa, soy, and hemp seeds, to provide all the essential amino acids needed for muscle growth and repair. They also come with other essential nutrients, like more fibre and fewer unhealthy fats, which makes them super healthy for you.

7. May reduce type 2 diabetes risk

Eating a plant-based protein diet that includes legumes, nuts, and seeds is associated with better glycemic control and lower insulin resistance. They are also generally lower in unhealthy fats and sugars, which can contribute to better

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blood sugar control. According to a study published in the European Journal of Nutrition, increasing vegetarian protein intake may help reduce the risk of type 2 diabetes without causing weight gain.

Plant protein sources

Here are some best plant-based proteins you should include in your regular diet:

- Lentils
- Chickpeas
- Black beans
- Quinoa
- Tofu
- Tempeh
- Edamame
- Hemp seeds
- Chia seeds
- Almonds
- Peas
- Oats
- Sunflower
- Spirulina

Protein supplements

Plant-based protein powders are available from sources such as peas, hemp, rice, and soy, providing a great alternative to animal-based proteins. "These supplements are often easier to digest than some animal proteins and they may also offer additional fibre and essential nutrients," says Wahi. While they can help you meet your protein needs, the American Dietetic Association recommends consuming a variety of foods that can help you receive all the essential nutrients, along with protein. If you choose to incorporate protein supplements, it is a good idea to assess your specific needs and consult with your healthcare provider to make a better choice.

Nutrition

Contrary to the belief that only non-vegetarian food is rich in protein, there are many vegetarian items that are rich in plant protein. Protein is a crucial macronutrient essential for building and repairing tissues, making enzymes, and boosting immunity. It is fundamental for muscle growth, energy, and overall

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health. Protein is made up of amino acids and there are two main sources of protein: animal and plant. Animal protein, found in meat, eggs, and dairy, provide all essential amino acids but can be high in saturated fats. Plant protein, such as legumes, nuts, seeds, and grains, offer benefits to your heart health. They are rich in fibre and antioxidants, contributing to a balanced diet and reducing the risk of chronic diseases. Vegetarians looking for a way to make plant protein a part of their diet should know all about it.

How much protein do you need?

Protein is essential for everyone, but the amount you need can vary based on factors like age, weight, and lifestyle. For instance, pregnant or breastfeeding individuals and athletes typically require more protein.

The general recommendation for protein intake is about 0.8 grams per kilogram of body weight or 0.36 grams per pound. This is the minimum daily amount needed to meet basic nutritional needs.

Pregnant or breastfeeding women should aim for 75 to 100 grams of protein daily to support fetal development.

For those over 50 years old and weighing more than 60 kg, the daily protein requirement is approximately 53 grams.

Remember, exceeding the recommended daily intake of protein is not considered safe. Higher consumption of protein every day can strain the kidneys and liver and may increase the risk of health issues such as osteoporosis and kidney stones.

Who should not consume plant protein?

Plant protein are high in carbohydrates, and thus, people who are on a low-carb diet might want to stay away from these. Besides this, people suffering from kidney problems should also avoid plant protein as the condition might worsen with excessive protein consumption.

8A - BENEFITS OF SPROUTED FOODS

AMAZING HEALTH BENEFITS OF EATING SPROUTS DAILY

1. Enhanced Nutrient Absorption

Sprouts are a nutritional goldmine, with their nutrient content skyrocketing during the germination process. As seeds sprout, they become more bioavailable. This means your body can absorb and utilize the vitamins, minerals, and other beneficial compounds more efficiently. For example, the vitamin C content in sprouts can increase significantly, making them a fantastic addition to your meals. This enhanced nutrient absorption can lead to better overall health and vitality.

2. Improved Digestion

One of the most notable benefits of sprouts is their positive impact on digestion. The enzymes activated during sprouting help break down complex carbohydrates, proteins, and fats. This makes them easier for your body to digest and absorb. Additionally, sprouts are rich in fiber, which supports regular bowel movements and promotes a healthy gut microbiome. A study found that sprouting can increase the fiber content of grains by up to 133%, making them more beneficial for digestion.

3. Antioxidant Power

Sprouts are brimming with antioxidants like vitamins C and E, as well as beta-carotene. These powerful compounds neutralize harmful free radicals, reducing oxidative stress and inflammation in the body. Research published in the International Journal of Applied Science indicates that consuming just over 100 grams of sprouts daily can have protective effects against DNA damage, which is associated with cancer risk. Regular consumption of sprouts can contribute to a stronger immune system. This can also lower the risk of chronic diseases such as heart disease and certain cancers.

4. Immune System Support

Speaking of the immune system, sprouts are a fantastic ally in keeping it strong and resilient. They possess natural antimicrobial properties that can help fight off harmful microorganisms. Their nutrient-dense profile supports the production of white blood cells and enhances the body's overall defense against pathogens. The vitamin A found in many sprouts is crucial for maintaining healthy mucous membranes. This can act as a barrier against infections.

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5. Cardiovascular Health

Certain sprouts, such as lentils and mung bean sprouts, are particularly beneficial for heart health. They are low in cholesterol and high in dietary fiber, which can help lower cholesterol levels and maintain healthy blood pressure. A study published in Food Chemistry demonstrated that sprouts can increase “good” HDL cholesterol while reducing total and “bad” LDL cholesterol levels. This indicates their potential for improving cardiovascular health. Sprouts can help reduce the risk of heart disease, making them a heart-healthy choice.

6. Weight Management

If you’re looking to maintain a healthy weight or shed a few pounds, sprouts can be a valuable ally. They are low in calories and high in fiber. This can help you feel full and satisfied for longer, reducing the likelihood of overeating. Incorporating sprouts into your meals can provide a nutritious boost while supporting your weight management goals. For example, you can add a handful of alfalfa sprouts to your salad can enhance its volume without adding many calories.

7. Skin Health

The vitamins, minerals, and antioxidants found in sprouts can also work wonders for your skin. Vitamin C, for example, is essential for collagen production, which keeps your skin firm and youthful.

Sprouts also contain zinc, which helps regulate oil production and reduce inflammation, making them a great ally in fighting acne. Incorporating sprouts into your diet can lead to a clearer complexion and healthier skin overall.

8. Diabetes Management

For those living with diabetes, sprouts can be a valuable addition to their diet. Studies have shown that consuming sprouts can help lower blood sugar levels and improve insulin sensitivity.

A study found that participants who consumed broccoli sprout supplements experienced lower blood insulin levels and improved insulin resistance. The high fiber content of sprouts also helps regulate blood sugar spikes. So it is a good diabetes-friendly food choice.

9. Cancer Prevention

The antioxidants and phytochemicals found in sprouts may also help prevent the development of certain types of cancer. Sulforaphane, a compound found in broccoli sprouts, has potent anti-cancer properties. This can inhibit the growth of cancer cells and promote their death. Research indicates that regular consumption of sprouts can be a proactive step in reducing cancer risk and supporting overall health.

10. Hormonal Balance

Sprouts can also play a role in maintaining hormonal balance in the body. Many sprouts, particularly those from cruciferous vegetables like broccoli, contain compounds called indoles. It can help regulate estrogen levels. A study found that consuming cruciferous vegetables can lead to a decrease in estrogen levels. This may help reduce the risk of hormone-related cancers.

11. Enhanced Athletic Performance

For those who lead an active lifestyle, sprouts can be a fantastic addition to your diet for enhancing athletic performance. Rich in protein, vitamins, and minerals, sprouts provide the essential nutrients needed for muscle recovery and energy production. A study published in the Journal of the International Society of Sports Nutrition highlighted that incorporating nutrient-dense foods like sprouts can improve exercise performance and recovery. The high levels of antioxidants in sprouts also help reduce exercise-induced oxidative stress, allowing for better recovery times.

8B - SPROUTING PROCEDURE & TECHNIQUES

Fresh sprouts are a wonderful way to add flavor, texture and tons of nutrients to your favorite meals (and snacks, too!). From improving gut health to boosting your immune system, these tiny greens are the definition of “small but mighty.” Growing any kind of sprouting seeds at home is incredibly easy—even if you have a “black thumb” when it comes to gardening. Plus, although helpful, you might not need to buy any special equipment if you already own a few kitchen basics.

In this guide, you’ll learn all about how to sprout seeds outdoors and indoors and the average time until harvest for the five most popular seeds. You’ll also find all our best sprouting pro tips throughout this article. So, let’s dig in together on this complete guide how to grow sprouts safely.

How To Sprout Seeds in a Jar (Indoors)

Sprouting your own seeds in a jar is one of the easiest and most low-maintenance ways to grow sprouts. You'll need a mason jar (ideally wide-mouth), a sprouting lid to fit that jar and a medium or large bowl. If you can't get a hold of a sprouting lid, a piece of cheesecloth and a rubber band works well, too.

1. Sanitize, rinse and soak your seeds.

Do this step exactly the same way whether you’re sprouting seeds indoors or outdoors. Sanitize your seeds and rinse until the vinegar smell is gone. Then, soak the seeds for six to eight hours (or overnight) in a jar with water as described above.

2. Drain completely.

Using your sprouting lid or cheesecloth, drain the water out. Add in a splash of water, swirl the seeds around and drain thoroughly again. Afterwards, place the jar at an angle in a bowl. The jar’s opening should lean against the bottom of the bowl. This is the best way to ensure maximum water drainage throughout the day.

3. Rinse and repeat.

Repeat the rinsing and draining three or four times a day until your sprouted seeds are ready to harvest. After each cycle, place the jar back into the bowl at an angle. Always drain any water in the bowl, too.

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4. De-hull and store.

Once your sprouts are ready to harvest, place them all into a clean bowl and cover with water plus an inch or so. Lightly push the sprouts underwater and the leftover hulls will float up. Drain off the hulls and water, and you're just about done.

One last tip: Let your sprouts completely air dry or pat them dry yourself before popping them into your fridge. This extra step can extend their shelf life by several days.

8C - COMPARING SPROUTED Vs. NON-SPROUTED FOODS

WHAT ARE SPROUTED GRAINS?

Sprouted grains are whole grains that have been soaked and left to germinate. All the parts of a whole grain, bran, endosperm and germ, are intact. Remember that a grain is the seed of a plant and contains all the nutrients and potential to become a plant.

When the grains are placed in the right environment (temperature and moisture), the grains begin to sprout. Enzyme activity actually transforms some of the starch into more easily digestible molecules AND some nutrients become more bioavailable to the human body. Essentially, the sprouting process makes it easier for your body to get the nutrients it wants and needs!

It is important to note that there is no regulated definition of “sprouted grains” which means that there is a level of interpretation among companies.

“Malted or sprouted grains containing all of the original bran, germ, and endosperm shall be considered whole grains as long as sprout growth does not exceed kernel length and nutrient values have not diminished. These grains should be labeled as malted or sprouted whole grain.”

IF the sprout grows so long as to exceed the length of the seed, then it becomes a “plant” and no longer a sprouted grain.

What are the benefits of sprouted grains vs whole grains?

While whole grains are good sources of vitamins and minerals, these grains also have natural compounds (phytates) that can inhibit the body from absorbing some of the nutrients within the actual grain. What a bummer! However, because the sprouting process reduces these compounds and nutrients become better available for the body to digest them and adsorb them to be used.

Some research suggests that sprouted grains have a lower glycemic response (rise in blood sugar) than traditional whole grain and white (refined) breads

The problem...a lot of the research is lab analyses, plant research and very small human studies. There aren't large human studies for which we can apply to a population. Also, the conditions, length of sprouting and type of grain create a wide variety of variables that make it difficult to conclude nutrient benefits about sprouting overall.

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The Whole Grains Council has reviewed an abundance of research studies and draws these conclusions as to the current health benefits of consuming sprouted grains:

Sprouted brown rice fights diabetes.

Sprouted buckwheat protects against fatty liver disease.

Cardiovascular risk is reduced by sprouted brown rice.

Sprouted brown rice decreases depression and fatigue in nursing mothers.

Decreased blood pressure is linked to sprouted barley.

While most of the human research studies on sprouted grains are small, the research is promising and appears to show an overall trend that sprouted grains have a variety of health benefits beyond traditional whole grains.

Can you eat whole or sprouted grains on a gluten free diet?

Some people need to follow a gluten free diet due to Celiac Disease and others follow this eating pattern due to an intolerance or a sensitivity to gluten. BUT, just because they need to eat a gluten free diet doesn't mean grains are out. In fact there are 10 different types of grains commonly available in America that are naturally gluten free! Some grains can become "contaminated" in a factory that also processes gluten containing products, but unless you have Celiac disease, most individuals are fine eating these grains.

Gluten Free Grains

- Amaranth
- Brown rice
- Buckwheat
- Corn
- Millet
- Oats
- Quinoa
- Sorghum
- Teff
- Wild rice

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- Gluten-Containing Grains
- Barley
- Rye
- Wheat
- Triticale

Where can you find sprouted grains in the grocery store?

Sprouted grain breads do not contain preservatives which is a huge win for whole foods, BUT, that also means that their shelf life is much shorter than traditional breads. Depending on the supply and demand of these products at your particular grocery store, they may be located in the traditional bread aisle OR the sprouted breads may be found in the freezer aisle. When buying sprouted bread, it is best to keep in the fridge or freezer, especially if you are not planning to eat the entire loaf in 3-5 days.

Other sprouted grain products include flours, snacks, cereals, and pasta. These can be located with other similar products OR are sometimes found on a "health foods aisle" in your particular store. If you cannot find them, just ask. Some stores will have a larger selection than others, but if you can't find what you want to buy, most stores will purchase these exact items for you if they know you will return to buy this product. They want you to buy products from THEM, again and again!

Whole grains are a beneficial part of a healthy diet. They provide complex carbohydrate (an important source of energy), fiber (who doesn't need a little bit MORE of that) and a variety of vitamins and minerals, including iron, zinc, manganese, folate, magnesium, B vitamins, and vitamin A. The 2015 Dietary Guidelines recommends making at least half of your grains whole grains so that you can benefit from the nutrients. Plus, the intact fiber and protein helps your body digest the carbohydrate slower so that they do not raise blood glucose as quickly as refined grains.

Most Registered Dietitians would join me in recommending that we eat whole grains 100% of the time. This is truly ideal. Refined grains have 25% less protein, are always lower in fiber because the outer bran has been removed and are greatly reduced in at least 17 different nutrients! When compared, refined vs whole, there just isn't a comparison...whole grains win every time!

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What are sprouted grains?

Sprouted grains are whole grains that have been soaked and left to germinate. All the parts of a whole grain, bran, endosperm and germ, are intact. Remember that a grain is the seed of a plant and contains all the nutrients and potential to become a plant.

When the grains are placed in the right environment (temperature and moisture), the grains begin to sprout. Enzyme activity actually transforms some of the starch into more easily digestible molecules AND some nutrients become more bioavailable to the human body. Essentially, the sprouting process makes it easier for your body to get the nutrients it wants and needs!

It is important to note that there is no regulated definition of "sprouted grains" which means that there is a level of interpretation among companies.

What are the benefits of sprouted grains vs whole grains?

While whole grains are good sources of vitamins and minerals, these grains also have natural compounds (phytates) that can inhibit the body from absorbing some of the nutrients within the actual grain. What a bummer! However, because the sprouting process reduces these compounds and nutrients become better available for the body to digest them and adsorb them to be used.

Research has shown some pretty impressive findings about sprouted grains:

Antioxidant activity has been shown to be 200-800% more active in some sprouted grains than regular whole grains.

Sprouting can increase protein and essential amino acids (building blocks for protein)

Sprouted grains often have a higher fiber content than whole grains.

The process of sprouting can make some nutrients including, B vitamins, vitamin C, and folate, more readily available to the body.

Some research suggests that sprouted grains have a lower glycemic response (rise in blood sugar) than traditional whole grain and white (refined) breads

The problem...a lot of the research is lab analyses, plant research and very small human studies. There aren't large human studies for which we can apply to a population. Also, the conditions, length of sprouting and type of grain create a

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wide variety of variables that make it difficult to conclude nutrient benefits about sprouting overall.

While most of the human research studies on sprouted grains are small, the research is promising and appears to show an overall trend that sprouted grains have a variety of health benefits beyond traditional whole grains.

Please remember that just because a product label says “sprouted” does not mean it is healthy. The company may have included some sprouted grains but you must always review the ingredient list and nutrition label to determine if this is a product that is right for you and your health. Don’t let trendy “health lingo” camouflage the product for what it really is... ALWAYS take a closer look.

How do you incorporate sprouted grains in your meal plan?

Most all sprouted grain products can be used in place of their unsprouted counterpart. There are no special tricks or magic recipes to use these products. Sprouted breads tend to be more dense which makes them great toasted or in a grilled sandwich.

Sprouted grains are cooked the same way you do every other type of whole grain. Sprouted flours can be used in place of regular ones (ie. sprouted whole wheat flour for whole wheat flour)

8D - EASY WAYS TO INCORPORATE SPROUTS INTO YOUR DIET

We all know that eating foods that are good for us improves our mental, physical, and emotional wellbeing, but, there are some health foods that are even better than others. Sprouts are super easy to grow and provide the body with a wide variety of nutrients. Did you know that the quality of protein in beans, nuts, seeds, and grains is absorbed more efficiently by the body after being sprouted? The same applies to the fiber found in those foods.

Whether you're looking for new sprouts recipes, haven't tried them before, or don't know how to incorporate them into your meals in general – this is for you! We've compiled a list of 10 ways to add sprouts to your meals so you can start reaping the benefits of having them in your diet.

Here are ways to add sprouts to your meals:

There are plenty of ways to add sprouted foods into your meals. This list is a mix of both recipes and suggestions for when you just want to throw sprouts on top of what you're already eating.

1. Egg-White Omelet

- 2 egg whites
- handful of sprouts
- a few mushrooms and sliced peppers
- a sprinkle of low-fat cheese

2. Sprouted Juice

- handful of sprouted alfalfa
- 1 bunch watercress
- 6 sprigs fresh parsley
- 3 kale leaves
- 3 broccoli florets
- 1 Fuji apple

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3. Sprouted Salad

2 cups of sprouted moong beans, 1 small or medium sized onion, finely chopped
1 medium-sized tomato, finely chopped 1 green chili (optional), finely chopped
1/4 tsp red chili powder, 1/2 tsp chaat masala (optional), 1 tsp lemon juice or
as required, 1 boiled potato or sweet potato (optional), salt to taste

4. Green Smoothie

1 1/4 cups water, 1 banana fresh or frozen, 1/2 cup berries of your choice, fresh
or frozen 1 cup sprouted veggie of choice, 1 teaspoon green powder (optional),
1 tablespoon chia seeds soaked overnight, 1 tablespoon honey, 1 cup ice unless
using frozen fruit

5. Snacks

Radish or mungbean are the best for snacking. You can add a little soy sauce,
peanut sauce, sea salt, or any other topping you enjoy to add more flavor.

6. Stir-Fry

1 cup sprouted moong bean, 1 tbsp soy sauce, 1/2 tbsp sugar, Salt to taste,
1 tbsp coconut oil, A few drops of sesame oil

7. Club Sandwich

assorted veggies such as cucumbers, red onions, lettuce, carrots, and radishes

a ripe but firm avocado, halved, pitted, and peeled

whole grain bread

handful sprouted alfalfa

slice of goat cheese

salt and olive oil to taste

8. Use Sprouted Beans in Dips and Spreads

Barely sprouted beans can be used as a substitute for cooked beans in almost
any bean dip/spread recipe. Your body will digest the sprouted beans more
efficiently than the cooked beans superfoods Sprouted Chili

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2 cups dry pinto beans, 1 onion diced, 3 cloves garlic diced, 1 pound grass-fed ground beef, 1 can tomato paste, 4 cups homemade stock or water + additional as desired for consistency, 2 teaspoons to 1 tablespoon sea salt, plus additional to taste 1/2 teaspoon black pepper, plus additional to taste 1-1/2 to 2 tablespoons cumin, or to taste 1 tablespoon paprika, or to taste 1 teaspoon oregano, 1 teaspoon thyme

9. Sprouted Bean Flour

Go through the sprouting process with your beans of choice, dehydrate, and use as a substitute for any recipe calling for bean flour.

Sprouted foods will provide your body with many health benefits. Try any of these recipes to find your favorite way of eating them. Don't be afraid to get creative with mixing up the recipes- if one flavor doesn't work for you, trying something else could change the entire dish for the better!

9A - IMPORTANCE OF WATER-SOAKED FOODS FOR VEGETARIANS

THE CRUCIAL IMPORTANCE OF SOAKING YOUR NUTS, SEEDS, LEGUMES AND GRAINS

If you wanna use food as medicine, heal the natural way, and maintain long-lasting health, you have to get to know your ingredients and how they pass through your body, how to consume them, how to combine them and listen to your body to feel the effect. It's not just about making recipes that are vegan or whole. When you know your body and your ingredients, health becomes effortless.

There are so many recipes out there using these ingredients and it always says '1 tbsp of almond' for example, and rarely '1 tbsp of soaked or activated almonds'. So all of us hopeful cheerful folks follow recipes and may end up with the health consequences of this seemingly small insignificant difference which is actually SO IMPORTANT for our health!

First, it will demand effort to unlearn and relearn by listening to your body and establish new habits that you KNOW work for you specifically, and when that period of transition is over, you will be cruising like a healthy jolly human being.

Go at your pace and listen to your body, avoid copying and believing celebrities. Study and experiment with nature's food and your body. Your body will tell you what's best for you. Nobody else knows better than you.

And learn recipes for your gut health. Learn recipes that you actually find tasty and not that just look fancy and have 1 million vitamins. Get real. Keep it simple. Nature doesn't give you 50 fruits and veggies in a powder form to take in one go. Chill. You can be healthy in a simple way. Nature knows best.

And remember, health is not just about food! Take care of yourself in all areas, mentally, emotionally, energetically.

What is a seed?

A seed is an embryonic plant enclosed in a protective outer covering. The formation of a seed is part of the process of reproduction in seed plants. It encloses information designed to grow a new life. It is designed to survive for a long time through harsh conditions to ensure the survival and reproduction of the species until it finds the right environment to open up and grow a new life. So its protection properties are quite resilient. And this is why eating them when they are in this state of protection does not benefit the body but can actually

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cause some damage to the gut, but there is a way to change their protection state into opening up so that you can actually benefit and absorb their nutrients. Find out how this happens, how to consume them instead in this article.

Below are examples of the most common seeds consumed in our society:

Grains

Wheat, Barley, Spelt, Oat, Rye, Buckwheat, Quinoa, Amaranth, Rice, Millet

Legumes

Chickpeas, Lentils, Beans, Mung beans, Adzuki, Soya, Fava

Seeds

Hemp, Sunflower, Pumpkin, Sesame, Black Sesame, Poppy, Brown Flax, Golden Flax, Chia

Nuts

Macadamia, Pistachio, Pine nut, Brazil nut, Hazelnut, Pecan, Almond, Walnut, Cashew, Peanut

Consume organic as much as possible! You don't want pesticides in your digestive tract killing the living organisms of your intestinal flora and damaging your precious digestive system. Your gut is the heart of your health when it comes to food.

The Crucial Importance of Soaking

A seed is designed to protect itself until it finds itself in the right conditions to start growing a new life, a new plant. These right conditions are a dark, warm and humid place (soil). Until then it is in a dormant protective state. It will then start absorbing minerals and nutrients from the soil to open up, start growing and give birth to a new plant.

So when we consume seeds directly in their dormant protective state, the seed finds itself in our digestive tract that resembles the soil environment (dark, warm, humid with available nutrients from any food still in the digestive tract). What happens then is that it kick-starts 'taking' from our body nutrients and water. Our body is unable to extract much nourishment from them as they are in a 'taking' state and not a 'giving'-you-nutrients state.

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Dormant seeds contain Phytic Acids and Lectins that are a natural substance that helps the seed to protect itself. Phytic acids are enzyme inhibitors; that means they will prevent your stomach enzymes from breaking down the seed and that impairs our body's ability to absorb minerals so that the seed can absorb from you instead.

Phytates and Lectins are what we call anti-nutrients, or plant toxins that bind to vitamins and minerals, making those nutrients bio-unavailable.

So consuming regular high amounts of seeds over a long period of time in their dormant state can turn out to be harmful and give one things like mineral deficiencies, indigestion, food intolerances, auto-immune reactions, digestive issues, skin conditions, absorption issues, weight issues, aggravate symptoms etc. I know what I'm talking about, I have been through all this! And it can all be reversed and healed. I am the proof and so are many others.

Hence why soaking them in a particular method to transform their 'taking' state into a 'giving' state is so important to be able to digest them and actually benefit from them.

You can still enjoy their delicious flavours safely. And actually they taste WAY BETTER when you do this process. And your body will tell you how much quantity it enjoys.

Don't worry about small amounts of un-soaked seeds when it happens, it won't kill you, this article is aimed mainly at those that consume high amounts and that are experiencing health issues. But overall, this category of food is not to be the main ingredient to consume. And it is best to consume them in small quantities and in moderation. When you learn to listen to your body, you will know best how it works best for you.

Even for those of you who still cook, soak your grains and legumes and even sprout them before cooking them and experience the world of difference in your tummy and health.

How to soak and preserve?

Soaking

The best way to soak them is in natural water with Himalayan salt or Sea salt and Bicarbonate of sodium. For about 1 cup of seeds, soak in 3-4 cups of natural water with 1tsp of salt and 1tsp of bicarbonate of sodium. Soak for a minimum of 8 hours and a maximum of 24 hours. Rinse very well and proceed to consume or store for later (see below how to store).

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Bicarbonate of sodium reduces significantly the phytic acids and Himalayan salt packs them up with their needed dose of minerals so that they no longer need to take minerals from your body.

Note that Bicarbonate of Sodium will turn the colour of sunflower seeds into greenish, this effect happens only with sunflower seeds. So if you would like to keep the natural colour of sunflower seeds, use salt only.

This fun home chemistry process makes a world of difference in digestion, in your health, in your energy levels and in the taste when consuming nuts, seeds, legumes and grains. And it needs to become an important habit for your gut health. At first it may sound like a lot to do because of this long article, but it actually takes not even a minute of your time and gives back your gut a lifetime of prosperity.

Soaking benefits

Mimicking nature's germination process to turn the seed from a dormant 'taking' state to an alive 'giving' state (ready to give a new life, and give you nutrients). So what you are doing is altering its chemistry.

Hydrating the seed makes it softer and easier to break down for our stomach

Hydrating the seed so that it does not need to absorb water from us and dehydrate our body

The body can absorb its nutrients

The phytic acids and lectins are drastically reduced

Tastes way better!

Watch what comes out in the water after soaking, you will be happy that is not going in your body, especially with walnuts, pecans, almonds and hazelnuts.

Soaking just with water will not be as effective, you can see the difference in the colour of the water when using just water or adding salt and bicarbonate of sodium.

Recommended amount of seeds per day

A handful is enough. Listen to your body, it will tell you how much it likes. And that can be different everyday. Some days, your body might not even want any. Some days a little, some days a bit more. No rules here, listen to your body. In general, the body doesn't need a high amount of fats.

9B - BENEFITS OF WATER SOAKING (IMPROVED DIGESTION, NUTRIENT ABSORPTION)

Soaking certain foods in water before consumption is a common practice that has been followed for generations. We all have noticed how certain foods cook faster after soaking, and how some foods turn softer when dipped in water for a few hours. Soaking some (not all) foods in water before consumption can benefit us in a number of ways. The process of soaking allows for the removal of naturally occurring compounds that may make the food difficult to digest or interfere with nutrient absorption. Soaking techniques vary depending on the food but generally involve covering the food in water and leaving it to soak for several hours or overnight. Soaking is a simple and effective technique that can lead to improved health and a more enjoyable eating experience. And for that, it's important to know which foods are better soaked before cooking and eating. Also Read: Should You Soak Mangoes In Water Before Eating?

Here're Foods That Should Be Soaked In Water:

1. Nuts : "Raw nuts contain high levels of phytic acid, which acts as the outer layer of the nuts to protect them from external factors. When we consume nuts directly, it causes irritation in the stomach and prevents nutrient absorption." Nuts are densely populated with nutrients, which are more readily available if soaked in water to get rid of harmful and nutrient inhibitors present in the food. Soaking nuts like almonds and walnuts also makes them softer and easier to eat.

2. Legumes : We all soak rajma, chane and other hard legumes in water, before cooking them. Ever wondered why? Legumes also contain huge amounts of phytic acid and lectins. Soaking them in water before cooking or consuming reduces the levels of these compounds and breaks down complex starch and proteins, making them easier to cook and digest. The technique also brings down cooking time, giving us softer legumes.

3. Grains : Soaking grains like rice and quinoa in water before cooking or consuming can make their nutrients more bioavailable. Soaking grains can also reduce cooking time and make them easier to digest. Rice is often soaked in water for around half an hour before boiling. This helps pull out starch from the rice, remove impurities and make the rice fluffier as the grains swell up.

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4. Some Vegetables Soaking: vegetables is not as common as other food groups, but some tough or fibrous vegetables like potatoes, cauliflower, onion and kale, can benefit from a quick soak in water. Soaking can make the vegetables more tender and removes all dirt.

5. Dried Fruits : Dried fruits, such as apricots, dates, figs, and raisins, are rich in fibre and antioxidants. But they are also rich in sulfites, which can lead to allergic reactions in some people. Soaking dried fruits in water can reduce the amount of sulfites and make these foods safer for consumption.

6. Oats Overnight-soaked oats are a popular breakfast meal. But there is a play of science behind the process of soaking them. It softens the oats and makes them easier to digest without the need of cooking them. In addition to improving digestion and nutrient absorption, soaking can also enhance the flavour and texture of the foods. It might sound like a tedious task, but trust us, it's worth it!

9C - WATER SOAKING VS. COOKED FOODS

Legumes are widely grown and are consumed as a source of plant protein throughout the world. They rank second after cereals with respect to their consumption order. Legumes have anti-nutritional factors which make their uses limited. This study aims to check the effect of soaking and cooking on the anti-nutrient contents and nutritional quality of the legumes.

Design/methodology/approach

Five legumes (white kidney bean, red kidney bean, lentil, chickpea, and white gram) frequently used by the masses were selected for soaking and cooking trials. Legumes were tested for their weight, volume, density, swelling capacity and water absorption capacity before soaking and cooking. Legumes were soaked in simple water, 2 percent sodium chloride solution, acetic acid and sodium bicarbonate and cooked in a beaker with 1:5 seed water ratio to uniform soft mass. After soaking and cooking, legumes were tested for anti-nutrients (phytic acid and tannin) and their nutritional quality.

The statistical analysis of the study results revealed that dark colour legume (red kidney beans) has a high level of phytic acid and tannin compared with light colour (white kidney beans and white grams). Soaking and cooking of legumes result in significant reduction in phytic acid and tannin contents. Maximum reduction of phytic acid (78.055) and tannin (65.81 per cent) was found for sodium bicarbonate soaking followed by cooking. These treatments also result in a slight reduction in nutrients such as protein, minerals and total sugars.

Practical implications

Soaking and cooking of legumes reduce their anti-nutrients; phytic acid and tannin significantly. These treatments may be used domestically as well as commercially to increase the nutrients' availability from legumes to meet the problem of protein and minerals deficiencies.

Originality/value

Along with water different soaking solutions which are easily available in the market were used to test out their effect on the nutritional quality and safety. These may be used by the common people to raise their nutritional status.

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FOODS TO EAT COOKED

Cooking certain orange and red "beta-carotene rich" veggies (e.g. tomatoes, carrots, & sweet potatoes) can help make this pre-vitamin A compound more absorbable.

Fun fact: One study found that absorption of beta-carotene was 6.5 times greater in stir-fried carrots than in raw carrots!

Of course, eating your fat-soluble vitamins with a bit of fat will help you to absorb more of them, so that's another factor to consider too.

ONE VEGETABLE THAT'S BEST EATEN BOTH RAW AND COOKED

Spinach!

And I'm not just saying this to get everyone to eat it any way possible (although, I would love for this to happen...unless you're allergic, of course).

Spinach contains so many beneficial compounds that it's great eaten both raw and cooked.

Eating raw spinach preserves the water-soluble vitamins C & the B vitamins.

Eating spinach cooked allows the pre-vitamin A, as well as some of the minerals like iron to be better absorbed. Not to mention how much spinach reduces in size when it's cooked, so it's easier to eat way more cooked spinach than raw spinach.

CONCLUSION:

The old nutrition philosophy of making sure you get a lot of nutrient-dense whole foods into your diet holds true. Feel free to mix up how you eat them, whether you prefer raw or cooked just make sure you eat them.

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9D - EXAMPLES OF WATER-SOAKED PROTEIN SOURCES (CEREALS, PEANUTS, CHICKPEAS, SOYBEANS, DRY FRUITS)

Eating enough protein on a plant-based or plant-first diet is easy when you know where to start! In this article, you'll find an extensive list of the best plant-based protein sources with >20 g of protein per 100 g dry weight.

Lots of different plant-based sources of protein in different bowls.

When we think of protein, we often think of animal-based protein such as meat and eggs. As a result, the first substitutes that come to mind are meat substitutes. But there are so many more options, including grains, legumes, nuts, and seeds.

Increasing your plant-based protein intake is therefore all about making little tweaks! Try sprinkling seeds on your morning granola, tossing nuts into your lunch bowls, or adding beans to your favorite stews. These simple habits can make a big difference in a plant-based diet.

Soy-based protein

Soy-based protein sources are probably the most common and well-known source of plant protein. But do you use all of them?

Firm and extra-firm tofu: It is certainly one of the most-used protein sources for its versatility. Tofu can be marinated, baked, pan-fried, and grilled. You can also give it different shapes such as cubes, planks, shredded, or crumbled. You can even eat it raw!

Silken tofu: Its soft texture works well as an egg replacer in quiches and omelets. You can also blend it to create creamy pasta sauces (e.g., vegan carbonara) and desserts (e.g., vegan chocolate pudding).

Tempeh: It is made from fermented soybeans and is less processed than tofu. The mycelium of the *Rhizopus* mold (aka the white stuff) can be intimidating but I promise that you cannot see it or taste it once it's cooked.

Soy crumbles: They are also known as textured soy protein (TSP or TVP), soya mince, or soy chunks, and are usually made from 1 simple ingredient: defatted soy flour. Soy crumbles have a very meaty texture and are great to experiment with in dishes such as this vegan bolognese.

Edamame beans: They are nothing else than immature soybeans. You can eat them steamed, straight from the pods, or use the shelled edamame beans in

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bowls and salads. P.S., you can find frozen shelled edamame beans at most grocery stores.

Soy milk: With about 9 grams of protein per cup, soy milk is one of the non-dairy milk alternatives with the highest protein content.

Nuts and seeds

Almonds and cashews: Whether you use them as a topping, or soak and blend them into dips, sauces, or milk, these nuts are non-negotiable on a plant-based diet. The same goes for almond and cashew butter.

Peanuts, walnuts, hazelnuts, and pistachios: They make a great snack, addition to a homemade trail mix, or base for homemade crackers.

Hemp seeds: They are perfect to sprinkle on top of literally anything. If you blend them with water, you can also make your own high-protein hemp milk.

Pumpkin seeds, sunflower seeds, and pepitas: They are my favorite topping for salads, especially when they have been roasted in a pan for 2 minutes.

Sesame seeds: An amazing way to finish off Asian-inspired dishes.

Flax seeds and chia seeds: They are not only a great source of protein, but also a great way to thicken your porridge, oats, and baked goods thanks to their gelling properties.

9E - TIPS FOR PREPARING AND STORING WATER-SOAKED FOODS

The basics of soaking beans

How long beans can be stored after soaking

Should you store soaked beans with or without the water?

Tips to maximize how long soaked beans last

How to tell if your soaked beans have spoiled

Storing fully cooked beans after soaking

Answers to common questions about soaking and storing beans

Let's dive in!

Soaking 101 – Why Beans Need a Bath Before Cooking

Before we get into storage, it helps to understand why soaking beans is so important in the first place. Essentially, dry beans are tough – soaking softens them up and reduces cooking time.

Soaking achieves a few key things

Hydration – Beans absorb water and begin to swell, which shortens cooking time.

Gas reduction – Soaking leaches out indigestible starches that cause gas

Even cooking – Beans cook more evenly when soaked ahead.

Nutrient absorption – Soaked beans retain more nutrients versus unsoaked,

Flavor development – Soaking kickstarts flavor compound development.

For optimal texture and taste, most bean recipes recommend soaking 4-12 hours. I find 8 hours is the sweet spot.

Once soaked, beans are perishable and have a short shelf life unless stored properly. So let's look at how long they actually last after soaking.

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How Long Can You Store Soaked Beans?

The shelf life of soaked beans depends on a few key factors:

With or without soaking water – Keeping beans in their soaking liquid extends life.

Storage method – Fridge keeps them fresh longer than room temp.

Bean variety – Heartier beans like chickpeas last longer.

Condition – Any sprouting or spoilage shortens lifespan.

Here are the general timelines:

1-2 days at room temp if drained

3 days max in soaking water, changing liquid every 12 hours

5 days in the refrigerator if drained

1 week refrigerated in soaking water, changing water daily

For longer storage, cooked beans freeze well for several months. Freezing soaked raw beans can lead to texture issues.

The bottom line – never let soaked beans sit for more than 2 days on the counter. Refrigeration is a must for longer storage.

Should You Save the Bean Soaking Water?

When storing your soaked beans, the first decision is whether to keep the beans in their soaking water or drain it. There are pros and cons to each approach.

Keeping the water

Pros:

Extends shelf life by a few days

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No draining step required

Helps beans retain nutrients

Cons:

Can cause indigestion for some

Requires changing water every 12 hours

More breeding ground for bacteria

Draining the water

Pros:

Prevents gas and indigestion

Easier temperature control

Can freeze beans for longer storage

Cons:

Shortens shelf life by a day or two

Requires draining and drying beans well

I typically drain the soaking water because I like to freeze portions of the beans. But keeping the liquid works if you'll use them within 2-3 days.

If opting to store in water, use a container with a tight-fitting lid and change the water every 12 hours to prevent spoilage.

Tips for Storing Soaked Beans

Follow these tips to keep your soaked beans fresh as long as possible:

Cool completely – Beans must be at room temp before refrigerating.

Drain well – Eliminate excess water if not storing in liquid.

Use airtight containers – Locks in moisture and prevents odor absorption.

Monitor for spoilage – Check for off smells, texture changes, or sprouting.

Refrigerate after 1-2 days – Never exceed 2 days at room temp.

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Change water every 12 hours – If storing beans in liquid

Freeze for longer storage – Cooked beans freeze better than soaked raw

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10A - IDEAL PROTEIN COMBINATIONS (RICE AND LENTILS, BAJRA AND CHICKPEAS)

If you're a vegetarian who's working tirelessly in the gym to build some muscle, then managing a high-protein diet can seem challenging. While it's true that non-vegetarians have it easier in the protein department, that absolutely does not mean that you can't meet your protein requirements for muscle building!

First things first: yes, non-vegetarian foods like chicken, eggs, and fish are highly efficient for one's protein intake as these sources contain a high amount of protein for fewer calories and nearly no carbs. Finding that in vegetarian foods is difficult. However, there's no need to be discouraged because we're dedicated to helping you in your muscle-building journey while only eating vegetarian foods!

Keep reading this blog to discover the best, high-protein vegetarian foods for muscle building that you can add to your diet and fill your muscles.

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Which Vegetarian Food Is Best For Muscle Gain? 7 High-Protein Vegetarian Foods For Muscle Building

How To Get 70g of Protein From Vegetarian Foods in India? 7 Meal High Protein Vegetarian Diet Plan For Muscle Gain

Here is a list of all the best vegetarian food to give you the much-needed protein:

1. Milk & Milk Products

Milk is a source of quality protein that is packed with calcium, phosphorus, CLA, and other essential nutrients. Both casein (a slow-digesting protein that offers a steady release of amino acids to muscles) and whey proteins are found in milk, making it an essential part of high-protein vegetarian diets. The fat in milk is also important as it provides essential fats that our body needs, and CLA, a type of fat found in milk, can aid in burning belly fat.

Here's an overview of the protein and calorie content of various dairy products based on typical serving sizes:

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1. Milk (250ml)

Protein: 7-8 grams

Calories: 122-150 calories (varies based on fat content, e.g., whole milk or skim milk)

2. Paneer (100g)

Protein: 18-20 grams

Calories: 265-300 calories

3. Curd (100g)

Protein: 3.5-4 grams

Calories: 60-100 calories (depending on fat content)

4. Greek Yoghurt (100g)

Protein: 10 grams

Calories: 59-100 calories (depends on fat content and brand)

5. Mozzarella Cheese (1 slice, approx. 28g)

Protein: 6-7 grams

Calories: 70-85 calories

6. Buttermilk (240ml)

Protein: 3-4 grams

Calories: 40-60 calories (based on fat content)

2. Soy & Soy Products

Men are often advised to eliminate soy protein from their diet due to its testosterone-lowering and estrogen-rising qualities. However, the fact is that a normal amount of soy protein will not affect male hormones.

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Being rich in branched-chain amino acids (BCAAs), soy is an excellent plant-based protein that you shouldn't shy away from. Apart from being rich in protein, soy products are highly digestible and a rich source of omega-6, fibre, iron, calcium, etc. When consumed within the recommended limit (20g per day), soy protein is as good for men as for women. However, men should avoid going over that limit per day.

Here's an overview of the protein and calorie content of various soy products based on typical serving sizes:

1. Soy Milk (250ml)

Protein: 7-9 grams

Calories: 80-100 calories (depending on sweetened or unsweetened version)

2. Tofu (100g)

Protein: 8-10 grams

Calories: 70-110 calories (varies by firmness and brand)

3. Tempeh (100g)

Protein: 19-21 grams

Calories: 190-200 calories

4. Edamame (1/2 cup, cooked = 100g)

Protein: 11 grams

Calories: 120-130 calories

5. Soy Yoghurt (100g)

Protein: 4-6 grams

Calories: 50-100 calories (depends on brand and flavour)

6. Soy Protein Isolate (1 scoop = 30g)

Protein: 25-27 grams

Calories: 100-120 calories

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3. Legumes/Lentils/Beans

Although pulses and legumes are incomplete proteins (they do not have all nine essential amino acids), they are a major source of protein for vegetarians and are a staple in most Indian households. They are rich in complex carbs and are loaded with fibre, potassium, magnesium, B vitamins and other essential nutrients.

Here's a breakdown of the protein and calorie content for common legumes, lentils, and beans based on a standard serving size of 100 grams, cooked:

1. Lentils

Protein: 9 grams

Calories: 115-120 calories

2. Chickpeas

Protein: 8-9 grams

Calories: 160-180 calories

3. Black Beans

Protein: 8 grams

Calories: 130-140 calories

4. Kidney Beans

Protein: 8 grams

Calories: 125-130 calories

5. Pinto Beans

Protein: 7-8 grams

Calories: 120-130 calories

6. Navy Beans

Protein: 7-8 grams

Calories: 130-140 calories

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7. Green Peas

Protein: 4 grams

Calories: 60-70 calories

8. Black-Eyed Peas

Protein: 7-8 grams

Calories: 110-120 calories

9. Mung Beans

Protein: 7 grams

Calories: 105-110 calories

10. Soybeans

Protein: 17 grams

Calories: 170-180 calories

4. Roasted Chana

Roasted chana, also known as roasted chickpeas, is a crunchy, satisfying snack that's packed with protein and fibre. Full of nutrients, it supports digestion and provides an energy boost without the added calories or unhealthy fats.

The versatile legume offers a good combination of protein and complex carbohydrates. This combination provides sustained energy and helps muscle recovery, especially after intense training. Sattu, a flour made from roasted gram, is also a very rich source of energy and protein and can be used to prepare various high-protein vegetarian recipes and mixed in rotis.

Roasted Chana (30g):

Protein: 6g

Calories: 120-130 kcal

Sattu (30g):

Protein: 6g

Calories: 110-120 kcal

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5. Quinoa

Unlike legumes and lentils, quinoa is a complete protein. You can easily swap pasta and rice for quinoa to make high-protein vegetarian meals for muscle-building and decrease the carb content. Additionally, it also contains magnesium, which is essential for muscle relaxation and recovery.

Quinoa (1/4 cup dry, approx. 43g):

Protein: 4g

Calories: 160-170 kcal

6. Nuts & Seeds

Nuts like almonds, walnuts, and cashews are not only delicious and crunchy but also packed with protein and healthy fats. These nuts also contain essential micronutrients, but overconsumption can contribute to weight gain. Similarly, high-protein seeds like flaxseeds are rich in protein, fibre, and omega-3 fatty acids, making them a great addition to yoghurt, oatmeal, or smoothies for a nutritional boost.

Here's the protein and calorie content for common nuts and seeds based on a 28g serving:

Almonds

Protein: 6g

Calories: 160

Walnuts

Protein: 4g

Calories: 185

Cashews

Protein: 5g

Calories: 155

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Pistachios

Protein: 6g

Calories: 160

Hazelnuts

Protein: 4g

Calories: 180

Flaxseeds

Protein: 6g

Calories: 150

Chia seeds

Protein: 4g

Calories: 140

Pumpkin seeds

Protein: 8g

Calories: 150

Sunflower seeds

Protein: 6g

Calories: 160

Hemp seeds

Protein: 9g

Calories: 160

7. Whey Protein Powder

Whey protein is usually the top choice for vegetarian fitness enthusiasts. Whey, derived from milk, is a fast-absorbing, water-soluble protein that offers quick nourishment to muscles. A typical serving of 30 grams (one scoop) provides 20-30 grams of protein, depending on the brand.

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By the way, did you know that even if you eat a high-protein diet, not all of it may be absorbed in your body? But, with a few simple steps, as mentioned in this article, you can increase the absorption of protein!

How To Get 70g of Protein From Vegetarian Foods in India — High Protein Vegetarian Diet For Muscle Gain

Early morning

Protein: 7g

1 glass lukewarm water with 1 tsp of amla juice & chia seeds + 6-7 almonds (soaked in milk overnight) & 4 walnuts

Breakfast

Protein: 15-20g

1 glass smoothie (banana, greek yoghurt & walnut)

Or - 1 glass of milk + 2 tbsp of oats or quinoa & mixed nuts

Or - 2 whole wheat toast with paneer bhurji

Or - 1 bowl sprouts, tofu & vegetables chaat

Or - 2 veg multigrain cheese sandwiches

Or - 2-3 moong dal or besan chilla stuffed with tofu filling & green chutney + 1 glass of milk

Mid-morning

Protein: 7g

1 glass buttermilk with chia seeds & flax seeds powder + 1 bowl of fruit chaat/seasonal fruit

Lunch

Protein: 24-30g

1 bowl kidney & kabuli chana salad + 3 missi roti

Or - Peas & tofu brown rice pulao + 1.5 bowl mix dal/moong dal/tofu curry/paneer bhurji + 1 bowl green leafy vegetable

Evening

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Protein: 18-34g

1 bowl Greek yoghurt with fruits & nuts/paneer & palak rolls/whey protein & chia seeds smoothie

Dinner

Protein: 20-30g

1 bowl vegetables + 1 bowl grilled vegetables & tofu or paneer tikka + 1 bowl pumpkin & lentils soup + 2 jowar or bajra roti

Bedtime

Protein: 8g

1 glass of milk with turmeric

10B - HIGH-PROTEIN SMOOTHIE RECIPES

After an intensive workout session, people usually dig into a high-protein shake for muscle recovery. You may add many ingredients like healthy peanut butter and your go-to chocolate-flavoured protein powder to make it palatable. But what you can also do is swap the high-protein shakes with high-protein, muscle-building smoothies that taste oh-so-good!

So, if you are aiming to build some muscle by adding more nutrition to your diet, making delectable smoothies is your answer.

Smoothies for muscle building

Smoothies are a powerhouse of essential nutrients. Here are some of the health benefits of adding healthy smoothies to your diet!

1. Smoothies may provide essential nutrients

Smoothies are important for muscle building because they offer a simple and quick way to pack in the essential nutrients in a mix of protein, essential vitamins, and minerals. With ingredients like fruits, vegetables, protein powder, and healthy fats blended together, smoothies provide a convenient and easily digestible source of nutrition, which is crucial for supporting muscle growth and repair

smoothies for muscle building

Smoothies are a great source of nutrition. Add them into your diet to help build stronger muscles.

2. Smoothies are versatile

The recipes of smoothies are a dime a dozen. Even if you do not like a recipe, you can tweak the ingredients to make the output as per your taste and preferences. In short, smoothies are customizable, so you can tailor them to your specific dietary needs and taste preferences.

3. Smoothies keep you hydrated

Smoothies can help keep you hydrated and well-fed all through the day, especially when made with ingredients like coconut water, water, or almond milk. Proper hydration is vital for muscle function and recovery.

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So, if you are an on-the-go kind of person, you can finish making smoothies in a matter of minutes and stay on point with your workouts without worrying about meeting your nutrition standards.

4. Keep your body well-fed for long

By incorporating smoothies into your diet, whether as a pre-or post-workout snack or meal replacement, you can ensure you are fueling your body with the nutrients it needs to build and maintain muscle mass effectively, says the expert.

Also read: Diabetes-friendly smoothies:

healthy recipes for your taste buds

6 easy-to-make smoothie recipes for muscle-building

Check out some quick smoothie recipes that help you stay ahead in your nutrition game and also aid in muscle building.

Smoothies for muscle building

Here are some expert-shared smoothie recipes for muscle building!

1. Protein powerhouse smoothie

Ingredients:

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* 1 scoop whey protein powder

* 1 medium banana

* ½ cup Greek yoghurt

* 1 tablespoon almond butter

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- * 1 cup spinach
- * 1 cup of almond milk

Blend until the mix becomes smooth.

2. Berry Blast muscle builder

Ingredients:

- * ½ cup of mixed berries (strawberries, blueberries, raspberries, etc)
- * 1 scoop vanilla protein powder
- * ¼ cup oats
- * 1 tablespoon of chia seeds
- * 1 cup of spinach
- * 1 cup of almond milk

Blend until the mix becomes smooth.

3. Chocolate peanut butter muscle fuel

Ingredients:

- * 1 scoop of chocolate protein powder
- * 1 medium banana
- * 1 tablespoon of peanut butter
- * 1 cup of spinach
- * 1 cup of almond milk

Blend until the mix becomes smooth.

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4. Bahama bro

Ingredients:

- * 1 ½ cups frozen pineapple
- * 4 ice cubes
- * ½ cup freshly squeezed orange juice
- * ¼ cup coconut milk
- * ¼ cup pomegranate juice
- * 2 scoops vanilla whey powder

Put all the ingredients in a blender, and blend until smooth.

5. Peanut butter banana protein smoothie

Ingredients:

- * 1 banana
- * 2 tablespoons peanut butter
- * 1 scoop protein powder
- * 1 tablespoon flaxseeds
- * 1 cup unsweetened coconut milk

Put all the ingredients in a blender, and blend until smooth.

6. Tropical mango smoothie

Ingredients:

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- * 1 cup frozen mango chunks
- * ½ banana
- * ½ cup pineapple chunks
- * ½ cup Greek yogurt
- * 1 tablespoon honey (optional)
- * ½ cup coconut water

10C - BENEFITS OF PLANT-BASED PROTEINS FOR MUSCLE GROWTH

IS THE QUALITY OF PLANT INFERIOR TO ANIMAL PROTEIN?

This brings us nicely to the main difference between animal and plant-based proteins, which is their quality. When the body is provided with high quality protein it can use this protein more effectively to support muscle repair and maintenance. Protein quality is determined by the protein's amino acid profile or the level of essential amino acids it contains and the digestibility and absorption of the protein.

Animal protein is known as a high-quality complete protein as it contains a full spectrum of amino acids in adequate amounts compared to plant-based proteins. Therefore, it provides the muscle with the right profile of amino acids to support the muscle building process.

On the other hand, there are only a few complete plant-based protein sources including soy and quinoa, the others, such as pulses, cereals, nuts and seeds, lack or are low in certain amino acids. However, by combining plant-based protein foods you can provide the body with a complete protein. For example, eating legumes, which are low in methionine but high in lysine with grains which are high in methionine and lower in lysine, provide the body with a full spectrum of 21 amino acids, including the essential amino acids.

The second part of the quality equation is the proteins digestibility. Animal proteins are digested at a faster rate compared to plant proteins. Plant protein contain anti-digestible properties such as fibre and phytates which slows its digestion and the delivery of amino acids to the muscle. However, it seems that this digestibility issue is overcome if enough of the essential amino acids are consumed. This can be achieved by eating larger quantities of approximately 30g of plant protein per serving.

Therefore, once those eating a plant-based diet, in particular vegans, ensure they eat an increased volume and a variety of plant-based foods the body will get an adequate array and amount of amino acids to support muscle growth.

Practical ways to ensure your plant-based diet supports your muscle building goals

Calculate your required daily protein intake based on your training goals. THIS ARTICLE will give you a better understanding of what plant-based foods are high in protein and how much of them to eat to hit your daily protein goals.

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Understand what plant foods combine to provide the body with a complete protein source. Eating a variety of plant-based foods daily will ensure you are providing your muscles with all the amino acids it need to support your training.

Eat a combination of animal and plant-based foods if you are not strictly vegan. Adding dairy, eggs or meats to your diet is a great way to ensure you are delivering high quality protein to the muscle. They can provide you with a safety net, particularly if the plant protein in your diet is not so varied.

Eat larger quantities of plant-based food, evenly spread throughout the day. In order to ensure you get a sufficient amount of good quality protein and to overcome the potential digestibility issue with some plant sources, eating approximately 30g per serving will ensure you maximize the muscle building response.

Supplement with a protein shake. Adding a protein supplement to your day is a convenient way to help you hit your daily protein goals particularly if you are vegan with protein requirements towards the higher end of the scale. GOLD STANDARD 100% PLANT PROTEIN is an excellent solution for those seeking a high-quality vegan society approved protein source. It contains a complete blend of rice and pea protein with a full spectrum of amino acids to support your muscle repair and growth, in conjunction with a resistance training programme. GOLD STANDARD 100% PLANT PROTEIN can also be a great solution if you want to reduce your intake of protein from an animal source and don't want to compromise on the quality of your protein. Add a scoop of GOLD STANDARD 100% PLANT PROTEIN to water or your favourite nut milk, or add it to your protein bars and balls in the kitchen.

10D - TOP PLANT-BASED PROTEIN SOURCES FOR BUILDING MUSCLE

Whether you're a vegan, a vegetarian, or an omnivore, including more plant-based protein in your diet is a wise move for your health. Plant-based foods contain fiber to ensure healthy digestion and nutrients that protect against chronic disease.

Here are ten sources of plant-based protein you should aim to include in your diet.

1. Beans

Beans are well-known for being a high source of protein in plant-based diets. Most varieties, like black beans and garbanzo beans (chickpeas), have about 15 grams of protein in one cup.

You can eat beans as a side dish or main course over rice, but some other creative ideas to eat more beans are to:

Make a bean-based soup or stew

Add beans to your salad

Use them as a replacement for ground beef in tacos or chili

Make a bean dip to eat with fresh vegetables or pita chips

Cook up a black bean patty

You can even use beans in baked goods. It may sound strange, but you'll never even know beans are included in many dessert recipes using beans.

2. Lentils

Lentils are another plant-based protein that's easy to cook with and versatile in recipes. One cup of cooked lentils contains 18 grams of protein.

Lentils are relatively bland, which is a plus when trying to incorporate them into different recipes. However, if you're planning to eat them alone, on rice, or in a soup or stew, you'll want to season them generously with herbs, spices, and sauces.

Many Indian and Middle Eastern dishes contain lentils. They're also a staple in vegan recipes, and cooked lentils are often a key ingredient in vegan burgers

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and "meatballs." You can also use them as a replacement for ground beef in recipes like shepherd's pie or lentil loaf.

3. Quinoa

Quinoa is a plant protein native to South America that's often referred to as a grain, even though it's technically a seed. Quinoa is one of the few plant-based foods that contains all nine essential amino acids, making it a complete protein source.

One cup of cooked quinoa contains about eight grams of protein. Quinoa is perfect for post-workout meals because it digests quickly and provides the amino acids your body needs to repair and rebuild muscle tissue.

You can use quinoa instead of rice or other grains, and it's also a great plant-based protein option for salads and veggie bowls. You can even use quinoa in baking recipes like muffins, pancakes, and cookies.

4. Spirulina

If you're looking for a plant-based protein out of this world, look no further than spirulina. This blue-green algae (cyanobacteria) is not only a rich source of protein, packing 4 grams in a single tablespoon, but is also one of the few plant-based sources of B12.

In addition, spirulina is an excellent source of various other vitamins and minerals, making it a remarkably nutrient-dense food. And if that's not enough to convince you, spirulina is also thought to have health benefits, including boosting immunity, detoxifying the body, and reducing inflammation.

Spirulina is a common ingredient in plant-based protein powders, you can also add spirulina to smoothies, juices, and plant-based milk.

5. Chia Seeds

Another small but mighty plant-based protein source is chia seeds. Two tablespoons provide 4-5 grams of protein.

Chia seeds are also an excellent source of fiber and omega-three fatty acids. And like spirulina, they're thought to offer many health benefits, including improving digestion, reducing inflammation, and promoting heart health.

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Chia seeds can be eaten whole or ground. They can be added to smoothies, salad dressings, baked goods, or used as a topping for whole grains bowls, oatmeal, yogurt, or even made into a pudding.

6. Hemp Seeds

These seeds come from the hemp plant, which is related to cannabis (but a different variety). Hulled hemp seeds contain about 10 grams of protein in 3 tablespoons. Like quinoa, hemp seeds are a complete protein source as they have all nine essential amino acids.

They're also an excellent plant-based source of omega-three fatty acids and many vitamins and minerals such as vitamin E, thiamin, iron, potassium, phosphorus, magnesium, zinc, and more.

Hemp seeds can be eaten whole, ground into flour or meal, or turned into hemp milk. They have a slightly nutty flavor which makes them versatile in recipes. For example, they can be used as a topping for oatmeal, in smoothies, or similar to the other methods listed for the seeds above.

7. Tofu, Tempeh, Edamame

Soy is another plant-based complete protein. Tofu, tempeh, and edamame are all made from soybeans and are therefore rich in protein and other nutrients.

One cup of cooked edamame has 17 grams of protein, and one cup of tofu has 20 grams. Tempeh is slightly lower in protein with 15 grams in one cup, but it has a higher fat content and a firmer texture.

Tofu is the least processed of the three and has a softer, custard-like texture which is more versatile for savory or sweet dishes—for example, adding to a smoothie.

You will find a lively debate about the health effects of soy, but many of the feared adverse effects are primarily linked to soy supplements and soy protein isolate. According to Harvard Health, it's ok to eat whole foods like tofu, edamame, and soy milk.

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8. Nuts and Nut Butters

Nuts and nut butters such as peanut, almond, and cashew are high in unsaturated (healthy) fats and protein. These foods are also high in calories which is essential when you're looking to put on weight or bulk up.

Half a cup of cashews has 12 grams of protein and 360 calories. Half a cup of almonds has 14 grams of protein and over 400 calories. So when it comes to getting protein from nuts and nut butters, be sure to watch your portion sizes or you could end up putting on more bulk than you intended!

Ways to eat nut butters include:

Add to smoothies

Add to oatmeal or cereal

Top pancakes or waffles

Spread on apples or celery

Bake into cookies or bars

9. Vegetables

Did you know that many vegetables contain protein? A lot of people assume they're all carbs, but that's not the case! Some vegetables with the highest protein content per serving include

Asparagus - 4 grams per cup

Broccoli - 4 grams per cup

Brussels sprouts - 5 grams per cup

Green peas - 8 grams per cup

Portabella mushroom - 4 grams per cup

Potatoes - 4 grams in one medium potato

Spinach - 5 grams per cup

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By simply eating several cups of vegetables throughout the day, you will be loading up on vitamins and nutrients and consuming a sizeable chunk of your daily protein needs.

10. Plant-Based Protein Powder

Plant-based protein powders are a quick and easy way to get more protein into your diet. Mix them with plant-based milk to make a protein shake or smoothie. Or you can add them to pancakes, oatmeal, muffins, and other baked goods for an extra protein punch.

Plant-based protein powders are made from plant sources such as pea protein, rice protein, hemp protein, and chia seeds. Most plant-based protein powders are also fortified with vitamins and minerals.

When choosing a plant-based protein powder, read the label carefully. Some products may contain added sugars, fillers, or other ingredients you want to avoid.

10E - CREATING BALANCED PLANT PROTEIN MEALS

VEGETARIAN FOODS THAT HELP IN MUSCLE BODYBUILDING

Vegetarian Diet Plan for Muscle Gain plays a crucial role by offering diverse nutrient-dense options. Packed with essential proteins, vitamins, and minerals, these plant-based choices contribute to muscle synthesis and overall fitness. To calculate How much protein is needed per day you can make use of the protein intake calculator.

Let's discuss some of the vegetarian food options for muscle bodybuilding:

Lentils: Vegetarian Diet Plan for Muscle Gain is incomplete without lentils as it is rich in protein and fibre, lentils provide a sustained release of energy, supporting muscle development.

Quinoa: A complete protein source containing all essential amino acids, quinoa aids in muscle repair and growth.

Tofu: A versatile vegan meal plan for muscle gain includes tofu is essential for vegetarian bodybuilder diet , offering a substantial protein content crucial for muscle building.

Chickpeas are high in protein and carbohydrates and excellent for muscle recovery and energy replenishment.

Greek Yogurt: This best vegetarian diet for muscle gain is Packed with casein protein, Greek yogurt supports prolonged muscle protein synthesis, aiding in muscle building and repair is an important aid in a vegetarian muscle building diet plan.

Nuts and Seeds: A versatile vegan meal plan for muscle gain includes almonds, chia seeds, and hemp seeds provide healthy fats and protein, contributing to overall muscle health.

Spinach: A powerhouse of iron and vitamins, spinach enhances muscle oxygen transport, supporting endurance during workouts.

Vegetarian Diet Plan for Muscle Gain, when incorporated into a well-balanced diet, offer a comprehensive range of nutrients essential for muscle bodybuilding in the absence of meat products.

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How does the Vegetarian Bodybuilder Diet Plan work?

A Vegetarian Diet Plan for Muscle Gain strategically combines plant-based sources rich in protein, essential nutrients, and sufficient calories to support muscle growth and overall fitness.

Let's discuss about the vegetarian diet plan for muscle bodybuilding:

The Vegetarian Diet Plan for Muscle Gain works by prioritizing plant-based protein sources like legumes, tofu, and tempeh, supplemented with a variety of fruits, vegetables, and whole grains. Adequate protein intake is crucial for muscle repair and growth, and these plans ensure that individuals meet their nutritional needs without relying on animal products. Additionally, the vegan meal plan for muscle gain includes nutrient-dense foods provides essential vitamins, minerals, and antioxidants, contributing to overall health and optimal performance during workouts. Coupled with a well-designed exercise regimen, this veg diet plan for muscle gain proves effective in achieving significant muscle gains while aligning with Vegetarian Diet Plan for Muscle Gain.

How to follow a Vegetarian Diet Plan for Muscle Gain?

Following a Vegetarian Diet Plan for Muscle Gain involves strategic planning to ensure an ample intake of plant-based proteins, essential nutrients, and proper caloric consumption to support muscle development.

Let us look into the Vegetarian Diet Plan for Muscle Gain:

Protein Intake: Prioritize plant-based protein sources such as legumes, tofu, and tempeh. Include protein-rich snacks like nuts and seeds to meet daily requirements.

Balanced Nutrition: Incorporate a variety of fruits, vegetables, and whole grains to ensure a well-rounded intake of essential vitamins, minerals, and antioxidants.

Caloric Surplus: Consume a slight caloric surplus to provide the energy necessary for muscle growth, ensuring that the body has enough fuel for workouts and recovery.

Meal Timing: Distribute the veg diet plan for muscle gain throughout the day with a focus on pre and post-workout nutrition. Include protein and

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carbohydrates in pre-workout meals for energy, and prioritize protein and fats for post-workout recovery.

Hydration: Stay adequately hydrated, as water is essential for nutrient transport, digestion, and overall well-being.

Supplementation: Consider plant-based protein supplements if needed to meet protein goals, and supplement with vitamins like B12 if required in a vegetarian muscle building diet plan.

By adhering to these principles, individuals can effectively follow a Vegetarian Diet Plan for Muscle Gain and the gym diet plan, supporting their fitness goals while embracing a plant-based lifestyle.

Health Benefits of Vegetarian Diet Plan for Muscle Gain?

Opting for a Vegetarian Diet Plan for Muscle Gain not only aligns with ethical and environmental values but also provides a spectrum of health advantages, enhancing overall well-being.

Let's dive into the benefits of Vegetarian Diet Plan for Muscle Gain:

Rich in Nutrients: Vegetarian Diet Plan for Muscle Gain are often packed with essential nutrients, including vitamins, minerals, and antioxidants, which support overall health and aid in muscle recovery.

Heart Health: In a vegetarian muscle building diet plan lower saturated fat and cholesterol levels in contributing to cardiovascular health, reducing the risk of heart diseases commonly associated with high meat consumption.

Digestive Wellness: The high fibre content in this best vegetarian diet for muscle gain promotes a healthy digestive system, preventing issues like constipation and ensuring efficient nutrient absorption for muscle repair.

Anti-Inflammatory Properties: This best vegetarian diet for muscle gain is known for their anti-inflammatory effects, potentially reducing inflammation associated with intense workouts and fostering faster recovery.

Weight Management: Vegetarian Diet Plan for Muscle Gain are rich in fibre and nutrient-dense foods, can facilitate weight management, promoting a leaner body composition ideal for muscle gain and overall fitness.

Expert Review on Vegetarian Diet Plan for Muscle Gain

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Vegetarian Diet Plan for Muscle Gain involves a strategic selection of plant-based protein sources, essential nutrients, and well-timed meals. Contrary to the misconception that animal products are indispensable for muscle development, numerous studies highlight the effectiveness of a well-planned Vegetarian Diet Plan for Muscle Gain. Incorporating protein-rich foods such as legumes, tofu, and tempeh, along with a diverse array of fruits, vegetables, and whole grains, ensures the necessary building blocks for muscle synthesis. Notable examples of successful bodybuilders and athletes following a vegetarian or vegan meal plan for muscle gain is known. This dietary approach not only supports muscle gain but also offers a range of health benefits, including improved heart health, digestive wellness, and anti-inflammatory effects. By following key principles such as vegan meal plan for muscle gain, proper protein intake, balanced nutrition, and adequate caloric surplus, individuals can successfully pursue their muscle-building goals while embracing a plant-based lifestyle.

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11A - TOFU SCRAMBLE

Athletes and fitness enthusiasts are constantly on the lookout for foods that can help them perform at their peak—and recover quickly. While protein shakes and lean meats dominate many training tables, there's another protein source that packs a nutritional punch: tofu. Made from soybean curds, tofu offers complete protein with essential amino acids, plus a host of vitamins and minerals that can support everything from muscle repair to sustained energy. In this post, we'll dive into why tofu is a top pick for athletes, how it fuels performance, and how to incorporate it into your meal plan in an easy way.

1. Tofu's Protein Profile for Muscle Repair

Complete Plant-Based Protein

Tofu is unique among vegetarian protein sources because it contains all nine essential amino acids. These amino acids play a vital role in muscle protein synthesis—the process that helps repair and build muscle tissue after intense training sessions.

Leucine Content

Leucine is a key amino acid known to trigger muscle growth and recovery. Soy products, including tofu, have a respectable amount of leucine, making them competitive with other protein sources such as poultry or fish.

Lower Saturated Fat

While certain animal proteins can be high in saturated fat, tofu boasts minimal levels. This can be beneficial for athletes trying to maintain a balanced diet that supports cardiovascular health.

2. Energy Provision and Sustained Stamina

Complex Carbs & Fiber

Although tofu isn't typically high in carbohydrates, it often comes paired with fibre-rich vegetables in meals. This combination helps stabilize blood sugar levels and provide sustained energy—essential for enduring workouts or competitions.

Healthy Fats

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Depending on the brand and style of tofu (e.g., firm, silken, or sprouted), it can contain moderate amounts of healthy fats like polyunsaturated fatty acids. Healthy fats contribute to balanced energy release and support overall endurance.

Micronutrient Boost

Tofu provides essential micronutrients including iron, calcium (especially if fortified), and magnesium. Iron is crucial for oxygen delivery to muscles, while calcium and magnesium support bone health and muscle function—cornerstones of athletic performance.

3. Recovery Benefits Beyond Protein

Anti-Inflammatory Potential

While research is still ongoing, some studies suggest that soy foods, including tofu, might have mild anti-inflammatory properties. Lower inflammation can mean a faster recovery post-exercise.

Hydration Support

Tofu contains a decent amount of water, particularly silken tofu. Staying hydrated is vital for athletes, and adding water-rich foods to your meals can assist in preventing dehydration and muscle cramps.

Weight Management

Thanks to its protein density and lower calorie profile, tofu can support weight management goals. Maintaining a healthy body composition often translates to better agility, speed, and overall endurance.

4. How to Incorporate Tofu into an Athlete's Diet

High-Protein Breakfast

Start your day with a tofu scramble mixed with veggies and whole-grain toast. This provides a protein-packed meal to jumpstart muscle repair and fuel morning workouts.

Power Lunch Bowls

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Combine diced firm tofu, whole grains (like quinoa or brown rice), and roasted vegetables. Add a drizzle of tahini or peanut sauce for extra flavour—and healthy fats.

Post-Workout Smoothies

Blend silken tofu with fruits, spinach, and a little almond milk for a high-protein, low-fat shake that aids muscle recovery.

Pre-Game Snacks

Baked or air-fried tofu cubes make a convenient, protein-rich snack. Pair them with a light dip such as hummus for a balance of carbs and protein to fuel up before a game.

5. Practical Tips for Maximum Gains

Press Your Tofu: Removing excess water allows tofu to absorb marinades better, making dishes tastier and more nutritionally rewarding.

Experiment with Textures: Silken tofu is perfect for smoothies or sauces, while firm or extra-firm tofu works best in stir-fries, grills, and scrambles.

Marinate for Flavor: Tofu is mild on its own. Enhance taste and nutrient density by marinating in low-sodium soy sauce, herbs, and spices.

Team Up with Veggies: Pair tofu with a rainbow of vegetables for a complete nutrient profile that covers protein, vitamins, minerals, and antioxidants.

Conclusion

Tofu is a nutritional powerhouse that can hold its own against traditional protein sources in the sports and fitness arena. Rich in complete protein, essential amino acids, and beneficial micronutrients, tofu supports both performance and recovery. Whether you're whipping up a fast post-workout smoothie or cooking a hearty dinner, tofu offers versatility and nourishment for athletes at every level. By making tofu a regular part of your meal plan, you'll not only diversify your diet but also power up your workouts—and bounce back faster.

11B - PLANT-BASED PROTEIN SHAKES

How ARE PROTEIN POWDERS MADE AND WHAT IS THE DIFFERENCE BETWEEN PLANT AND ANIMAL-BASED POWDERS?

In order to make these health supplements, protein is extracted from its source, by removing naturally occurring carbohydrates, fats, minerals, and fibre. Animal-based powders are extracted from meat, fish, eggs, and cow's milk, while plant-based proteins are derived from grains, beans, and seeds. Vegan options may include pea, hemp, brown rice, or soy. Research shows that proteins derived from different sources have different compositions of amino acids, which are the building blocks of our body. They are essential for the growth and repair of human cells and tissues.

Also Read: Can you mix protein powder in hot milk? Let's figure it out!

protein powder

Protein powder can be consumed by adding it to warm milk. Image courtesy: Shutterstock

Why are plant-based protein powders and supplements so popular nowadays?

There are concerns that animal-based proteins may contain high levels of saturated fats, making them unhealthy when taken over a long time. There is also increased awareness about the environmental effects of consuming animal products, as veganism becomes more popular. When it comes to protein, people generally believe that "more is better", which is why they gravitate towards options like plant-based proteins that look safer and more sustainable in the long run. This may explain why recent data shows that 50 percent of consumers have increased their intake of plant-based proteins.

Are plant-based proteins and supplements good for overall health?

One area, in particular, has been put under the spotlight – heart health and its co-relation with plant-based supplements. Studies show that people who consumed more plant-based proteins had reduced markers of heart disease along with decreased cholesterol levels. Similar research also shows that plant proteins can reduce the incidence of obesity, diabetes and inflammation in the body.

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What to eat with hummus: Nutritionist shares 7 vegetables ideas for low calorie, high protein snacking

Are there any side-effects of consuming plant-based protein powders and supplements?

Proteins are broken down in the body to be used for their nutritional benefits. There are waste products left behind, which are then removed through the kidney in our urine. That is why we need to make sure that we don't overload the kidney by taking in too much protein. There are studies that show that soy protein may interfere with medication given for thyroid disorders, and some people may be allergic to proteins derived from certain plants, nuts, or seeds.

The last word

Even though taking plant-based proteins has many benefits, especially when combined with a healthy lifestyle, balance is key. It is always advisable to consult an expert before changing your diet and habits drastically. That's because it could have long-term health effects, which is quite a compromise for short-term gains!

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11C - PEANUT BUTTER WITH WHOLE GRAIN BREAD

BREAD WITH PEANUT BUTTER

This quick-and-easy snack is a hearty treat that is packed with protein and has heart-healthy monounsaturated fat.

Prep Time:

5 mins

Total Time:

5 mins

Servings:

1

Yield:

1 serving

Nutrition Profile:

Diabetes-Friendly Dairy-Free Low-Sodium Soy-Free Heart-Healthy Vegetarian
Egg-Free Low-Calorie

[JUMP TO NUTRITION FACTS](#)

LET'S JUMP TO RECIPE

If you're looking for a nutritious snack to help boost your energy levels, Bread with Peanut Butter can be a healthy choice. Nutty, wholesome whole-wheat bread is slathered with protein-rich heart-healthy peanut butter for a combo that will take the edge off any hangry feeling. Keep reading for expert tips, including what to top your peanut butter and bread with.

Tips from the EatingWell Test Kitchen

These are the key tips we learned while developing and testing this recipe in our Test Kitchen to make sure it works, tastes great and is good for you, too!

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An easy way to spread peanut butter on bread is to put small amounts on a knife and dab it on the outsides of the bread, then swipe it into the center. You can also warm the peanut butter up a little.

If you want to get every last bit of peanut butter out of a jar, use a thin spatula or opt for a specially made peanut butter knife like the PB-Jife. Its long handle and flexible tip allow it to reach deep into big jars, and it's made to stir thick peanut butter.

Fresh whole-wheat bread lasts 2 to 4 days at room temperature, shorter than white bread's shelf life. However, if you store your bread in the freezer in an airtight freezer bag and only remove the slices you need, it will last much longer. You can also store it in the fridge in an airtight container, and a breadbox is specially designed to keep bread at its best.

Nutrition Notes

Whole-wheat bread is made from flour that was ground from the entire wheat kernel. This means that it maintains most of the wheat's fiber and other nutrients, including antioxidants and protein. Whole-wheat bread is also abundant in B vitamins, which help your body use energy. If you prefer a mix of grains, like whole-grain bread, that's also a nutritious choice and is similar to whole-wheat bread nutrition-wise.

Besides being convenient, peanut butter is chock-full of heart-healthy fats, antioxidants, plant-based protein, vitamins and minerals. You'll even get a little fiber. The combo of peanut butter's fat and protein helps stabilize blood sugar. Peanut butter has also been linked to a healthier heart, in part because regularly eating peanut butter has been shown to lower cholesterol levels.

Cook Mode (Keep screen awake)

Ingredients

1 slice whole-wheat bread

1 tablespoon peanut butter

11D - QUINOA SALAD WITH BEANS

Quinoa and Beans: The Superfood Power Healthy Eating, Healthy Living, Nutrition

Beans sit near the top of the list as one of the healthiest food options out there, but they are not alone. Say hello to...

A word 'quinoa' written with quinoa seeds

You may have heard of quinoa before, but what is it exactly and why is it considered a “superfood” that is taking the culinary world by storm? More importantly, why do quinoa and beans go so well together? Let’s dive a little bit more into quinoa, shall we?

“The Mother Grain”

Known in its native Bolivia as “The Mother Grain”, this gluten-free grain is actually more closely related to spinach and beets than wheat. It has recently been singled out as having high nutritive value, as about one cup of quinoa is packed to the gills with essential nutrients. Just one cup contains 8 grams of protein, 5 grams of fiber and high percentages of iron, magnesium, folate and omega-3 fatty acids.

It is also considered a “complete protein”, containing all 9 essential amino acids necessary for good health and a strong diet.

Studies have also shown that quinoa has anti-inflammatory benefits. Quinoa has similar properties to other kinds of food known to lower cholesterol, diabetes and cardiovascular disease. All of these combine to get a strong seal of approval from many health agencies.

Quinoa and Beans

So why do quinoa and beans work so well together as part of a balanced and healthy diet?

Beans and quinoa carry many similar properties. Beans are packed full of fiber and protein and are great for digestion and fighting heart disease among other benefits. When working in tandem, there is no better preventative against heart disease and sources of fiber and protein out there.

Beans and quinoa don’t just work together “behind the scenes”, they are also a terrific pairing for your taste buds! Cooked quinoa has a taste and texture resembling that of brown rice, so the rich and creamy presence of beans play off each other nicely!

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They are both very versatile ingredients to any dish and can play many different roles. We've included quinoa with our recipes in the past with terrific outcomes! They work together well in a more traditional bean salad concoction.

With its great taste and superb health benefits, we've fallen head over heels for quinoa. We like it so much in fact, that we've decided to make it the centerpiece for our latest cookbook! We've paired quinoa with another great superfood, kale, for one of our healthiest – and tastiest – cookbooks yet. Including the dishes we just shared with you and many more, our new book is packed full of recipes pairing quinoa and beans, kale and beans and even all three into delightfully delicious and healthy dishes everyone will enjoy.

11E - MILK AND MILK PRODUCTS: POST-WORKOUT IMPORTANCE

Optimal nutrition is well recognized as a fundamental focus for athletes' peak performance. Replacing nutrients and fluid helps to replenish energy stores, promote muscle repair, and rehydrate the body after workouts. Milk is an ideal sports recovery beverage because of its unique nutrient package, which includes: carbohydrates, complete protein, electrolytes, and water.

Research shows that both plain and chocolate milk can have benefits compared to other sports drinks.

Key nutrition goals after exercise

There are several key nutrition goals after exercise.

These include:

Rehydration with fluid and electrolytes;

Replenishing muscle glycogen stores after endurance activities such as: running, swimming and cycling;

Repairing muscle tissue damage and optimizing body composition following resistance training such as weightlifting.

Fluid and nutrient replacement can also help reduce muscle fatigue and soreness after intense workouts. This in turn can help athletes keep up with and maximize their training regimens.

How milk fulfils sports recovery goals

Research shows that milk's unique nutrient package makes it an ideal choice as a sports recovery beverage for rehydration, refuelling, and muscle repair. The specific nutritional requirements will depend on the type of exercise undertaken and the individual goals of the exerciser.

Milk contains energy in the form of carbohydrate (i.e., lactose) to help replenish muscle glycogen stores.

Unlike traditional sports drinks, milk is also an excellent source of complete protein with a high concentration of branched-chain amino acids (such as

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leucine) to support muscle protein synthesis. The 3:1 ratio of casein to whey proteins in milk is ideal because it facilitates slower digestion and absorption leading to sustained elevations in circulating amino acids, the building blocks for muscle repair.

The combination of milk's high water content along with electrolytes such as calcium, potassium, and sodium, helps to replace the fluids and electrolytes lost through sweating during exercise.

Milk also contains other essential vitamins and minerals, many of which are missing in the diet of most Canadians.

Milk is an ideal sports recovery beverage. The choice of plain milk or chocolate milk will depend on the individual's exercise and sports recovery goals

Drinking plain milk as a source of complete protein, particularly after exercise, is good for building and repairing muscles. It is also an effective source of hydration.

Chocolate milk may only be more advantageous compared to plain milk under specific conditions when additional carbohydrate is needed. For example, chocolate milk is a good option as a recovery beverage after a demanding exercise session that is followed by another demanding exercise session within an 8-hour period. Sessions need to be demanding enough and of sufficient duration to substantially deplete carbohydrate stores. Some examples include:

Higher-level athletes who do different or similar types of training sessions throughout the day.

Training for a triathlon with training sessions in the morning followed by more training sessions in the afternoon.

Tournament situations with more than one event per day, such as for swimming, soccer, or hockey.

Milk makes sense for rehydration

Studies have found both plain and chocolate milk are effective for restoring fluid balance after exercise. For example, in one randomized controlled trial, healthy young adults remained in net positive fluid balance throughout the recovery period after drinking plain milk; but returned to net negative fluid balance one hour after drinking a sports drink and water. Urine output was less after drinking milk compared to the sports drink and water. A review focused on chocolate milk

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also suggests that it is superior to sports drinks due to lower urine output during recovery.

Milk helps build lean muscle mass

Studies have also shown that drinking plain milk regularly after resistance training can help promote optimal body composition, increasing lean muscle mass and reducing fat mass. For example, men who drank plain milk after weightlifting benefited from greater gains in lean mass (including muscle) and greater reductions in fat mass, over a period of 12 weeks as compared to a soy beverage or a traditional carbohydrate-rich sports drink. Women who drank plain milk after heavy whole-body resistance training also benefited from greater muscle mass accretion, strength gains and fat mass loss, over a period of 12 weeks, compared to a carbohydrate-rich drink.

Whether your patients are occasional gym-goers or are training intensely for a triathlon or sport tournament, matching nutrition with exercise is a vital skill to discuss.

Sport nutrition includes ensuring the right amount of carbohydrates are available to replenish glycogen stores; sufficient protein is available to compensate for muscle breakdown; and enough fluids + electrolytes are on-hand to replace what is lost in sweat.

Athletes rely on optimal nutrition to help fuel their sport and are always looking for an edge. Here's a great tip to share with them: Milk is an excellent go-to recovery beverage for athletes because of its unique mix of nutrients, including fluid, protein, carbohydrates and electrolytes. This fact sheet will help you learn more about how milk supports athletic endeavors, so you can share this knowledge with your patients.

Milk as a sport recovery drink

Milk naturally contains a mixture of high-quality protein (with all nine essential amino acids), carbohydrates, water and electrolytes. These are all nutrients that are required after sport. Plus, milk is considered isotonic with an osmolality of 280–290 osmol/kg, meaning it contains similar concentrations of carbohydrate and sodium to match the body's needs. All of these factors help milk fuel and rehydrate the body after exercise.

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Milk has been extensively studied as a post-sport hydration beverage. Researchers have found that drinking milk after exercise can support both acute recovery and longer-term training adaptation. Importantly, milk is also known to reduce post-exercise muscle soreness⁶, reduce muscle loss, and reduce symptoms of stress after sport, even more than carb-based sport recovery drinks.

What's the link between milk and exercise recovery?

Protein: Milk contains nine grams of high-quality protein per cup. Protein is vital after sport, since it helps the body repair the muscles that were used during exercise. Milk contains whey and casein proteins, which enhance post-exercise muscle protein synthesis rates. Milk also has a high concentration of branched-chain amino acids such as leucine, which help support muscle protein synthesis and rehydration.

Carbohydrates: Milk contains carbohydrates in the form of lactose, which is a naturally occurring milk sugar that breaks down into glucose and galactose. Lactose can act as a fuel source before and during exercise. Lactose may also play a role in a post-exercise recovery by optimizing muscle and liver glycogen, which is the storage form of carbohydrates in the body.

Chocolate milk: which contains added sugars in addition to the natural occurring lactose sugar, may be more advantageous when additional carbohydrate is needed. That may be the case for soccer or hockey tournaments, marathons, bike races, or other endurance sports with high sweat loss. Studies show that drinking chocolate milk right after exercise and again two hours after exercise helps with exercise recovery and lessens muscle damage.

Fluid and electrolytes: During exercise, it's common for fluid and electrolytes to be lost through sweat, and these nutrients need to be replenished during and after activity. Milk is an excellent choice since it contains fluid and electrolytes, including sodium and potassium. These nutrients facilitate fluid recovery, rehydration, and electrolyte replenishment following exercise.

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Electrolytes also help improve the recovery of skeletal muscle. One study showed that gradually drinking milk restored fluid balance better than water or carbohydrate electrolyte drinks, due to how these beverages are digested. Milk is released more slowly from the stomach compared to water or sports drinks, and dairy proteins contribute to this beneficial effect.

The average athlete loses 1-3L sweat/hour, and both the fluid and the electrolytes need to be replenished. The main electrolyte minerals that are lost through sweat are sodium and chloride, but small amounts of potassium, magnesium, and calcium are also lost.

Milk vs. sports drinks

Compared to traditional sports drinks, milk has similar amounts of carbohydrate and sodium, but more potassium and protein. The other advantage? Milk is a whole food, while sports drinks are considered ultra-processed and contain artificial colours and flavours.

Nutrient (per cup)	Average commercial sports drink*	Milk
Carbohydrate	15 g	12 g
Sodium	135 mg	110 mg
Potassium	40 mg	387 mg
Protein	0 g	9 g

***Based on an average of Gatorade Cool Blue and Powerade Mixed Berry**

Practical advice for patients

During activity, ingesting carbohydrates increases muscle glycogen stores, prevent muscle damage and help with training adaptations. Milk can be sipped during exercise, similar to sports drinks.

After resistance training or intense exercise, recommend 20 grams of high-quality protein to provide anabolic stimulus for muscle protein synthesis

A cup of milk contains 9 g protein.

Athletes need about 2 cups of milk for post-workout muscle recovery.

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Enjoy milk as-is or add it to a smoothie.

The other benefit to milk is that it's readily available, making it a convenient and easy option to facilitate post-exercise recovery. Whether it's a weekday hockey game, a weekend run or a week-long volleyball tournament, milk is an excellent beverage to promote glycogen storage, muscle synthesis and rehydration.

12A - FOR DIABETES: LOW-GLYCEMIC OPTIONS (CHICKPEAS, LENTILS, QUINOA)

BENEFITS OF PLANT BASED PROTEIN FOR DIABETICS

Plant-based proteins are a lesser-explored source of protein for many. Since plant protein diets help with weight loss goals, they are perfect for people suffering from type 2 diabetes. Apart from this, here are three major reasons why diabetic people should trust plant proteins more than animal-based proteins to keep them healthy in the long run.

1. Improves Glycemic Control

Type 2 diabetes results in the body not being able to effectively regulate and utilize the sugars it consumes, leading to higher levels of glucose in the blood (hyperglycemia). Research has confirmed through randomized controlled trials that plant protein benefits diabetic people by helping their bodies regulate the glycemic level. This helps in reducing the adverse effects of type 2 diabetes to some extent. So, if you are suffering from type 2 diabetes, then you should definitely consider adding some plant-based, protein-rich food items to your regular diet.

2. Prevents Type 2 Diabetes

A recent study, conducted by the researchers at the University of Eastern Finland, has confirmed that plant protein is more effective than animal protein in preventing the onset of type 2 diabetes. In fact, this research also found that people who consumed animal protein were at an increased risk of developing type 2 diabetes. One of the best food items you can include in your diet to prevent the onset of diabetes is pea. Notably, pea protein benefits the body by slowing down digestion. This allows the blood sugar levels to even out, leading to full utilization of the insulin produced by your body.

3. Reduces Insulin Resistance

The root cause of type 2 diabetes is the resistance of the body to insulin. This means that the insulin produced by the pancreas of diabetic people does not get utilized by the body. As a result, glucose consumed by such people is not absorbed by body cells and continues to flow in their bloodstream, causing a state of hyperglycemia which could further lead to dreadful complications. Plant protein benefits diabetic people because it is rich in fibre and low in saturated fats. This characteristic of plant-based proteins helps to reduce the body's resistance to insulin.

The Bottom Line

Since plant-based sources of protein have such a multitude of health benefits, diabetics should begin to rely on them more for their daily protein requirements. However, if sources of plant-based proteins are not readily accessible to you, then you can always consider adding a healthy dose of plant protein powder to your diet. Plant protein powder benefits the body in the same way that protein-rich, plant-based foods do.

Protein is an essential macronutrient vital for maintaining overall health, muscle function, and metabolic regulation. Incorporating protein-rich foods into a diet is crucial for stabilising blood sugar levels and promoting satiety for people managing diabetes. While meat is often a primary protein source, a wealth of plant-based options offer numerous health benefits, particularly for those with diabetes. This article will take a deeper look into healthy protein sources beyond meat for people with diabetes.

1. Legumes – The Diabetes-Friendly Powerhouses

Legumes, including beans, lentils, chickpeas, and peas, are nutritional powerhouses rich in protein, fibre, vitamins, and minerals. With a low glycemic index, legumes help regulate blood sugar levels and improve insulin sensitivity. Additionally, their high fibre content aids digestion and promotes long-lasting satiety, making them an ideal choice for people with diabetes. Incorporating legumes into soups, salads, stews, or as a side dish will add variety and nutritional value to meals while supporting overall health.

2. Tofu and Tempeh – Versatile Soy-Based Protein Alternatives

Tofu and tempeh, derived from soybeans, are versatile meat alternatives packed with protein and essential nutrients. Tofu, made from soybean curds, is mild in flavour and easily absorbs the flavours of marinades and seasonings, making it suitable for a wide range of dishes such as stir-fries, salads, and smoothies. Tempeh, a fermented soy product, offers a nutty flavour and firmer texture, providing a substantial protein source for sandwiches, stir-fries, and grain bowls. Both tofu and tempeh are low in carbohydrates and can help regulate blood sugar levels when incorporated into a balanced diet.

3. Greek Yogurt – Probiotic-Rich Protein Source

Greek yoghurt is a nutritious dairy option packed with protein, probiotics, calcium, and vitamin D. Unlike traditional yoghurt, Greek yoghurt undergoes a straining process, resulting in a thicker consistency and higher protein content.

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With no added sugars, plain Greek yoghurt is an excellent choice for individuals with diabetes looking to increase their protein intake while supporting gut health. Enjoy it as a creamy breakfast option, incorporate it into smoothies, or use it as a base for dips and dressings.

4. Eggs – The Complete Protein Package

Eggs are a nutrient-dense protein source containing all nine essential amino acids (histidine, isoleucine, leucine, lysine, methionine, phenylalanine, threonine, tryptophan and valine), making them a complete protein package. Rich in high-quality proteins, vitamins, and minerals, eggs are a versatile ingredient suitable for various dishes, from omelettes and frittatas to salads and sandwiches. Despite concerns about cholesterol, research suggests that moderate egg consumption does not adversely affect cardiovascular health for most. For people with diabetes, eggs provide a low-carbohydrate, satiating option that can help stabilise blood sugar levels throughout the day.

5. Nuts and Seeds – Protein-Packed Snack Options

Nuts and seeds are nutrient-dense snacks rich in protein, healthy fats, fibre, vitamins, and minerals. Almonds, walnuts, chia seeds, flaxseeds, and pumpkin seeds are particularly beneficial for people with diabetes due to their low glycemic index and potential to improve blood sugar control. Incorporating nuts and seeds into meals and snacks adds texture, flavour, and nutritional value while promoting satiety and supporting heart health. Enjoy them as a topping for salads and yoghurt, or munch on them as a satisfying midday snack.

6. Quinoa – The Ancient Grain Superfood

Quinoa is an ancient grain celebrated for its exceptional nutritional profile, including high protein content and a complete amino acid profile. With a low glycemic index and gluten-free status, quinoa is well-suited for people with diabetes seeking to manage blood sugar levels effectively. As a versatile ingredient, quinoa can be used as a base for salads, stir-fries, and grain bowls or enjoyed as a wholesome side dish. Its nutty flavour, fluffy texture, and impressive nutrient content make it a valuable addition to any diabetic-friendly diet.

7. Cottage Cheese – Low-Carb Dairy Delight

Cottage cheese is a low-carbohydrate dairy option rich in protein, calcium, and phosphorus. With its creamy texture and mild flavour, cottage cheese is usually enjoyed on its own or incorporated into both sweet and savoury dishes. Pair it with fresh fruit for a satisfying breakfast or snack, or use it as a protein-rich topping for baked potatoes, crackers, or toast. Its high protein content and low carbohydrate count make cottage cheese an excellent choice for people with

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diabetes, aiming to manage their blood sugar levels while meeting their protein needs.

8. Soy Milk – Dairy-Free Protein Alternative

Soy milk is a dairy-free alternative to cow's milk made from soybeans. Rich in protein, calcium, and vitamin D, unsweetened soy milk offers a nutritious option for people with diabetes looking to increase their protein intake while avoiding animal products. Whether enjoyed on its own, poured over cereal, or blended into smoothies, soy milk provides a creamy texture and mild flavour that complements a variety of dishes. Its low glycemic index and absence of lactose make it suitable for people with diabetes seeking blood sugar-friendly beverage options.

9. Seitan – The Wheat-Based Protein Powerhouse

Seitan, also known as wheat gluten, is a meat substitute made from hydrated gluten, the main protein found in wheat. Despite its gluten content, seitan is an excellent protein source for individuals without gluten sensitivities. With its chewy texture and ability to absorb flavours, seitan serves as a versatile ingredient in vegetarian and vegan dishes, such as stir-fries, stews, and sandwiches. While higher in protein and lower in carbohydrates than many meat alternatives, people with diabetes should consume seitan in moderation and consider portion sizes to avoid potential spikes in blood sugar levels.

10. Edamame – Nutrient-Rich Soybean Snack

Edamame, young soybeans still in their pods, are a nutritious snack option rich in protein, fiber, vitamins, and minerals. With their vibrant green colour and slightly sweet flavour, edamame can be enjoyed steamed, boiled, or roasted as a wholesome appetiser or snack. Their low glycemic index and balanced macronutrient profile make edamame an ideal choice for individuals with diabetes seeking blood sugar-friendly snack options. Whether enjoyed on their own or added to salads, stir-fries, or grain bowls, edamame provides a satisfying and nutritious source of plant-based protein.

Conclusion

Incorporating a variety of healthy protein sources beyond meat is essential for people with diabetes seeking to manage blood sugar levels effectively while supporting overall health and well-being. From legumes and soy-based products to dairy alternatives and nuts/seeds, there's a diverse array of plant-based options that offer ample protein, fiber, vitamins, and minerals. By embracing

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these nutrient-rich foods and incorporating them into balanced meals and snacks, people with diabetes can enjoy a delicious and satisfying diet that promotes optimal blood sugar control and long-term health.

12B - FOR HEART HEALTH: NUTS, FLAX SEEDS, AND OATS

PLANT-BASED PROTEIN FOR HEART HEALTH

Cardiovascular or heart disease ranks among the top 10 leading causes of death in the world. The good news, however, is that you can significantly reduce your risk through proper diet (or lack of unhealthy diet) modified fats. Bond: One of those options that has been getting lots of buzz is plant-based protein. Science says replacing animal proteins with plant-based ones can make a big difference in heart health.

Why do we Need Plant-based Protein?

Plant-based proteins are derived from foods such as legumes, nuts, seeds, grains, and vegetables. These protein sources are rich in fibre, vitamins and minerals while devoid of the saturated fats common to animal-based proteins. That combination makes plant proteins a heart-healthy option.

Plant-Based Protein Benefits

Improved Heart Health

Plant proteins also reduce cholesterol and blood pressure, major risk factors for heart disease. They also include phytochemicals and antioxidants that prevent heart problems.

Better Weight Management

Plant-based, high-protein direction helps keep appetite in check and promotes healthy weight loss, less work for your heart.

Reduced Inflammation

Chronic inflammation is a known factor in heart disease, and plant proteins are packed with anti-inflammatory compounds that can lower those risks.

Environmentally Friendly

Although not directly related to heart health, plant protein is good for sustainability, which is good for the health of the planet and all of its inhabitants

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Plant Proteins vs. Animal Proteins

Although animal proteins contain high amounts of essential amino acids, they also generally hold high concentrations of saturated fats and cholesterol, which is detrimental to heart health.

On the other hand:

Plant Proteins

These proteins are low in saturated fat and contain no cholesterol. Animal protein, on the other hand, has zero fibre, and they also contain fibre.

Animal Proteins

Red meats and processed meats have been linked to increased heart disease risk because of their saturated fat levels. However, lean meats like poultry and fish are less harmful but still do not offer the added nutrients plants do.

In fact, substituting only 3 percent of daily calories from animal proteins with plant proteins was associated with a 10 percent lower risk of dying from cardiovascular diseases in a 2020 study in the Journal of the American Heart Association. This suggests that even small amount shifts in protein choices could have a high impact.

Plant-Based Protein Sources

If you want to eat more plant proteins, here are great choices:

Legumes

Peas, lentils, chickpeas and beans are rich in protein and fibre.

For instance, one cup of lentils has about 18 grams of protein.

Nuts and Seeds

Almonds, walnuts, chia seeds, and flaxseeds are all excellent sources of healthy fats and protein.

For instance, two tablespoons of chia seeds contain 5 grams of protein.

Whole Grains

Quinoa, farro and oats have protein and complex carbohydrates.

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Soy Products

Soy Foods: Like meat and dairy, soy foods such as tofu, tempeh and edamame are complete protein sources, containing all nine essential amino acids.

Vegetables

Broccoli, spinach and Brussels sprouts pack surprisingly high amounts of protein per calorie.

For example, cooked spinach contains around 5 grams of protein per cup.

Plant-Based Protein Powders

These are handy for adding protein to smoothies or recipes.

The Evolving Nutritional Contribution of Plant Proteins

Transitioning to plant protein has a positive effect on general nutrition in several regards:

Lower Cholesterol

Plant proteins have soluble fiber which lowers LDL ("bad") cholesterol levels.

Improved Gut Health

Fibre drives healthy digestion and the maintenance of beneficial types of gut bacteria, which may help to support heart health indirectly.

Balanced Nutrient Intake

Plant proteins also tend to come laden with nutrients like magnesium, potassium and folate, all of which help the heart function.

Can a Plant-Based Diet Heal Heart Disease?

Plant-based proteins are at the centre of many heart-healthy eating patterns, including the Mediterranean diet and the DASH diet. These diets highlight whole grains, legumes, vegetables and nuts, all of which provide plenty of plant-based protein.

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Researchers found that people who eat more significant amounts of plant proteins face lower risks of heart disease, hypertension, and obesity. Plant proteins promote less arterial plaque and inflammation, leading to overall better cardiovascular health.

How to Incorporate Plant Based Protein in Meal?

Start Small

Choose a plant-based meal for one of your meals each day. For instance, replace your standard chicken salad with a chickpea and quinoa salad.

Experiment with Recipes

Go meatless and make lentil soup, tofu stir-fry or black bean tacos.

Incorporate Snacks

Choose snacks such as roasted nuts, hummus with vegetables, or a handful of edamame.

Go for Meat Substitutes

In meals, you usually prepare with meat, substitute tempeh or plant-based burgers.

Blend Proteins

Pair plant proteins to make sure you're getting a complete amino acid profile, such as beans with rice or hummus with whole grain bread.

Conclusion

Switching to plant-based proteins is an easy but effective way to protect your heart. By lowering cholesterol, reducing saturated fat intake, and offering fibre and vital nutrients, plant proteins can play an instrumental role in preventing heart disease. If you're on the quest for a healthier lifestyle or just searching for new food options, incorporating more plant-based proteins into your diet is moving in the best way.

12C - FOR CANCER PREVENTION: SOY PRODUCTS, KALE, AND BROCCOLI

Cancer is a frightful disease and represents one of the biggest health-care issues for the human race and demands a proactive strategy for cure. Plants are reservoirs for novel chemical entities and provide a promising line for research on cancer. Hitherto, being effective, chemotherapy is accompanied by certain unbearable side effects. Nevertheless, plants and plant derived products are a revolutionizing field as these are Simple, safer, eco-friendly, low-cost, fast, and less toxic as compared with conventional treatment methods. Phytochemicals are selective in their functions and act specifically on tumor cells without affecting normal cells. Carcinogenesis is a complex phenomena that involves many signaling cascades. Phytochemicals are considered suitable candidates for anticancer drug development due to their pleiotropic actions on target events with multiple manners. The research is in progress for developing potential candidates (those can block or slow down the growth of cancer cells without any side effects) from these phytochemicals. Many phytochemicals and their derived analogs have been identified as potential candidates for anticancer therapy. Effort has been made through this comprehensive review to highlight the recent developments and milestones achieved in cancer therapies using phytomolecules with their mechanism of action on nuclear and cellular factors. Furthermore, drugs for cancer treatment and their limitations have also been discussed.

Plant-based diet is encouraged for people with cancer

"It's the dietary pattern that the organizations, such as the American Institute for Cancer Research and the American Cancer Society, recommend is a plant-predominant diet that has an emphasis on whole foods,".

That includes a variety of fresh vegetables and fruits, whole grains, beans, nuts, and seeds,

"It's good to have whole grains, not processed grains, but whole grains," she says.

Skip ultra processed foods. Limit or avoid red and processed meats. The American Cancer Society says it's unknown if there is a safe level of consumption for either red or processed meats.

"Processed meat is considered a carcinogen. And to replace some of that red meat component where folks get protein, you want to lean in on consumption of pulses,".

Pulses include legumes, or beans, lentils and peas. Eating pulses will add protein and fiber.

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"The American Institute for Cancer Research shows that for every 10-gram increase in fiber in the diet, you improve survival after cancer diagnosis by 13%,".

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12D - FOR WEIGHT MANAGEMENT: HIGH-FIBER PROTEINS (CHIA SEEDS, LENTILS, SPINACH)

Plant protein as part of a vegan diet is best for weight management and insulin resistance, according to a study published in *Nutrition and Diabetes*. compare a plant-based diet to a control diet in 75 overweight participants. Those who followed a plant-based diet had greater reduction in body fat and improved insulin resistance. The improvements to increased consumption of plant-based proteins and decreased consumption of animal proteins, particularly leucine and histidine.

Facts

Eating more plant-based proteins on a low-carb diet could lead to less long-term weight gain, new research shows.

Conversely, low-carb dieters who relied heavily on animal-based proteins gained more weight over time.

In addition to low-carb vegetables like broccoli, lettuce, and zucchini, other low-carb plant-based options include avocados, nuts and seeds, and tofu and tempeh.

People who cut carbohydrates from their diet often turn to meat as a replacement, but a new study suggests that loading up on plant-based foods instead could lead to less long-term weight gain.

The research, published in *JAMA Network Open*, found that low-carb dieters who relied heavily on animal-based protein gained more weight over time than those embracing foods such as non-starchy vegetables and whole grains.

People who follow a low-carb diet often restrict carbohydrate-rich foods such as bread, pasta, fruit, and starchy vegetables like potatoes and legumes. Instead, they focus on obtaining calories from protein and fat.

Researchers have long linked low-carb diets with rapid weight loss, but fewer studies have examined how the eating plan affects weight in the long term.

"Our study goes beyond the simple question of, "To carb or not to carb?"", a research assistant at Harvard University's Department of Nutrition, said in the release. "It dissects the low-carbohydrate diet and provides a nuanced look at how the composition of these diets can affect health over years, not just weeks or months."

Here's what you need to know about the study, the benefits of eating plant-based foods, and how to incorporate more of them into your diet.

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The Association Between Weight and Low-Carb, Plant-Based Diets

The study used data from 123,000 generally healthy medical professionals enrolled in several ongoing studies that began in the 1970s and 80s. Participants in the current study were between ages 25 and 65 and all followed a low-carb diet. More than 80% were women, and most were white.

Researchers analyzed reports participants filled out every four years about their eating habits and weight. Then they divided participants into categories based on their eating patterns.

The researchers found a significant association between slower long-term weight gain and diets emphasizing plant-based foods and healthy carbs and fats. On the other hand, they found a link between diets heavy in animal products or refined carbs and weight gain over time.

The associations were particularly pronounced for participants who were younger than 55, overweight or obese, or relatively sedentary.

"Our findings could shake up the way we think about popular low-carbohydrate diets and suggest that public health initiatives should continue to promote dietary patterns that emphasize healthful foods like whole grains, fruits, vegetables, and low-fat dairy products,".

Dietitian and cookbook author, told Health that "the study is reflective of previous studies that promote healthy foods, including whole grains, fruits, vegetables, legumes, and other wholesome foods when on a low-carb diet."

"Given that 90% of Americans don't meet their daily recommendation for vegetables and 85% don't meet their daily recommendation for fruit per the dietary guidelines, eating more plants in general on any diet, including a low-carb one, can be beneficial, especially if those foods replace higher calorie, lower nutrient-dense foods," she said.

Benefits of Eating More Plants While on a Low-Carb Diet

If you're following a low-carb diet, loading up on plant-based foods can provide benefits beyond potentially preventing long-term weight gain.

The evidence has been pretty clear that we should all be eating a more plant-based diet. "These diets are rich in fibers, healthy fats, micronutrients, and phytochemicals with antioxidant and anti-inflammatory action."

A bulk of research has linked the Mediterranean diet, an eating pattern emphasizing healthy fats and plant-based foods, not only with weight loss but many other health benefits, such as a reduced risk of developing heart disease,

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strokes, and chronic diseases such as diabetes and certain cancers. Some studies show it may even boost brain health for older adults.

It's important to note that incorporating some animal products into your eating plan doesn't negate the benefits of a plant-rich diet and doesn't necessarily mean you won't lose weight.

In fact, research has shown that adding small quantities of leaner, minimally processed animal protein could even help you stay slim. In a paper published in the journal *Food and Nutrition Research* in 2015, for example, researchers concluded that people who incorporate poultry meat into a vegetable-rich diet have a lower risk of becoming overweight or obese. Furthermore, a study from 2019 found a link between fish intake and a reduced chance of developing obesity.

How to Eat More Plant-Based Foods on a Low-Carb Diet

While veggies like broccoli, lettuce, and zucchini might spring to mind when you imagine plant-based foods, a low-carb plant-rich diet isn't solely about eating leafy greens and other non-starchy veggies—though they are undoubtedly nutritious choices. There are many options to choose from.

Here are some other ingredients to integrate into your diet if you're cutting back on carbs but ramping up on plants:

Avocados: This fruit is low in carbs and packed with healthy fats and fiber, making it a great plant-based food to add to your diet.

Nuts and seeds: These are high in fiber and healthy fats and relatively low in carbs.

Tofu and tempeh. These soy-based products are high-protein, low-carb plant foods that can be added to various dishes.

Low-carb fruits: Berries, plums, peaches, and apricots are all comparatively low-carb fruits that you can enjoy in moderation.

While following a plant-based diet has general benefits, it's always a good idea to speak to a healthcare provider before changing your eating patterns.

Some people may need to avoid certain ingredients—those with thyroid disorders, for example, may have to limit their intake of goitrogenic foods like raw cruciferous vegetables.

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You can also discuss how to plan meals carefully so that you don't miss out on essential nutrients found predominantly in animal protein: vitamin B12, iron, calcium, and omega-3 fatty acids.

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12E - FOR TUBERCULOSIS

Tuberculosis (TB) is a contagious bacterial infection that primarily affects the lungs but can also impact other parts of the body. It spreads through the air when an infected person coughs or sneezes. TB can be treated with antibiotics, but it can be challenging to cure if left untreated. People with tuberculosis should avoid certain foods like alcohol, sugary foods and processed foods, which can weaken the immune system and make it harder to fight off the infection.

Dietary Guidelines for The Management of Tuberculosis

Dietary guidelines play a crucial role in the management of tuberculosis (TB). Consuming the right foods can help boost the immune system, aid recovery and prevent further complications. Here are some dietary guidelines to consider:

1. Consume Protein-Rich Foods

Protein is crucial for the growth, repair and maintenance of tissues in the body, and TB patients require more protein to aid recovery. Protein-rich foods like eggs, lean meat, poultry, fish, beans, lentils and nuts are excellent sources of protein. Consuming protein-rich foods can help prevent muscle loss, promote healing and strengthen the immune system.

2. Consume High-Calorie Foods

TB patients often require extra calories to help aid recovery. Consuming high-calorie foods can provide the necessary energy. Some high-calorie foods that can be included in the Tuberculosis diet are avocados, cheese, nuts, peanut butter, whole milk, yoghurt, dried fruits, dark chocolate and granola bars. It's important to consume these foods in moderation and not rely on them exclusively for calorie intake.

3. Consume Micronutrients

Micronutrients are essential nutrients that are required in small amounts for overall health and well-being. These include vitamins and minerals, which play a crucial role in maintaining the immune system, aiding recovery and preventing further complications. Consuming foods rich in micronutrients like dark green leafy vegetables, berries, citrus fruits, nuts and seeds can help ensure that the body is getting the necessary nutrients to function properly.

4. Consume Superfoods

Superfoods like turmeric, garlic, ginger and green tea have anti-inflammatory and immune-boosting properties that can aid in the management of TB. Turmeric contains curcumin, which has been found to have antimicrobial and

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anti-inflammatory effects. Garlic and ginger have immune-boosting properties that can help fight infections, while green tea is rich in antioxidants that can help protect against cell damage.

5. Consume High-Energy Foods

TB patients may experience loss of appetite, nausea and weight loss, which can lead to weakness and fatigue. Consuming high-energy foods like smoothies, soups and stews can provide the necessary nutrients in an easily digestible form. These foods can be rich in carbohydrates, protein and healthy fats, providing the necessary energy to aid recovery and prevent further complications.

6. Focus on Good Carbs

Good carbs are an essential part of a healthy diet, especially for TB patients. Good carbs are complex carbohydrates that are rich in fibre and nutrients, such as whole-grain bread, pasta and brown rice. These foods provide the body with sustained energy and help stabilise blood sugar levels, preventing spikes and crashes that can lead to fatigue and weakness.

7. Invest in Good Fats

Investing in good fats is important for TB patients as they need healthy sources of energy to aid in recovery. Good fats, such as those found in avocados, nuts, seeds and olive oil, are rich in essential fatty acids that can help improve heart health, brain function and immune system function. These fats can also help regulate inflammation in the body, which can help TB patients reduce the risk of developing complications.

8. Ensure Taking Ample Vegetables and Minerals

Vegetables are a great source of vitamins and minerals that can help boost the immune system and aid recovery in TB patients. Dark green leafy vegetables, such as spinach and kale, are rich in vitamins A, C and vitamins K, as well as iron and calcium. Other vegetables like carrots, sweet potatoes and bell peppers are high in antioxidants and fibre, which can help prevent cell damage and improve digestive health.

9. Foods Rich in B-Complex Vitamins

B-complex vitamins are important for maintaining good health, especially in the context of tuberculosis management. Foods rich in B-complex vitamins include leafy green vegetables, whole grains, nuts and seeds, legumes, dairy products, meat, fish and poultry. Consuming a balanced diet with these foods can help support the immune system and promote overall health during TB treatment.

10. Foods Rich in Zinc

Zinc is an essential mineral that plays a crucial role in maintaining a healthy immune system, wound healing and growth and development. Some foods that are rich in zinc include oysters, beef, pork, chicken, nuts, beans, whole grains and dairy products. Adequate intake of zinc is particularly important for individuals with TB, as zinc deficiency can impair immune function and increase susceptibility to infection.

Dietary Guidelines:

Adding superior quality protein in the meal plan helps to build a robust immune system, the first-line defence mechanism of the body. Protein deficiency may potentially have a detrimental effect on the body's ability to combat tuberculosis. Dairy and dairy products, lean meats, pulses, and legumes are some of the complete sources of protein-rich foods, have at least 2-3 serving daily.

Whole grain cereals, pulses and sprouted legumes help to meet the demands of dietary fibre, which supports keeping the gut microbiome healthy and eliminates toxins from the diet.

Add energy-dense foods like banana, cereal porridge, boiled peanut, sooji upma, dahlia kichadi and sprouted ragi porridge to meet increasing needs of calories for recuperating.

Load up with a rich array of fruits and vegetables heaped with antioxidants and vitamins A, C, and E to trigger the immune response and avert free radical's damage.

Get adequate micronutrients like vitamins A, E and D3 and minerals selenium, zinc and iron which are essential for a healthy immune system. Include yellow-orange fruits and vegetables like orange, mango, papaya, pumpkin, carrots heaped in vitamin A, while vitamin C needs are met by including citrus fruits and vegetables like capsicum, potato, spinach, winter squash and tomato. Nuts and seeds are heaped with vitamin E.

Include green leafy vegetables twice or thrice a week to enrich iron content in the diet.

Key micronutrients like selenium and zinc are vital for triggering immune activity. Mushrooms, nuts, and seeds including sunflower seeds, chia seeds, pumpkin seeds, sesame, and flax seeds are rich sources of both selenium and zinc.

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Prefer a healthy source of unsaturated fats from nuts and seeds. Include oil such as olive oil, coconut oil, groundnut oil, sunflower oil, instead of butter or margarine.

Foods To Avoid

Limit intake of refined carbs such as maida and sugar-laden foods as they offer only empty calories devoid of nutrients.

Deep-fried foods and junk foods packed with saturated fats and trans-fat would worsen symptoms associated with TB such as diarrhoea, abdominal cramps, and fatigue.

Totally steer clear of alcohol during the entire period of treatment, as it can interfere with treatment and may result in side effects.

Avoid taking excessive caffeine and carbonated beverages.

Key Nutrients to Include

Proteins

Protein is a vital macronutrient required for growth, repair, and maintenance of the tissues in the system. Patients recuperating from TB need a high portion of protein rich foods to support speed recovery. Include eggs, lean meat, beans, lentils and nuts into diet regimen. Consuming protein rich foods can support avert muscle loss and bolster the immune system.

Calorie Dense Foods

Patients suffering from TB often need additional calories to assist recovery. Having high calorie foods can offer the needed energy to recuperate well. Avocados, whole grain cereals, nuts, whole milk and dairy products, dried fruits are some of the foods laden with calories. Remember to maintain portion size, as overdoing it would not be beneficial.

Healthy Fats

Adding a healthy source of fats is vital for TB patients as they need adequate energy to help in recovery. Avocados, nuts, seeds and olive oil are sources of good fatty acids that can help enhance cardiac health, brain function and

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immune health. In addition, fats can also mitigate inflammation in the system and lower the risk of complications.

Vitamins/Minerals

Micronutrients are important nutrients that are needed in minimal amounts for uplifting overall health and well-being. Vitamins and minerals are micronutrients that hold a significant role in boosting the immune system, speeding recovery and averting further complications. Dark green leafy vegetables, berries, citrus fruits, nuts and seeds are packed with micronutrients that support the body to function well.

Conclusion

Strictly adhering to a healthy diet regimen and following a disciplined lifestyle may help TB patients to convalesce well and improve their overall health status. However, it is important to take TB medications regularly and complete the course of treatment as prescribed by the healthcare provider. Though initially, tuberculosis medications may cause certain side effects that may lead to nausea, upset tummy or poor appetite, in such situations, seek advice from your healthcare provider on ways to manage.

13A - DAIRY AS A PROTEIN SOURCE

WHAT MAKES DAIRY PROTEIN DISTINCT?

Dairy foods contain two major forms of protein: whey and casein. Eighty percent of milk's protein content comes from casein and the remaining 20% is whey. Whey is rapidly digested, while casein is digested more slowly, providing a more prolonged entry of amino acids into the bloodstream. When making foods like yogurt or cheese, excess liquid that contains whey protein is strained away, leaving a solid or semi-solid product that may have a higher casein-to-whey proportion compared with milk.

Different dairy foods can have different amounts of protein per serving. This is often due to the processing steps used to make each type of product. For example, yogurt varieties like Greek yogurt and Icelandic skyr are typically thicker in texture and higher in protein than traditional yogurt. This difference is due to the fact that they are strained one or two more times than regular yogurt, which removes additional liquid, concentrates the product and increases the amount of protein found in one serving. Also, low-fat milk may have a slightly higher protein content per serving compared with whole milk, since removal of some fat increases the proportion of protein per serving. On the opposite end of the dairy protein spectrum, ice cream has only a few grams of protein per serving. It's higher in added sugar and calories compared with many other dairy products and butter has almost no protein, since it's almost completely made up of fat.

Like other animal-based foods, milk, yogurt and cheese are considered high-quality sources of protein because they contain all essential amino acids, which our bodies cannot make and which we need to get through our food. In comparison, most plant-based milk alternatives are lacking in one or more essential amino acids (soymilk is one exception to this). Often, plant-based dairy alternatives have less protein per serving than cow's milk. Dairy foods are a protein option for both omnivores and lacto-vegetarians (who consume dairy products but not animal meat).

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13B - PLANT-BASED MILK ALTERNATIVES

WHAT ARE THE KEY TAKEAWAYS?

Protein plays an indispensable role in maintaining our health as part of a nutritious diet. Protein contributions from different dairy products can vary significantly, so if you choose to consume dairy, it's important to pick foods like milk, yogurt and cheese that offer a high nutritional bang for their buck. Reading Nutrition Facts labels can help you select the protein-rich dairy product that's right for you.

DIET

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From Craving To Consciousness: Rethinking Sweetness

IFIC Spotlight Survey: Americans' Perceptions Of Sweetness In Their Diets

Safety & Survival: The High Stakes of Food Allergen Labeling Literacy

IFIC Spotlight Survey: Americans' Perceptions of Food Allergens, Intolerances & Sensitivities

What is Protein?

Protein is one of the 3 major macronutrients (the others are fat and carbohydrates) that is made of building blocks, called amino acids. Amino acids build protein and protein builds muscle, therefore protein is essential to building muscle mass.

Dairy foods, like milk, yogurt and cheese, naturally contain high-quality, complete protein. This means dairy has all of the amino acids that are needed to help repair and build muscle and keep you strong without needing it to be paired with something else. Inside of dairy, there are two types of proteins – whey and casein.

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What is Whey Protein?

Whey is found naturally in milk and is separated out during the cheesemaking process. After separation the whey protein is pasteurized and then dried, which turns it into whey protein powder. Whey protein powder is used by itself or as an ingredient in many foods to increase the protein content.

Whey protein is a complete protein, which means it features all the essential amino acids your body needs. It is also easy to digest, very low in lactose and has been shown to help maintain a healthy weight, prevent muscle loss and curb hunger. This means that those who are lactose intolerant usually can tolerate whey protein powders and products with whey protein in it while it is also helping to promote a healthy weight.

What is Casein Protein?

Casein is also naturally found in milk and separated out during cheesemaking. However, it is a slower digesting protein than whey protein, meaning it stays in your system longer and aids in a longer feeling of fullness post having it. Many people find that taking casein before bed helps them sleep better since it takes most of the night for the body to absorb the amino acids and it helps to keep their blood sugar levels stable.

What does Protein Do?

Besides building, maintaining, and repairing muscle, the amino acids in protein work to develop and maintain healthy bones, hair and skin. Getting an appropriate amount of protein in your diet also helps to manage your weight, control hunger, and support a healthy immune system as protein promotes long term fullness, which is important for hunger control and weight.

How Much Protein Do I Need?

Current Dietary Guidelines for Americans recommend 10-35% of total calories come from protein. However, more may be needed for athletes or the elderly. The ideal amount for your lifestyle is best determined with a registered dietitian who can also help you work to incorporate it throughout the day. By spreading out high-quality protein throughout the day, you can help your body get the most from its protein all day long.

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Dairy Protein for the Win

Whether you consume whey or casein protein powder or simply enjoy dairy sourced protein in milk, cheese or yogurt, you can feel good knowing that it is an accessible, affordable, and nutritious way for your body to digest and utilize protein!

1. Soy Milk

Soy milk is made with either soybeans or soy protein isolate, and often contains thickeners and vegetable oils to improve taste and consistency. It typically has a mild and creamy flavor. However, the taste can vary between brands. It works best as a substitute for cow's milk in savory dishes, with coffee or on top of cereal. One cup (240 ml) of unsweetened soy milk contains 80–90 calories, 4–4.5 grams of fat, 7–9 grams of protein and 4 grams of carbohydrates. In terms of nutrition, soy milk is a close nondairy substitute for cow's milk. It contains a similar amount of protein, but around half the number of calories, fats and carbohydrates. It is also one of the few plant-based sources of high-quality "complete" protein, which provides all the essential amino acids. These are the amino acids that cannot be produced by the body and must be obtained from the diet.

On the other hand, soy has become one of the world's most controversial foods, and people are often concerned over its effects in the body. This is mostly because of the large amounts of isoflavones in soy. These can affect estrogen receptors in the body and affect the function of hormones. While this topic is widely debated, there is no conclusive evidence to suggest that moderate amounts of soy or soy milk will cause harm in otherwise healthy adults. Lastly, soy milk made from soybeans is not recommended for people with a FODMAP intolerance or who are in the elimination phase of the low-FODMAP diet. FODMAPs are a type of short-chain carbohydrate naturally present in some foods. They can cause digestive issues such as gas and bloating.

However, soy milk made from soy protein isolate can be consumed as an alternative.

2. Almond Milk

Almond milk is made with either whole almonds or almond butter and water. It has a light texture and a slightly sweet and nutty flavor. It can be added to coffee and tea, mixed in smoothies and used as a substitute for cow's milk in desserts and baked goods. One cup (240 ml) of unsweetened almond milk

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contains 30–35 calories, 2.5 grams of fat, 1 gram of protein and 1–2 grams of carbohydrates. Compared to cow's milk, it contains less than a quarter of the calories and less than half the fat. It is also significantly lower in protein and carbohydrates. It is one of the lowest-calorie nondairy milks available and is a great option for those wanting or needing to lower the number of calories they're consuming.

What's more, almond milk is a natural source of vitamin E, a group of antioxidants that help protect the body from disease-causing substances known as free radicals. On the other hand, almond milk is a much less concentrated source of the beneficial nutrients found in whole almonds, including protein, fiber and healthy fats. This is because almond milk is made up of mostly water. In fact, many brands contain only 2% almonds. These are often blanched with the skin removed, which greatly reduces the fiber, protein, vitamin and mineral content.

3. Coconut Milk

Coconut milk is made from water and the white flesh of brown coconuts. It is sold in cartons alongside milk and is a more diluted version of the type of coconut milk commonly used in Southeast Asian and Indian cuisines, which is usually sold in cans. Coconut milk has a creamy texture and a sweet but subtle coconut flavor. One cup (240 ml) contains 45 calories, 4 grams of fat, no protein and almost no carbohydrates. Coconut milk contains one-third the calories of cow's milk, half the fat and significantly less protein and carbohydrates.

In fact, coconut milk has the lowest protein and carbohydrate content of the nondairy milks. It may not be the best option for those with increased protein requirements, but it would suit those looking to reduce their carb intake. What's more, around 90% of the calories from coconut milk come from saturated fat, including a type of saturated fat known as medium-chain triglycerides (MCTs). Some research suggests that MCTs may help reduce appetite, assist with weight loss and improve blood cholesterol levels more than other fats.

On the other hand, a recent review of 21 studies found that coconut oil may raise levels of total and "bad" low-density-lipoprotein (LDL) cholesterol to a greater extent than unsaturated oils.

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4. Oat Milk

In its simplest form, oat milk is made from a mixture of oats and water. Nevertheless, manufacturers often add extra ingredients such as gums, oils and salt to produce a desirable taste and texture. Oat milk is naturally sweet and mild in flavor. It can be used in cooking in the same way as cow's milk, and tastes great with cereal or in smoothies. One cup (240 ml) contains 140–170 calories, 4.5–5 grams of fat, 2.5–5 grams of protein and 19–29 grams of carbohydrates. Oat milk contains a similar number of calories to cow's milk, up to double the number of carbohydrates and about half the amount of protein and fat.

Interestingly, oat milk is high in total fiber and beta-glucan, a type of soluble fiber that forms a thick gel as it passes through the gut. The beta-glucan gel binds to cholesterol, reducing its absorption in the body. This helps lower cholesterol levels, particularly LDL cholesterol, the type associated with an increased risk of heart disease. One study in men with high cholesterol found that consuming 25 ounces (750 ml) of oat milk daily for five weeks lowered total cholesterol by 3% and LDL cholesterol by 5% .

5. Rice Milk

Rice milk is made from milled white or brown rice and water. As with other nondairy milks, it often contains thickeners to improve texture and taste. Rice milk is the least allergenic of the nondairy milks. This makes it a safe option for those with allergies or intolerances to dairy, gluten, soy or nuts. Rice milk is mild in taste and naturally sweet in flavor. It has a slightly watery consistency and is great to drink on its own as well as in smoothies, in desserts and with oatmeal. One cup (240 ml) of rice milk contains 130–140 calories, 2–3 grams of fat, 1 gram of protein and 27–38 grams of carbohydrates.

Rice milk contains a similar number of calories to cow's milk, but almost double the carbohydrates. It also contains considerably less protein and fat. Of all the nondairy milk alternatives on this list, rice milk contains the most carbohydrates — around three times as many as the others. What's more, rice milk has a high glycemic index (GI) of 79–92, which means it is absorbed quickly in the gut and rapidly raises blood sugar levels. For this reason, it may not be the best option for people with diabetes. Due to its low protein content, rice milk may also not be the best option for growing children, athletes and the elderly. This is because these populations have higher protein requirements. Rice milk has also been shown to contain high levels of inorganic arsenic, a toxic chemical found naturally in the environment.

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Long-term exposure to high levels of inorganic arsenic has been associated with an increased risk of various health problems, including certain cancers and heart disease. For most people, drinking rice milk should not be a cause for concern. However, if rice happens to make up a significant part of your diet, then it could be beneficial to diversify your diet by eating a variety of grains, including other nondairy milks.

6. Cashew Milk

Cashew milk is made from a mixture of cashew nuts or cashew butter and water. It is rich and creamy and has a sweet and subtle nutty flavor. It's great for thickening smoothies, as a creamer in coffee and as a substitute for cow's milk in desserts. As with most nut-based milks, the nut pulp is strained from the milk. This means the fiber, protein, vitamins and minerals from the whole cashew are lost.

One cup (240 ml) of unsweetened cashew milk contains just 25–50 calories, 2–4 grams of fat, 0–1 gram of protein and 1–2 grams of carbohydrates. Cashew milk contains fewer than one third of the calories of cow's milk, half the fat and significantly less protein and carbohydrates.

Due to its low protein content, cashew milk may not be the best option for people with increased protein requirements. It could be worth switching to a higher-protein milk such as soy or oat if you have increased protein needs, or if you struggle to meet your daily protein requirements. However, with only 25–50 calories per cup (240 ml), unsweetened cashew milk is a great, low-calorie option for those looking to reduce their total daily calorie intake. The low carbohydrate and sugar content also makes it a suitable option for people who need to monitor their carb intakes, such as people with diabetes.

Lastly, cashew milk is one of the easiest milks to make at home.

7. Macadamia Milk

Macadamia milk is made mostly of water and about 3% macadamia nuts. It's fairly new to the market, and most brands are made in Australia using Australian macadamias. It has a richer, smoother and creamier flavor than most nondairy milks, and tastes great on its own or in coffee and smoothies. One cup (240 ml) contains 50–55 calories, 4.5–5 grams of fat, 1–5 grams of protein and 1 gram of carbohydrates.

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Macadamia milk contains one third the calories and about half the fat of cow's milk. It is also somewhat lower in protein and carbohydrates. It is very low in calories, with only 50–55 calories per cup (240 ml). This makes it a great option for those trying to reduce their calorie intake.

The low carbohydrate content also makes it a suitable option for people with diabetes or those looking to reduce their carb intake. What's more, macadamia milk is a great source of healthy monounsaturated fats, with 3.8 grams per cup (240 ml). Increasing your intake of monounsaturated fats may help reduce blood cholesterol levels, blood pressure and the risk of heart disease, especially if it replaces some saturated fat or carbohydrates in your diet.

8. Hemp Milk

Hemp milk is made from the seeds of the hemp plant, *Cannabis sativa*. This is the same species used to make the drug cannabis, also known as marijuana. Unlike marijuana, hemp seeds contain only trace amounts of tetrahydrocannabinol (THC), the chemical responsible for marijuana's mind-altering effects. Hemp milk has a slightly sweet, nutty taste and a thin, watery texture. It works best as a substitute for lighter milks such as skim milk. One cup (240 ml) of unsweetened hemp milk contains 60–80 calories, 4.5–8 grams of fat, 2–3 grams of protein and 0–1 gram of carbohydrates. Hemp milk contains a similar amount of fat to cow's milk, but around half the calories and protein. It also contains significantly fewer carbohydrates.

It is a good option for vegans and vegetarians, since one glass provides 2–3 grams of high quality, complete protein, with all the essential amino acids. What's more, hemp milk is a source of two essential fatty acids: the omega-3 fatty acid alpha-linolenic acid and the omega-6 fatty acid linoleic acid. Your body cannot make omega-3s and omega-6s, so you must obtain them from foods.

9. Quinoa Milk

Quinoa milk is made from water and quinoa, an edible seed that is commonly prepared and consumed as a grain. The whole quinoa grain is very nutritious, gluten-free and rich in high-quality protein. While quinoa has become a very popular "superfood" over recent years, quinoa milk is fairly new to the market. For this reason, it is slightly more expensive than other nondairy milks and can be a little harder to find on supermarket shelves. Quinoa milk is slightly sweet and nutty and has a distinct quinoa flavor. It works best poured onto

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cereal and in warm porridge. One cup (240 ml) contains 70 calories, 1 gram of fat, 2 grams of protein and 12 grams of carbohydrates.

Quinoa milk contains a similar number of carbohydrates to cow's milk, but fewer than half the calories. It also contains significantly less fat and protein. It is made up of mostly water and contains 5–10% quinoa. This means that most of the protein, fiber, vitamins and minerals from quinoa are diluted. It has a fairly well-balanced nutrition profile compared to other nondairy milks. It is comparatively low in fat with moderate amounts of protein, calories and carbs.

Quinoa milk is a good plant-based source of complete protein for vegetarians and vegans. If it is available at your local supermarket, then it could be worth trying.

13C - BENEFITS AND DRAWBACKS OF MILK AND MILK PRODUCTS

HEALTH BENEFITS OF CONSUMING DAIRY PRODUCTS

May support your bones

Calcium is the main mineral in your bones — and dairy is the best source of calcium in the human diet. Therefore, dairy has many benefits for bone health. In fact, health organizations recommend that you consume 2–3 servings of dairy per day to get enough calcium for your bones. Evidence indicates that dairy improves bone density and lowers older adults' risk of fractures. That said, dairy is not the only dietary source of calcium. Non Dairy include kale, leafy greens, legumes, and calcium supplements.

However, research shows that calcium isn't the only nutrient responsible for dairy's effects on bone health. Dairy also provides protein and phosphorous, which you need to achieve optimal peak bone mass during skeletal growth and prevent bone loss as you age. May lower your risk of obesity and type 2 diabetes

Dairy products have been associated with varying effects on body weight.

Evidence suggests that dairy products may improve body composition by reducing fat mass, waist circumference, and increasing lean body mass, especially when combined with a reduced calorie diet. A review of 25 studies found that various types of yogurt — including conventional, low fat, high fat, and Greek — were associated with the prevention of metabolic syndrome risk factors, such as obesity, high blood pressure, and high blood sugar and triglycerides levels. Some evidence also suggests that some dairy products may reduce your diabetes risk. However, studies have shown mixed results. Research finds that while yogurt may lower your risk of developing type 2 diabetes, the association between other dairy products and diabetes risk is inconsistent.

One potential explanation for yogurt's effect on diabetes risk is associated with its nutrient composition.

Dairy and heart disease

Current dietary guidelines recommend choosing low fat dairy products to limit saturated fat intake and reduce the risk of heart disease. However, recent evidence suggests that saturated fat from dairy may not have the same detrimental effects on heart health as saturated fat from meat. That's because dairy and meat have different fatty acid profiles. Unlike meat, which has long-chain fatty acids, dairy has a greater proportion of short- and medium-chain fatty acids. Short- and medium-chain fatty acids affect heart health differently and may even offer some benefits. Fermented products like yogurt and kefir

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provide probiotics, which are beneficial microorganisms that offer health benefits. Research suggests that their intake is associated with lower LDL (bad) cholesterol levels and reduced risks of high blood pressure and heart disease.

Dairy and cancer

Dairy stimulates the release of the protein insulin-like growth factor 1 (IGF-1), which is associated with an increased risk of certain cancers — particularly [prostate](#), breast, and colorectal cancers.

However, research on the link between dairy and cancer is still inconclusive, and evidence shows that the type of dairy consumed may play an important role in the outcome.

For instance, one study among 778,929 people suggested that while total dairy products didn't increase cancer mortality risk, whole milk intake did elevate the risk of prostate cancer mortality.

On the contrary, yogurt and other fermented dairy products are associated with a reduced cancer risk.

Best types of dairy for your health

The [healthiest and most eco-friendly dairy products](#) come from cows that are grass-fed and/or pasture-raised. As mentioned above, their milk has a much better nutrient profile, including a more beneficial fatty acid profile. Fermented dairy products like yogurt and kefir might be even better given that they provide [probiotics](#), and research consistently links them to a lower risk of type 2 diabetes, heart disease, and cancer. It's also worth noting that people who can't tolerate dairy from cows may be able to easily digest dairy from goats.

Summary

The best types of dairy come from animals that were pasture-raised and/or grass-fed, as their milk has a much more robust nutrient profile. Fermented products are also consistently linked to numerous health benefits.

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Evidence Based

What Is Almond Milk, and Is It Good or Bad for You?

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- [Recipe](#)
- [Bottom line](#)

Almond milk is made from processing almonds, water, and sometimes other additives. It's high in vitamin E. But, it may not be suitable for children and it's best to choose natural, unsweetened products.

Is Almond Milk Healthy?

Are you looking to learn more about the nutritional value of almond milk? This video explains what it is, how it's made, and if it's actually good for you. With the rise of plant-based diets and dairy sensitivities, many people look for an alternative to cow's milk. Almond milk is one of the top-selling plant-based milks because of its rich texture and flavor. However, since it's a processed beverage, you may wonder whether it's a nutritious and safe option.

What is almond milk?

Almond milk is made of ground [almonds](#) and water but can include other ingredients depending on the type. Most people purchase it premade, though it's fairly easy to make at home as well.

During processing, almonds and water are blended and then strained to remove pulp. This leaves a smooth liquid. In most commercial almond milks, thickeners, preservatives, and flavorings are usually added to improve flavor, texture, and shelf life. Almond milk is naturally dairy-free, meaning it's suitable for vegans, as well as people with a dairy allergy or lactose intolerance.

Summary

Almond milk is a plant-based beverage made from filtered almonds and water. It is naturally dairy- and lactose-free, making it a good option for those avoiding dairy.

Almond milk nutrition

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With only 39 calories per cup (240 ml), almond milk is very low in calories compared with cow's milk and other [plant-based beverages](#). It also contains various nutrients.

One cup (240 ml) of commercial almond milk provides:

- **Calories:** 39
- **Fat:** 3 grams
- **Protein:** 1 gram
- **Carbs:** 3.5 grams
- **Fiber:** 0.5 grams
- **Calcium:** 24% of the Daily Value (DV)
- **Potassium:** 4% of the DV
- **Vitamin D:** 18% of the DV
- **Vitamin E:** 110% of the DV

Almond milk is an excellent and natural source of [vitamin E](#), which is a fat-soluble antioxidant that helps protect your body from free radical damage. Some varieties are fortified with calcium and vitamin D, which are important nutrients for bone health. Homemade versions are not a good source of these nutrients. Finally, almond milk is low in protein, with 1 cup (240 ml) providing only 1 gram.

Summary

Almond milk is naturally high in vitamin E, a disease-fighting antioxidant. During processing, it's commonly fortified with calcium and vitamin D. However, it's not a good source of protein.

How to make your own almond milk

To make your own almond milk, follow this simple recipe.

Ingredients:

- 2 cups (280 grams) of soaked [almonds](#)
- 4 cups (1 liter) of water
- 1 teaspoon (5 ml) of vanilla extract (optional)

Soak the almonds in [water](#) overnight and drain before use. Add the almonds, water, and vanilla to a blender and pulse for 1–2 minutes until the water is cloudy and the almonds are finely ground.

Pour the mixture into a mesh strainer that is placed over a bowl and lined with a nut milk bag or cheesecloth. Be sure to press down to extract as much liquid as possible. You should get approximately 4 cups (1 liter) of almond milk.

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Place the liquid into a serving container and store it in your refrigerator for 4–5 days.

Summary

To make your own almond milk, add soaked almonds, water, and vanilla extract to a blender. Pour the mixture through a cheesecloth and mesh strainer. Store the remaining liquid in your refrigerator for 4–5 days.

[Nutrition](#)

How Do You Make Oat Milk? Nutrients, Benefits, and More

- [Recipe](#)
- [Nutrition](#)
- [Benefits](#)
- [Downsides](#)
- [Bottom line](#)

Oat milk is a plant-based milk alternative that's vegan and naturally free of dairy, lactose, soy, and nuts. If made from certified gluten-free oats, it's suitable for people with gluten intolerance or allergy. It may also benefit your heart and bones.

Marti Sans/Stocksy United

In recent years, plant-based milk alternatives like oat milk have become incredibly popular.

Oat milk is a good choice for people with certain food allergies and intolerances, as it's naturally free of lactose, nuts, and soy. If made from certified gluten-free oats, it's also suitable for those with gluten-related disorders. Due to its growing popularity, you can find it in most grocery stores and online. You can also make it yourself at home and customize it to your taste.

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How to make it

Oat milk is easy to make at home — and potentially even cheaper than store-bought options.

What's more, making your own allows you to choose the ingredients and avoid the additives or thickeners that are found in some commercial products. You can also make it gluten-free by using certified gluten-free oats.

Here's how to make homemade oat milk in just a few minutes:

1. Blend 1 cup (80 grams) of [rolled or steel cut oats](#) with 3 cups (720 mL) of cold water for 30 seconds.
2. Place a cheesecloth over a wide-mouth jar or bottle. Pour the mixture over the cheesecloth to separate the milk from the oats.
3. Lift the cloth from the ends to form a sac, and gently squeeze any remaining liquid into the jar.

To enhance the flavor, try adding either a pinch of salt, a little vanilla or cinnamon extract, a few dates, maple syrup, or honey before blending. You can safely store the oat milk in your refrigerator for up to 5 days. To avoid a slimy result, use cold water, refrain from squeezing the cheesecloth too hard when draining the remaining liquid, don't soak your oats beforehand, and don't blend them for longer than 30 seconds.

Summary

You can make your own oat milk by blending 1 cup (80 grams) of oats with 3 cups (720 mL) of water and pouring the mixture over cheesecloth into a bottle or jar. It keeps in the fridge for up to 5 days.

Health benefits

Studies on oats and oat milk show that they may offer several health benefits.

1. Vegan and free from lactose, soy, and nuts

Oat milk is a sensible option for those with certain dietary restrictions.

Since it's based on oats and water, it's vegan and free of nuts, soy, and lactose.

Though oats are naturally gluten-free, they can be processed in the same factories as gluten-containing grains that may contaminate them ([3Trusted Source](#)).

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If you prefer guaranteed gluten-free oat milk, check the label to make sure your chosen product is made with [certified gluten-free oats](#). Alternatively, you can make homemade oat milk using certified gluten-free oats.

2. Great source of B vitamins

Oat milk is often fortified with B vitamins like riboflavin (B2) and [vitamin B12](#).

B vitamins are essential for optimal health and linked to numerous benefits.

For instance, they may help alleviate stress, combat oxidative damage, and promote healthy hair, nails, and skin — especially if you're deficient in this group of vitamins .

3. May lower LDL (bad) cholesterol

Oat milk is high in [beta glucan](#), a type of [soluble fiber](#) with heart health benefits.

Beta glucan forms a gel-like substance within your gut that can bind to cholesterol and reduce its absorption. This may help lower blood cholesterol levels, especially levels of LDL (bad) cholesterol, which have been linked to heart disease. For example, an older study from 1999 including 66 men with high cholesterol found that drinking 3 cups (750 mL) of oat milk daily for 5 weeks reduced total and LDL cholesterol by 3% and 5%, respectively. Additionally, a review of 58 studies involving mostly people with high cholesterol demonstrated that getting an average of 3.5 grams of beta glucan daily for 5–6 weeks reduced LDL cholesterol and apolipoprotein B by 4% and 2%, respectively.

Apolipoprotein B is the main protein found in LDL cholesterol. It's a better indicator of heart disease risk than LDL cholesterol alone.

One cup (240 mL) of oat milk may provide up to 1.2 grams of beta glucan.

4. Great for bone health

Oat milk is often fortified with calcium and vitamin D, both of which can benefit your bones.

Calcium is essential for strong and [healthy bones](#) because it's the main mineral used to form them. Over time, a continuous lack of calcium in your diet may cause your bones to become brittle and more likely to fracture or break.

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Adequate vitamin D is just as important, as it aids the absorption of calcium from your digestive tract. A lack of vitamin D can keep your body from getting enough calcium and thereby weaken your bones. Many types of commercial oat milk are also a good source of vitamin B12. Some studies have linked this vitamin to healthy bones and a lower risk of osteoporosis, a condition characterized by porous bones, particularly in postmenopausal women.

14A - PLANT-BASED PROTEIN POWDERS

With plant-based diets increasing in popularity, more people are including vegan protein powders in their diets. These powders are derived from a variety of plant sources such as soy, peas, brown rice, and hemp, and can offer an array of benefits.

Plant-based protein powders can be an excellent source of essential amino acids, vitamins, and minerals, although their nutrient content will vary depending on the plant used. They also tend to be easily digestible, making them a good option for many people with digestive issues or who are intolerant to dairy products. Plant-based protein powders are also sustainable and environmentally friendly, as they require less water and produce fewer greenhouse gas emissions than animal-based protein powders.

Here, we'll dive deeper into the various plant-based protein powder benefits and how these supplements can help you achieve your health and fitness goals.

What is Plant-Based Protein Powder?

Plant-based protein powder is a dietary supplement made by taking a plant-based, high-protein food and isolating its proteins while removing most of the carbohydrates and fat. You're left with a protein-rich powder that can be consumed in a variety of ways.

Because protein is the primary macronutrient for building muscle, plant protein powders are often used by people looking to gain muscle size and strength. They're also used by people who struggle to get enough protein from food, whether due to high protein requirements, food allergies or intolerances, or a poor appetite.

Plant-based protein powders typically provide around 20-25 grams of protein per serving. They also contain antioxidants and some vitamins and minerals, such as iron and calcium.

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Types of Plant-Based Protein Powder

Plant protein powders are made from a variety of different plant foods, most often from plants considered to contain all nine essential amino acids in optimal amounts for use by the human body. These are known as “complete proteins.”

Other plants considered to be “incomplete proteins” can also be used, however. They may be combined with protein powders made from other plant sources that contain certain amino acids in higher amounts for a more balanced amino acid profile overall, or they may be used on their own. The most common types of plant-based protein powders are listed below.

Soy protein powder

Soy protein powder is made from soybeans, one of the most well-known complete proteins among plant-based foods. It is one of the most widely studied plant proteins and is very popular among people following a plant-based lifestyle.

Pea protein powder

Pea protein has experienced a substantial rise in popularity within the last few years and is a great option for people who are allergic to soy or intolerant to gluten. It is made from yellow split peas (not the green ones in your freezer) and is used in many non-dairy milk alternatives and vegan protein shakes.

Hemp protein powder

Made from hemp seeds, hemp protein powder is another complete protein source that is gluten-free and should work well for most people with food allergies.

Chia protein powder

Chia seeds are tiny omega-3 rich seeds that also provide all of the essential amino acids in optimal amounts for health. While most of the omega-3s are

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removed during the production process, chia seed powder retains much of the calcium found in whole chia seeds and is allergen-friendly.

Brown rice protein powder

Unlike the previous types of protein powder listed, brown rice is not considered a complete protein as it is slightly lower in lysine, one of the essential amino acids. Despite this limitation, a small June 2013 study¹ found no differences between whey or brown rice protein consumed during a resistance training program on measures of muscle thickness and strength.

However, a major limitation of this study is that it lacked a control group. Additional research is needed in order to confirm the effectiveness of brown rice protein compared to more well-researched types of protein powders.

Quinoa protein powder

Quinoa is well-known as a grain that is also a complete protein, making it a great option when choosing a plant-based protein powder.

Pumpkin seed protein powder

Pumpkin seeds are one of the highest-protein seeds, making them a popular choice for protein supplements. They aren't a complete protein, so you may find pumpkin seed protein powder combined with other proteins.

Protein blends

Some incomplete protein sources may be combined with protein powders from other plants in order to provide a more balanced amino acid profile. An example of this is the common combination of pea protein with brown rice protein.

Plant-Based Protein Powder Benefits

It can help build bigger muscles

Have you ever heard someone say that you can't build muscle with plants? Fortunately, this myth is unfounded.

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The process of building muscle requires essential amino acids, and most plant-based protein powders supply these in adequate amounts. While research is limited on some of the less commonly used protein powders like chia and quinoa, evidence suggests that pea and soy proteins may be as effective for increasing the size of your muscles as whey.

A December 2019 systematic review in the Journal of Health Sciences² found that four out of six studies showed no differences in muscle mass when comparing soy to whey, with the remaining two studies finding that whey was more effective.

It can help build strength

In addition to increasing muscle size, plant protein powders can also support your strength goals.

Studies particularly support the equal benefits of soy and whey for strength, as found by a November 2018 meta-analysis in the International Journal of Sport Nutrition and Exercise Metabolism³. A large May 2020 randomized controlled trial⁴ had similar results when matching soy and whey protein for leucine content.

Like soy, pea protein may also be as effective as whey protein for both muscle size and strength despite not being a complete protein. This was the result found by a small January 2019 study published in Sports⁵ and a larger January 2015 study in the Journal of the International Society of Sports Nutrition⁶.

It's environmentally friendly

Plant proteins are often considered to be more sustainable than their animal-based counterparts. This is because growing and processing plants for protein powder requires less water and produces fewer greenhouse gas emissions than animal-based proteins like whey, casein, egg white, and collagen.

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It may be easier to digest

Many people with lactose intolerance experience uncomfortable digestive side effects like bloating or diarrhea when consuming whey protein powders due to the small amount of lactose they can contain. Plant-based proteins don't contain lactose, so they may be a better choice for some people.

That said, plant proteins may cause digestive issues in people who have irritable bowel syndrome (IBS). Monash University advises that plant protein powders may contain FODMAPs⁷ (small sugars present in some plants), so people who are intolerant to FODMAPs should keep this in mind when choosing a protein powder.

It's a convenient way to get more protein

Protein powders are one of the easiest ways to increase the amount of protein in your diet thanks to their versatility. They can be:

Mixed with water or milk

Blended into a fruit smoothie

Stirred into oatmeal and protein pancake batter

Added to homemade energy bites and baked goods

It can help you lose body fat

When paired with a resistance training program and a calorie deficit, a higher protein diet can help you lose more body fat and less muscle during weight loss programs. Dietary protein helps maintain the muscle you already have, prompting the body to burn more fat for energy than it would without the combination of a higher protein diet and resistance training.

It can add variety to your diet

Sick of eating the same protein foods every day? This is where plant protein powders can come in handy. With a variety of flavors, they can add interest to your diet and keep you on track with meeting your fitness goals.

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Risks of Plant-Based Protein

Since protein is required by the body for overall health, the risks associated with taking plant-based protein are typically minimal. That said, there are some important considerations to be aware of with these supplements.

Allergic reactions

It goes without saying, but you should avoid using protein powder made from a food that you're allergic to. Additionally, if you're allergic to peanuts, it's possible that you could also have a reaction to pea protein. Peanuts and peas are both legumes and some people who have an allergy to peanuts also react to peas, as found in a July 2021 survey-based study published in *Allergy, Asthma, and Immunology*⁸.

Safety

All protein powders are classified as dietary supplements by the FDA, meaning they aren't as well-regulated as other products like medicine or food. Because of this, the ingredients in any protein powder may not match what's listed on the label. It's best to choose a reputable brand that has been third-party tested for quality and purity. An example is a product that has the NSF International Certified for Sport® Certification.

Recently, there have been concerns about heavy metal levels in plant-based protein powders. However, this may not be much cause for concern. An independent August 2020 research study in the journal *Toxicology Reports*⁹ found that levels of heavy metals in the protein powders tested were not high enough to cause harm even when consuming up to three servings a day.

Overconsumption

Plant-based protein powders can be extremely helpful in meeting your protein goals, but relying on any protein powder as your main source of protein can lead to an unbalanced diet. As a dietary supplement, they should be just that—a supplement to an overall healthy eating pattern that includes regular meals and snacks.

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Plant-Based Protein Powder Benefits: Final Thoughts

Plant-based protein powders can be a valuable, effective source of protein to help meet your health, wellness, and fitness goals. Some benefits of plant-based protein include:

Supporting muscle growth and strength gains, with the most evidence for soy and pea protein

Better for the environment overall than animal products

Providing a quick, convenient source of protein

Adding variety to the diet

Assisting with fat loss

Appropriate for plant-based and vegan diets

Every person is different, so it's important to choose a plant protein powder that best fits your own dietary needs and preferences.

14B - CHOOSING THE RIGHT SUPPLEMENTS FOR YOUR NEEDS

Biggest Differences Between Whey and Plant-Based Proteins

While both protein types help build and repair muscle, they differ in composition, digestion, and environmental impact. Here's how they compare:

Amino Acid Content Differs

Whey protein is naturally a complete protein, meaning it contains all nine essential amino acids. Plant proteins may require blending different sources (e.g., pea and rice protein) to achieve a similar amino acid profile.

Digestion Speed and Rate

Whey protein is quickly absorbed, making it ideal for post-workout muscle recovery. Plant proteins digest more slowly, providing a steady release of amino acids over time, which may be beneficial for meal replacement or sustained energy.

Environmental Impact Level

Plant proteins are considered more sustainable, as whey production contributes to dairy farming's carbon footprint. If you prioritize eco-friendly choices, plant protein may be the better option.

Mixability and Taste Profile

Whey protein is smooth and creamy when mixed with water or milk, while plant proteins tend to be thicker, grittier, and more earthy in taste. Some brands improve the texture by adding enzymes or flavor enhancers.

Potential Allergen Content

Whey protein contains dairy, making it unsuitable for vegans and those with lactose intolerance. Some plant proteins, like soy, can also be allergenic. If you have food sensitivities, check the ingredient label carefully.

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Source and Processing Method

Whey is a byproduct of cheese-making, requiring filtration and processing to create protein powder. Plant proteins are mechanically or chemically extracted from seeds, legumes, or grains to isolate their protein content.

How to Choose Between Whey and Plant-Based Protein

Choosing the right protein supplement depends on several factors, including your dietary preferences, fitness goals, and digestive tolerance. Both whey and plant-based proteins offer unique benefits, so selecting the right one comes down to what works best for your body and lifestyle.

Consider Your Dietary Restrictions

Plant-based protein is the obvious choice if you're vegan, lactose intolerant, or allergic to dairy. Whey comes from milk, so it contains lactose, which can cause digestive issues for some people. On the other hand, plant-based protein is naturally dairy-free and works well for those following a plant-based diet or with food sensitivities.

Evaluate Your Fitness Goals

Your fitness objectives can influence which protein type will benefit you the most. If you're focused on building muscle quickly, whey protein supplements, like OIAM Performance Restore Whey Protein, may be more effective due to its fast absorption and high leucine content, essential for muscle growth. However, plant-based protein can provide steady energy and digestive support with added fiber and micronutrients if you're looking for overall wellness, weight management, or a gentler protein source.

Check Your Digestion Tolerance

Whey protein is quickly digested, but it can cause bloating, gas, or stomach discomfort for those with lactose sensitivity. Plant proteins are digested more slowly, but some people find pea and rice proteins easier to digest on the stomach. If you struggle with digestion, you may want to test both options and see which one feels better for you.

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Compare Your Budget

Whey protein is widely available and often more affordable than high-quality plant-based alternatives. However, some premium whey products, such as grass-fed whey isolates, can be expensive. Plant-based proteins, especially blends with multiple protein sources, can sometimes cost more due to processing and sourcing.

Post-Workout Recovery

Whey protein is ideal immediately after exercise since it digests quickly and helps repair muscles quickly. Plant-based protein takes longer to absorb but still provides essential amino acids, making it a good option for post-workout recovery—especially when combined with a carbohydrate source for muscle glycogen replenishment. Some brands, like OIAM Performance, offer a wide range of products ideal for quick post-workout recovery and faster muscle building.

Daily Protein Intake

To maintain muscle and overall health, you can spread your protein intake throughout the day. Many people take protein supplements in the morning, as a meal replacement, or as a snack between meals to ensure they meet their daily protein needs.

Mixing for Better Absorption

Blending protein with water, milk, or plant-based alternatives can enhance digestion and absorption. Whey mixes well with milk or water, while plant proteins often work best with nut milk or added fruits for better taste and texture.

Dividing Portions for Sustained Energy

Instead of consuming one large dose of protein at once, dividing it into smaller portions throughout the day can improve absorption, prevent bloating, and support muscle recovery more effectively.

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Bottom Line

The choice between whey and plant-based protein depends on your individual needs, dietary preferences, and health goals. Whey protein is fast-absorbing, rich in leucine, and great for muscle growth, while plant-based protein is allergen-friendly, sustainable, and contains added fiber and antioxidants. When incorporated into a balanced diet, both types can support muscle recovery, weight management, and overall wellness. Whether you choose whey or plant protein, focus on quality, proper dosing, and consistency to see the best results.

Why Choose Plant-Based Protein Supplements?

Plant-based protein supplements are derived from natural sources like peas, hemp, brown rice, chia seeds, and soy. They are a healthier alternative to animal-based proteins as they are often low in cholesterol and free from common allergens like lactose.

Benefits of Plant-Based Protein Supplements

Nutrient-Rich: Packed with vitamins, minerals, and fiber.

Digestive-Friendly: Easier on the stomach compared to some dairy-based proteins.

Environmentally Friendly: Lower carbon footprint compared to animal farming.

Suitable for Various Diets: Perfect for vegans, vegetarians, and those with food allergies.

Types of Plant-Based Protein Supplements

Understanding the different types of plant-based proteins can help you pick the right one. Here's a breakdown of the most common options:

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1. Pea Protein

Source: Extracted from yellow split peas.

Benefits: High in essential amino acids, particularly BCAAs which support muscle growth.

Ideal For: Post-workout shakes and smoothies.

2. Brown Rice Protein

Source: Made from sprouted brown rice.

Benefits: Easy to digest, hypoallergenic, and contains all essential amino acids.

Ideal For: Sensitive stomachs or those with allergies.

3. Hemp Protein

Source: Derived from hemp seeds.

Benefits: Rich in omega-3 fatty acids and fiber; supports heart health.

Ideal For: Blending into shakes, baking, or adding to oatmeal.

4. Soy Protein

Source: Made from defatted soy flour.

Benefits: Complete protein with all essential amino acids; great for muscle recovery.

Ideal For: Vegans seeking a protein boost with similar benefits to whey.

5. Pumpkin Seed Protein

Source: Made from ground pumpkin seeds.

Benefits: High in magnesium, zinc, and antioxidants.

Ideal For: Adding to smoothies, snacks, or protein bars.

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How to Choose the Right Plant-Based Protein Supplement

1. Check the Protein Content

Look for supplements that provide at least 15-25 grams of protein per serving. This range supports muscle recovery and growth effectively.

2. Read the Ingredient List

Opt for supplements with minimal ingredients and no artificial sweeteners, colors, or preservatives. Whole food ingredients are a sign of a quality product.

3. Consider the Amino Acid Profile

Not all plant-based proteins are complete proteins. Combining different types, such as pea and brown rice, can provide a complete amino acid profile.

4. Taste and Texture

The flavor and texture of plant-based proteins can vary. Some may be gritty or have a strong taste. Sample different brands if possible to find one that suits your taste.

5. Allergen Information

Always check for allergens, especially if you have sensitivities to soy, gluten, or nuts. Many brands offer allergen-friendly options.

6. Certification and Quality

Look for third-party testing certifications to ensure purity and safety. Certifications like USDA Organic, Non-GMO Project Verified, and Informed Choice can indicate high quality.

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How to Use Plant-Based Protein Supplements

Incorporating plant-based protein into your diet is easy and versatile. Here are some ideas:

Smoothies: Blend with fruits, vegetables, and almond milk for a nutritious shake.

Baking: Add to pancake batter, muffins, or protein bars for a protein boost.

Mix with Water or Milk Alternatives: A quick shake before or after workouts.

Add to Oatmeal or Cereal: Boosts the protein content of your breakfast.

Top Tips for Maximizing Benefits

Stay Consistent: Regular use is key to seeing the benefits of protein supplementation.

Pair with a Balanced Diet: Supplements work best when combined with a healthy diet rich in whole foods.

Hydrate Well: Drinking enough water helps your body process and absorb the protein effectively.

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4B - Super Grains: Quinoa and Amaranth

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<https://www.theleangreenbean.com/super-seeds-guide/>

4C - Protein-Packed Seeds: Chia, Flax, Hemp, Sunflower, and Pumpkin

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5: NUTS AND DRY FRUITS – PROTEIN NUTRITION

5A - Importance of Nuts and Dry Fruits Proteins

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5B - Nuts: Almonds, Walnuts, Cashews, Pistachios, Peanuts, Hazelnuts

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6A - Mushrooms Protein

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6B - Cruciferous Vegetables (Goitrogens): Broccoli, Kale, Brussels Sprouts

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6C - Leafy Greens: Spinach and Asparagus

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<https://www.sciencedirect.com/topics/food-science/sauerkraut>

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7: ZERO-FAT PLANT PROTEIN FOODS

7A - Importance of Zero-Fat Vegetarian Protein

<https://www.healthline.com/nutrition/protein-for-vegans-vegetarians>

<https://www.geneticnutrition.in/blogs/genetic-life/high-protein-low-calorie-vegan-foods-a-guide-to-healthy-eating?srsId=AfmBOorMmetCYnP1AOsPXZ-tbRJ7DWLQKSQQ1-CxocpIiCfzax98pvBn>

7B - Best Zero-Fat Protein Sources

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7C - Tips to Incorporate Zero-Fat Proteins

<https://www.cnet.com/health/nutrition/protein-rich-foods-for-vegans/>

7D - Health Benefits of Zero Fat Plant Protein Foods

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8: SPROUTED FOODS – UNLOCKING MAXIMUM NUTRITION

8A - Benefits of Sprouted Foods

<https://naturalremedyideas.com/benefits-of-eating-sprouts/>

(Take benefits only)

8B - Sprouting Procedure & Techniques

<https://www.naturejims.com/basic-guide-for-sprouting-seeds/>

8C - Comparing Sprouted vs. Non-Sprouted Foods

<https://jenniferhuntnutrition.com/whole-grains-vs-sprouted-grains-what-you-should-know-buy-and-eat/>

8D - Easy Ways to Incorporate Sprouts into Your Diet

<https://www.powerofpositivity.com/easy-ways-to-add-sprouts-to-your-meals/>

9: WATER-SOAKED FOODS – A NATURAL PROTEIN ENHANCER

9A - Importance of Water-Soaked Foods for Vegetarians

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9B - Benefits of Water Soaking (Improved Digestion, Nutrient Absorption)

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9D - Examples of Water-Soaked Protein Sources (Cereals, Peanuts, Chickpeas, Soybeans, Dry Fruits)

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9E - Tips for Preparing and Storing Water-Soaked Foods

<https://thekitchenknowhow.com/how-to-store-soaked-beans/>

10: PLANT PROTEINS FOR MUSCLE BUILDING

10A - Ideal Protein Combinations (Rice and Lentils, Bajra and Chickpeas)

<https://toneopfit.com/blogs/high-protein-vegetarian-foods-for-muscle-building>

Which Vegetarian Food Is Best For Muscle Gain? 7 High-Protein Vegetarian Foods For Muscle Building

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10C - Benefits of Plant-Based Proteins for Muscle Growth

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10D - Top Plant-Based Protein Sources for Building Muscle

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11: POST-WORKOUT PLANT PROTEIN SOURCES

11A - Tofu Scramble

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11B - Plant-Based Protein Shakes

<https://www.healthshots.com/healthy-eating/nutrition/what-are-plant-based-protein-powders-and-what-are-their-benefits/>

11C - Peanut Butter with Whole Grain Bread

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11D - Quinoa Salad with Beans

<https://randallbeans.com/2016/10/06/quinoa-and-beans-the-superfood-power-couple/>

11E - Milk and Milk Products: Post-Workout Importance

<https://dairynutrition.ca/en/nutrition-and-health/fitness-and-exercise/sports-recovery-why-milk-ideal->

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12A - For Diabetes: Low-Glycemic Options (Chickpeas, Lentils, Quinoa)

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12B - For Heart Health: Nuts, Flax Seeds, and Oats

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13A - Dairy as a Protein Source

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<https://www.americandairy.com/dairy-diary/dairy-protein-everything-you-need-to-know/>

13B - Plant-Based Milk Alternatives

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13C - Benefits and Drawbacks of Milk and Milk Products

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14: PROTEIN SUPPLEMENTS FOR VEGETARIANS

14A - Plant-Based Protein Powders

<https://www.garagegymreviews.com/plant-based-protein-powder-benefits>

14B - Choosing the Right Supplements for Your Needs

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Benefits of Reading This Book:

Discover the power of plant-based proteins and transform your health with Green Protein Foods.

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