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a barton publication

The Function, Source, & Power of B-Vitamins Unlocked

Recognizing 10 Early Warning Signs of Low Blood Sugar

5 Fiber-Packed Recipes for a Healthier You

Quercetin: Its Importance, Sources, and Potential Benefits

Home Cures That Work

The B vitamins are a group of eight individual vitamins, often referred to as the B-complex vitamins. In this article, we will look at how the B vitamins work so you can begin to understand why Kellogg's and your mother made sure you included these essential vitamins in your diet.

Whether working alone or in synergy, B vitamins help our bodies function better. These busy Bs pack a punch, keeping skin and brains healthy, converting food into energy, and more. As easy as 1, 2, 3…

Aside from B12, your body cannot store these vitamins for long periods, so you must replenish them regularly through food.

You've also probably heard: most of us need to eat more fiber. Where is fiber found? In vegetables, legumes, fruit, and grains. Sit tight, we're going to wow you with everything you need to pump up your diet with fiber and why it is so important…especially for women!

At some time, most people with high blood sugar experience the sweating and shakiness that occurs when blood glucose levels fall. However, not all are aware of the other symptoms of low blood sugar that should be taken seriously. People with high blood sugar and their families, friends or coworkers should be prepared to act quickly and responsibly at the earliest signs of low blood sugar. Please read our article and consider sharing this post with your loved ones if you feel that it helps explain how you feel when your blood sugar is low.

And if better longevity, heart health, immunity and endurance is what you seek, consider adding quercetin to your diet! Quercetin is considered the most diffused and known nature-derived flavonol there is, showing strong effects on immunity and inflammation. Quercetin supplements and foods might help reduce inflammation, fight allergies, support heart health, combat pain, potentially improve endurance and fight cancer! Get some soon!

We are ready to show you how to make Home Cures That Work this month!

For your health,

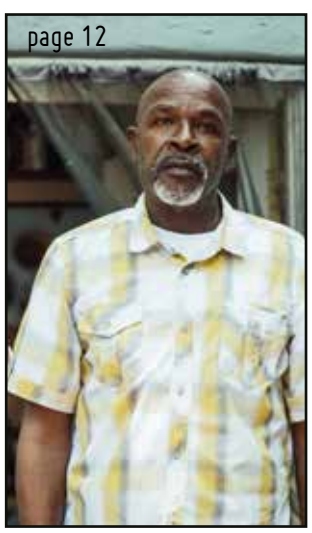
Cheryl Ravey,
Editor, Home Cures That Work

AUTHORS

DR. SCOTT SAUNDERS, M.D.

Dr. Scott D. Saunders, M.D. is a practicing physician, specializing in preventative health care, who utilizes eclectic health care for the whole family, including conventional, orthomolecular and natural medicine. He is also the medical director of The Integrative Medical Center of Santa Barbara in Lompoc, CA. He went to UCLA medical school and is board certified in family medicine. View natural remedies with Dr. Saunders at: http://drsaundersmd.com

contents



THE FUNCTION, SOURCE, AND POWER OF B-VITAMINS UNLOCKED

by Dr. Scott Saunders, M.D.

A substance required by the body to function, but not made by the body, is by definition a vitamin.

B-vitamins are a very important group of substances that needed for various functions, including:

- Making DNA and proteins
- Detoxifying
- Breaking down amino acids
- Converting one molecule to another
- And making energy

They do this by providing an essential ingredient in the function of enzymes. Enzymes change molecules, but they often need something to make that change. The B-vitamins are an unrelated group of eight water-soluble vitamins that each provide a different essential ingredient for enzymes to function.[1] They are lumped together for several reasons:

1. Water Solubility: All B-vitamins are water-soluble.
2. Coenzyme Function: B-vitamins serve cofactors, which means they are essential for the proper functioning of enzymes.
3. Interconnected Functions: B-vitamins often work in concert with each other in metabolic pathways. For example, vitamin B6 is essential for the conversion of tryptophan (an amino acid) to niacin (vitamin B3). Similarly, DNA synthesis and red blood cell formation involve folate (vitamin B9) and vitamin B12; and they complement each other's functions.
4. Deficiency Symptoms: Deficiency in any of the B-vitamins can lead to a range of similar symptoms, including fatigue, weakness, anemia, skin problems, and neurological issues. Since vitamins were discovered before it was known how they functioned, it made sense to put them together based on symptoms of deficiency.

While they are grouped together for convenience, each B-vitamin is unique and serves essential functions in the body. There are eight B-vitamins:

- Vitamin B1 (Thiamine)
- Vitamin B2 (Riboflavin)
- Vitamin B3 (Niacin)
- Vitamin B5 (Pantothenic Acid)
- Vitamin B6 (Pyridoxine)
- Vitamin B7 (Biotin)
- Vitamin B9 (Folic Acid)
- Vitamin B12 (Cobalamin)

Your next question is, "What happened to vitamin B4, B8, B10, and B11?"[2] These were once thought to be vitamins, but because the body makes these, or they aren't essential in the diet, they are not true vitamins.

- Vitamin B4 -- adenine, which is one of the four building blocks of DNA and RNA.
- Vitamin B8 -- inositol, a vital component of cell membranes, and other functions.
- Vitamin B10 -- para-aminobenzoic acid (PABA).
- Vitamin B11 -- pteryl-hepta-glutamic acid, or salicylic acid.

B-vitamins mostly do not become toxic, even in high doses, because they are water soluble, and the kidney will excrete what is not used. However, the liver can store them for later use so it's hard to get deficiency. More on this when we discuss dosing. They come from different sources in the diet. For example, Vitamin B9 (Folic acid) comes from green vegetables, while vitamin B12 is only made by bacteria in the bowels. There are no plant sources of vitamin B12.

Each of these vitamins affects your life in different ways.

VITAMIN B1

Thiamine is essential for converting carbohydrates into energy and maintaining proper nerve function by aiding in the synthesis of neurotransmitters, especially acetylcholine, which is necessary for memory. It also plays a role in muscle contraction, amino acids, and energy metabolism, and contributes to the formation of nucleic acids, which are the building blocks of DNA.

Since it is essential for energy production in the heart, people who take medications such as furosemide (Lasix) lose thiamine in the urine leading to worsening heart failure. Alcohol can also inhibit the absorption of thiamine, leading to neuropathy associated with alcohol abuse.

You may need more vitamin B1 if you have:

- Diabetes
- Congestive heart failure
- Alzheimer's disease
- Parkinson's disease

- Huntington’s disease
- Cataracts

Thiamine is typically found in a variety of foods, including whole grains, legumes, nuts, pork, and vegetables. The normal amount consumed in food is about 2mg per day. Those who have deficiencies with neuropathy, such as diabetics may use 200mg to 400mg per day.

A synthetic form of thiamine, benfotiamine, is fat soluble so its absorption is better. It is also able to cross the blood-brain barrier, and therefore may be a better choice for neuropathy. It is dosed between 150 and 300mg per day.

Vitamin B2

Energy production, the breakdown of fats and toxins (drugs), and the maintenance of healthy skin and eyes involves riboflavin. Riboflavin is also important for the conversion of tryptophan to niacin (vitamin B3).

ENERGY METABOLISM

Riboflavin is a crucial component of two coenzymes, flavin mononucleotide (FMN) and flavin dinucleotide (FAD) which convert carbohydrates, fats, and proteins from the food we eat into adenosine triphosphate (ATP), the body’s primary energy source.

ANTIOXIDANT DEFENSE

Vitamin B2 plays a role in the body’s antioxidant defense system. FMN and FAD help regenerate the antioxidant glutathione, which protects cells from oxidative stress and damage caused by free radicals.

EYE HEALTH

Riboflavin contributes to the health of the eyes. It is involved in the conversion of vitamin B6 (pyridoxine) into its active form, P5P, which is necessary for the synthesis of a pigment called rhodopsin in the retina. Rhodopsin is essential for vision, especially in low-light conditions.

Low-level riboflavin deficiency is relatively rare since it is found in many foods, including dairy products, meats, eggs, and green leafy vegetables. However, deficiencies can occur in individuals with limited dietary variety or certain medical conditions. Vitamin B2 is destroyed by light.

You may need vitamin B2 if you have:

- Migraine headaches
- Fatigue
- Dry, cracked lips
- Cataracts
- Poor night vision
- Hypertension
- High Homocysteine
- Abnormal MTHFR (folate)

Vitamin B3

Vitamin B3 comes in various forms, including niacin (nicotinic acid), niacinamide, (nicotinamide), and nicotinamide riboside. It is necessary for energy production, cell signaling, and DNA repair. It is also an anti-oxidant and regulates cholesterol levels. Because it affects such basic aspects of life, a deficiency can be devastating.

Niacin, or nicotinic acid, causes flushing in high doses. Niacinamide is also known as nicotinamide does not cause flushing even at very high doses.

The usual amount of vitamin B3 in the diet includes the amino acid tryptophan. Tryptophan is made into niacinamide, as well as serotonin, and melatonin. Thus, a deficiency of niacin may decrease the production of serotonin. It’s easy to see that this vitamin can affect every tissue in the body.

Niacin deficiency can lead to a condition called pellagra, which is characterized by symptoms such as dermatitis (skin inflammation), diarrhea, dementia, and, in severe cases, death.

Most healthy people get between 10mg and 20mg of niacin in their diet. Niacin and derivatives are found in meats, especially poultry and fish, as well dairy products, nuts, seeds, and grains.

You may need vitamin B3 if you have:

- Nervous system issues
- Digestive disorders
- Thickened, pigmented skin
- Fatigue, lack of energy

A supplemental dose of niacin may be around 500mg per day as niacinamide.

Vitamin B5

Every living creature contains pantothenic acid. It is not just important for humans, but for all life. It is necessary for the synthesis of fatty acids, cholesterol,

and neurotransmitters. It also plays a role in the metabolism of carbohydrates, proteins, and fats into energy to run your body. It is also needed to make the hemoglobin that fills your red blood cells to carry oxygen to your cells. Vitamin B5 is important for detoxifying harmful substances in the liver through conjugation. It is also required to produce acetylcholine, a neurotransmitter involved in memory and muscle contractions.

Pantothenic acid deficiency is rare because it is widely available in a variety of foods, including meat, dairy products, eggs, whole grains, legumes, and nuts. The usual intake for most people is between 5mg and 10mg per day.

You may need extra vitamin B5 if you have:

- Fatigue
- Irritability
- Numbness or tingling in the hands and feet
- Gastrointestinal distress
- Premature gray hair
- Vascular disease
- Acne

A supplemental dose of pantothenic acid is around 250 to 500mg per day.

Vitamin B6

Pyridoxine is involved in over 100 enzyme reactions in the body, including the conversion of one amino acid into another, the synthesis of non-essential amino acids, and the breakdown of excess amino acids, and the synthesis of neurotransmitters including serotonin, dopamine, norepinephrine, and gamma-aminobutyric acid (GABA). B6 is also necessary to produce hemoglobin, the protein in red blood cells responsible for carrying oxygen throughout the body.

IMMUNE FUNCTION

Vitamin B6 is involved in the production and activation of immune cells, particularly lymphocytes and T-cells, which play a crucial role in the body's defense against infections.

METABOLISM OF FATS AND CARBOHYDRATES

B6 is needed for the metabolism of carbohydrates and fats, helping to convert these macronutrients into ATP for energy.

HORMONE REGULATION

Pyridoxine plays a role in hormone regulation, particularly in the synthesis and metabolism of steroid hormones like estrogen and testosterone.

COLLAGEN

Vitamin B6 contributes to healthy skin and connective tissue by playing a role in the synthesis of collagen, a structural protein that gives strength to your bones, skin, tendons, and ligaments.

HOMOCYSTEINE

B6 helps prevent the buildup of homocysteine, which, when elevated, is an increased risk of cardiovascular disease. A higher vitamin B6 intake is associated with one third lower risk of cardiovascular disease.[3]

A deficiency in vitamin B6 is relatively rare. The need is generally about 2mg per day. But if there is any stress, kidney problems, autoimmune diseases, increased alcohol intake, or taking certain medications, such as isoniazid, cyclosporine, valproic acid, phenytoin, carbamazepine, primidone, hydralazine, or birth control pills, the need could easily double.

You might need vitamin B6 if you have:

- Fatigue
- Depression
- Confusion
- Frequent infections
- Cardiovascular disease
- Morning sickness
- Low protein
- Connective tissue disorders
- Anemia
- High homocysteine
- Or if you are taking any of the medications listed above.

OVERDOSE

Vitamin B6 is one of the few B-vitamins that can become toxic. People who take too much (over 500mg per day for months) can get neuropathy and hormone imbalances. The mistake people make is that since deficiency could cause the same symptoms, they may take more, and get worse. The symptoms go away when the vitamin is stopped.

Vitamin B6 is found in a variety of foods, including poultry, fish, meat, whole grains, nuts, seeds, beans, and bananas. Most people can obtain sufficient B6 from a well-balanced diet. However, certain

groups, such as pregnant women and individuals with certain medical conditions, especially on medications, may require additional B6 intake.

ORAL CONTRACEPTIVE USE

Women taking oral contraceptives may need extra vitamin B6, as it is essential for hormone balance. The dose is about 100mg per day.

The usual dose of a supplement is around 50mg daily. Because of genetic enzyme abnormalities, some will need a special, or active form called pyridoxal-5-phosphate, or P5P.

Vitamin B7

Biotin is often referred to as the “beauty vitamin” because of its potential benefits for healthy hair, skin, and nails. But it is important in a lot of other reactions as well.

METABOLISM OF AMINO ACIDS.

Skin, hair, and nails are made of a protein called collagen. Biotin is essential for the proper production of collagen.

HEALTHY SKIN

Biotin also promotes cell growth and repair. It is often used in skincare products to help alleviate conditions like acne and dry skin. However, the topical application does not replace internal deficiency.

HEALTHY HAIR

Biotin is sometimes recommended for individuals looking to promote hair growth and maintain healthy hair. While biotin deficiency can lead to hair loss, excessive biotin does not cause more hair growth. Enough is just enough. More is not better.

STRONG NAILS

Biotin promotes keratin production, which is the protein that makes up the hair and nails. A lack of biotin forms weak nails.

METABOLISM OF CARBOHYDRATES

Biotin may help regulate blood sugar levels, making it potentially beneficial for individuals with diabetes or prediabetes.

METABOLISM OF FATS

Biotin is a cofactor for enzymes involved in the metabolism of fats, to convert it into ATP, the energy currency of the cell.

FETAL DEVELOPMENT

Because it is so important in the production of proteins, biotin is crucial for normal fetal development, including the formation of the baby’s organs and limbs. Pregnant women require higher biotin intake to support these processes.

HEALTHY NERVOUS SYSTEM

Biotin is involved in maintaining a healthy nervous system. It plays a role in nerve signaling and neurotransmitter function.

Biotin deficiency is relatively rare and typically occurs in individuals with certain medical conditions or those who consume excessive amounts of raw egg whites, as they contain a protein called avidin that can bind to biotin and reduce its absorption. Ironically, egg yolks are a good source of biotin – just cook the whites to denature the avidin. It seems the ideal way to eat an egg is with the white cooked and the yolk raw.

You may need more biotin if you have:

- Hair loss, or thin hair
- Skin rashes
- Dry skin
- Weak nails
- Fatigue
- Neurological issues

Biotin is naturally found in various foods, including egg yolks, liver, nuts, seeds, and many vegetables. The daily amount needed is less than 1,000 micrograms (1mg) and most supplements are about 5mg.

Vitamin B9

Vitamin B-9 is otherwise known as folic acid, folate, methylfolate, folinic acid, or 5- The body cannot use folic acid, even though it comes from plants. It must be converted to the active form, MTHF, by an enzyme known as MTHFR (5,10-methylenetetrahydrofolate reductase). Without this enzyme, you can take all the folic acid you want, but it won’t work. This is why it is good to know if you have a genetic variation in the MTHFR gene. Those who do can supplement their diet with MTHF and have a normal function of vitamin B9. This nutrient is essential for many functions in the body:

DNA SYNTHESIS AND REPAIR

Folate is critical for the synthesis and repair of DNA, the genetic material in our cells. It plays a fundamental role in cell division and growth. Adequate folate levels are particularly crucial during periods of rapid cell division, such as pregnancy and childhood. The chemotherapy drug, methotrexate, blocks folate

so the cancer cells stop dividing, so the antidote to poisoning by methotrexate is MTHF.

RED BLOOD CELL FORMATION

Folate is necessary to produce red blood cells, which transport oxygen throughout the body. A deficiency in folate can lead to a type of anemia called megaloblastic anemia, characterized by enlarged and underdeveloped red blood cells.[4]

PREVENTION OF NEURAL TUBE DEFECTS

Folate is essential during early pregnancy to prevent neural tube defects in the developing fetus. Lack of folate slows the development of the brain and spinal cord because DNA requires folate for cell division. During this phase of development as the neural tube is being made into a spinal cord, the cells are dividing so rapidly, they need much more folic acid to make the necessary amount of DNA. A pregnant woman needs two to ten times the amount of folic acid as a woman who is not pregnant, so it is helpful to use a supplement during these times.[5]

AMINO ACID METABOLISM

The metabolism of certain amino acids, including homocysteine, involves folate. Methylfolate is needed to convert homocysteine to methionine.[6] If there isn't enough MTHF, homocysteine builds up, leading to heart disease.

METHYLATION REACTIONS

Folate is a cofactor in various methylation reactions in the body. Methylation is a crucial biochemical process that regulates gene expression (turning genes on or off), detoxifies harmful substances, and helps repair DNA.

IMMUNE FUNCTION

Folate plays a role in immune function allowing rapid reproduction of immune cells.

SYNTHESIS OF NEUROTRANSMITTERS

Folate is involved in the synthesis of neurotransmitters like serotonin, dopamine, and norepinephrine, which are important for mood regulation and overall neurological function. There is a prescription drug, Deplin, that is just MTHF in high doses, which is FDA approved for depression.

The word "folate" comes from "foliage" because it is found in leaves. Common dietary sources of folate include leafy green vegetables (such as spinach and kale), broccoli, legumes (like lentils and chickpeas), whole grains, citrus fruits, and liver.

To ensure adequate folate intake, it is sometimes recommended that certain populations, such as pregnant women and individuals with specific medical conditions, take folic acid supplements. The amount is about 1,000 micrograms (1mg) per day. Taking extra folate can mask a vitamin B12 deficiency so it is a good idea to take a vitamin B12 supplement as well.

Those who have MTHFR deficiency may need to take 5 to 15mg of methylfolate daily.

Vitamin B-12

Cobalamin is the most complex of all the vitamins. Plants or animals cannot make this huge molecule. Only some archaea and bacteria can make it. Primarily, it comes from the bacteria in intestines of ruminant animals like sheep, goats, and cattle. So, meat and milk from these animals contain cobalamin. Fish is also a good source of vitamin B12.

The digestion and absorption of vitamin B12 is complex. In the stomach, acid and enzymes break down the proteins that bind B12 to release it. Then, a protein made in the stomach called intrinsic factor must bind to it to protect it from digestion. Then the B12 bound to intrinsic factor must go all the way to the end of the small intestine where it can be actively brought into the blood stream. If any of these factors are not in place, there is little absorption of cobalamin, so deficiencies are more common than with other B-vitamins.[7] Those who have had stomach or intestinal surgery probably don't absorb much of it. There is very little passive absorption of this huge molecule, so people who don't absorb it need very large oral doses, or shots.[8] Since a small percentage absorbed through the intestines is passive, mega doses, one to five milligrams of vitamin B12 can fill the need.

Since plants don't make vitamin B12 it is common for people who eat vegan diets to be deficient in vitamin B12. It used to be that crops fertilized with the dung of ruminant animals added vitamin B12 to the plants. However, now that chemical fertilizers are used instead, people who avoid animal products need to supplement.

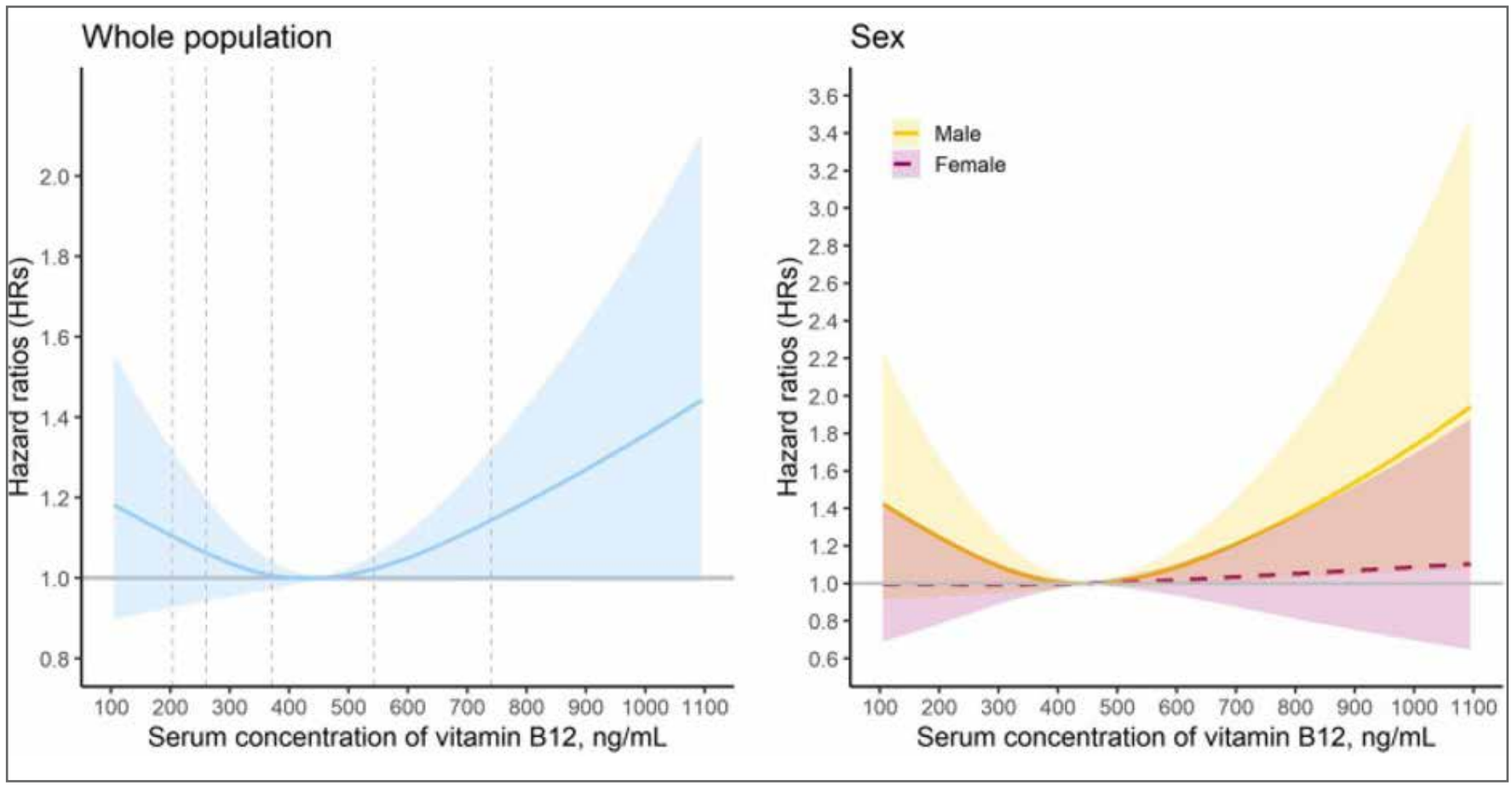
The liver can store up to five years' worth of vitamin B12.[9] Recycled through the bile, excreted into the intestines, the end of the small intestine reabsorbs it.

ENERGY

Vitamin B-12 is essential for energy production in the mitochondria.

RED BLOOD CELLS

Vitamin B12 is necessary for cell division,



and since the bone marrow needs to make 2.4 million red blood cells every second,[10] vitamin B12 prevents anemia.[11]

NERVES

Vitamin B-12 is important for the synthesis of myelin, the insulation of nerve fibers. Without cobalamin the wires that connect nerve cells get crossed – like having a short in the wiring of your computer. Even if the cells are fine, they can't talk to each other.

METHYLATION

Cobalamin works together with MTHF for methylation. Cobalamin helps make the methylfolate into MTHF to activate it.

SKIN, HAIR, AND NAILS

Those cells that are constantly growing, such as hair, skin, and nails, need a constant supply of vitamin B12.

Foods containing vitamin B12 include meat, clams, liver, fish, poultry, eggs, and dairy products.[12] While a well-balanced diet can provide sufficient B-12 for most people, certain individuals may benefit significantly from vitamin B-12 supplementation. These include anyone using antacids or acid blockers, such as omeprazole, or have had surgery of the stomach or the end of the small intestine.

Transdermal creams or patches probably offer little benefit. Sublingual vitamin B12 is mostly absorbed in the intestines. The two ways to get extra vitamin B12 is by high doses, 1-5mg, or injections. Those who cannot absorb vitamin B12 due to inflammatory bowel diseases or stomach problems, should get injections of about 1mg per month.

SUPPLEMENTING B-VITAMINS

Most of the B-vitamins do not require supplementation and ideally should come from food. There is no benefit to taking large doses of B-vitamins every day. Most of them are not toxic in large amounts, but they are associated with a shorter lifespan, except for two. Those who have higher levels of vitamin B1 and B6 are associated with a longer life.[13] But remember, association is not causation. One good example is the association of vitamin B12 and mortality. One study in older adults shows a possible increased risk of death with higher levels of cobalamin in the blood.[14]

Looking at the blue graph of everyone, the light blue, blue shaded area is the 95% confidence interval, meaning this is where 95% of the people fall. The very wide areas indicate that there is little direct correlation, nevertheless, there is a trend toward a higher death rate, and not lower. The other thing to consider is that there is an optimal level, and more is not better. The optimum is to have a blood level of between 400 to 500. The point is, that for almost every nutrient, you can get too much.

Now, considering that, what is the best way to supplement B-vitamins? For most

people, a weekly dose of a supplement will keep the levels adequate and prevent excess.

B VITAMIN RECOMMENDATIONS

- Ideally, get your B-vitamins from food by eating whole foods, fresh fruit, vegetables, green leaves, beans, peas, lentils, whole grains, and avoid processed foods.

- Everyone should take extra vitamin B3, Niacin, in the form of Niacinamide, 1,000mg once per week.

- Everyone should take a B-complex, B-100, once per week. If you exercise a lot, you should take it twice per week.[15]

- If you are vegan or vegetarian, take vitamin B12 1,000mcg (1mg) once per week.

- If you have MTHFR deficiency take methylfolate (5-methylfolate, folinic acid, or MTHF) about 10mg per day.

- Other genetic issues: some people have enzyme weaknesses and find they need daily B-vitamins. Those who have enzyme abnormalities may need extra B-vitamins that are cofactors for those enzymes. How do you know? Trial-and-error, or testing. Some will try various B-vitamins to see how it affects their function. You can also do metabolic testing.

▶

Sources: [1] Most of this B-vitamin information is found in detail on the website of the Linus Pauling Institute: https://lpi.oregonstate.edu/mic/vitamins/ [2] https://www.wonderlabs.com/blog/whatever-happened-to-vitamins-b4-b8-b10-and-b11 [3] https://lpi.oregonstate.edu/mic/vitamins/vitamin-B6 [4] https://pubmed.ncbi.nlm.nih.gov/15189115/ [5] https://pubmed.ncbi.nlm.nih.gov/31634773/ [6] https://www.researchgate.net/figure/Homocysteine-folate-and-vitamin-B-12-metabolism_fig1_290816945 [7] https://web.archive.org/web/20211008103749/https://ods.od.nih.gov/factsheets/VitaminB12-HealthProfessional/ [8] https://www.drweil.com/vitamins-supplements-herbs/supplements-remedies/can-vitamin-patches-benefit-health/ [9] https://en.wikipedia.org/wiki/Vitamin_B12#cite_note-Ods-2 [10] https://en.wikipedia.org/wiki/Red_blood_cell [11] https://pubmed.ncbi.nlm.nih.gov/15189115/ [12] https://ods.od.nih.gov/factsheets/VitaminB12-HealthProfessional/ [13] Clin Nutr. 2012 Apr;31(2):191-8. doi: 10.1016/j.clnu.2011.10.010. Epub 2011 Nov 8. Prediction of all-cause mortality by B group vitamin status in the elderly. Yi-Chen Huang 1, Meei-Shyuan Lee, Mark L Wahlqvist [14] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8447618/ [15] https://pubmed.ncbi.nlm.nih.gov/10919966/

Recognizing 10 Early Warning Signs of Low Blood Sugar

HYPOGLYCEMIA, OR LOW blood sugar, is a condition that can lead to both immediate and long-term complications. Familiarize yourself with the signs of low blood sugar to take prompt action when you notice them.

For individuals managing low blood sugar, maintaining healthy blood sugar levels is of utmost importance. While much attention is rightfully given to managing high blood sugar, known as hyperglycemia, it is equally crucial to be vigilant about low blood sugar, or hypoglycemia. Erin Palinski-Wade, a Registered Dietitian and Certified Diabetes Care and Education Specialist in Sparta, New Jersey, defines hypoglycemia as a state where blood glucose (sugar in the blood) drops to a level insufficient to support normal bodily functions. In most cases, this threshold is defined as a blood sugar level at or below 70 milligrams per deciliter (mg/dL).

According to research findings, individuals with type 2, particularly those using insulin, are at higher risk of experiencing low blood sugar. On average, they encounter approximately 19 mild to moderate episodes of hypoglycemia annually, with nearly one severe episode per year. This underlines the significance of understanding and managing low blood sugar. Low blood sugar can lead to immediate complications such as confusion, dizziness, and, in severe cases, seizures, coma, or even death, as noted by the American Diabetes Association(ADA).

Hypoglycemia typically results from factors like an excessive insulin dose or changes in diet and exercise routines, according to Harvard Health Publishing. To prevent hypoglycemia and its potential hazards, it is essential to monitor blood sugar levels regularly and respond promptly when low blood sugar is detected, as recommended by the Mayo Clinic.

Here are ten common symptoms that may indicate a drop in blood sugar levels:

1. INTENSE HUNGER

Sudden, unexplained hunger can be a sign of a blood sugar drop. Managing your carbohydrate intake and understanding various types of food sources

can help stabilize blood sugar levels.

2. FEELINGS OF ANXIETY

Low glucose levels trigger the release of hormones like epinephrine and cortisol, prompting the liver to release more sugar into the bloodstream. This can lead to anxiety, accompanied by symptoms like shakiness, sweating, and rapid heartbeats.

3. SLEEP DISTURBANCES

Nocturnal hypoglycemia, responsible for around half of all low blood sugar incidents, can disrupt sleep patterns. Symptoms include night sweats, nightmares, sudden awakenings with cries, and feelings of unease upon waking. A bedtime snack can help mitigate these disturbances.

4. TREMORS AND SHAKES

Shakiness often occurs when the autonomic nervous system becomes activated during hypoglycemia.

5. EMOTIONAL SWINGS

Mood swings and unusual emotional outbursts, like irritability, stubbornness, or feelings of depression, can be neurological symptoms of hypoglycemia.

6. EXCESSIVE SWEATING

Sweating is frequently one of the earliest signs of low blood sugar and is associated with an increase in adrenaline as glucose levels decline.

7. LIGHTHEADEDNESS

As the brain attempts to conserve energy during low blood sugar, lightheadedness may occur due to reduced blood flow to the brain. If experienced, treat hypoglycemia with fast-acting carbohydrates and consider lying down. If lightheadedness persists for more than 15 minutes, seek medical attention.

8. DIFFICULTY CONCENTRATING

The brain relies on glucose for energy, so a drop in blood sugar can impair cognitive function, making it challenging to concentrate.

9. VISION ISSUES

Sudden vision problems may indicate low blood sugar levels. Blurred vision, dimness in vision, and black spots were reported as common eye-related symptoms in people with low blood sugar.

10. SLURRED SPEECH AND CLUMSINESS

Severely low blood sugar levels, below 40 mg/dL, can result in slurred speech and clumsiness, resembling the effects of alcohol consumption.

Recognizing these warning signs of low blood sugar is crucial for individuals to respond promptly and effectively, minimizing potential complications. Always consult with a healthcare professional for personalized guidance on managing your blood sugar levels and avoiding hypoglycemia.

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5 FIBER-PACKED RECIPES FOR A HEALTHIER YOU

FIBER ISN'T JUST a digestive helper; it's a nutritional powerhouse with benefits ranging from weight management to hormonal regulation. Discover over a dozen delectable ways to boost your fiber intake and enhance your overall well-being.

In discussions about the American diet, there's often a focus on excess sugar, saturated fats, and ultra-processed foods. However, one vital nutrient that frequently goes unnoticed is fiber. The U.S. Department of Agriculture (USDA) has raised concerns about consistently low fiber intake, particularly among non-Hispanic Black Americans. On average, Americans only consume slightly over 16 grams (g) of fiber daily, which is just over half (58 percent) of the recommended 28 g. This deficit in fiber intake is especially worrisome given the extensive research highlighting its pivotal role in various aspects of health and the prevention of chronic diseases. While fiber was once primarily associated with promoting healthy digestion, recent studies have revealed its potential contributions to weight management, blood sugar regulation, cholesterol control, heart health, and a reduced risk of specific cancers.

Fiber also appears to influence hormone regulation, particularly estrogen levels, making it indispensable for women's

health. Fiber binds to excess estrogen, aiding its elimination from the body and supporting the balanced regulation of female hormones, as described in an article in the American Journal of Clinical Nutrition. But how does fiber achieve these remarkable effects?

Essentially, it's the component of plant-based foods that the body cannot fully digest, as explained by the National Academy of Medicine. However, because it occupies space in the digestive tract, fiber promotes satiety without contributing calories.

Moreover, it serves as a natural gastrointestinal cleanser by absorbing undesirable substances like harmful bacteria, excess cholesterol, and surplus hormones, subsequently flushing them out of the system. There are two primary types of fiber: soluble and insoluble fiber. Soluble fiber, found in foods like oats, lentils, nuts, apples, and blueberries, dissolves in water, forming a gel-like substance upon consumption. On the other hand, insoluble fiber, present in leafy greens, brown rice, walnuts, and other foods, passes through the body largely intact, according to the Centers for Disease Control and Prevention (CDC).

Both varieties are essential. Soluble fiber contributes to lowering blood sugar and cholesterol levels, while insoluble fiber prevents constipation and promotes regular bowel movements, as stated by the Harvard T.H. Chan School of Public Health.

Thankfully, you can incorporate fiber into your diet through a variety of delicious foods, primarily whole grains, fresh produce, and nuts. For example, adding a cup of raspberries to your morning cereal or yogurt boosts your fiber intake by nearly 10 g while snacking on a handful of almonds provides an additional 3.5 g.

When increasing your fiber intake, it's essential to proceed gradually to avoid potential discomfort, such as bloating or even severe bowel obstruction, as noted in a review published in the journal Nutrients in July 2022. Gradual incorporation, coupled with ample water consumption, allows you to fully harness the benefits of soluble fiber. Now, let's explore these delightful high-fiber recipes to inspire your journey toward a healthier lifestyle.

5 FIBER RECIPES

Veggie and Black Bean Chilaquiles Skillet

Ingredients

- 1 1/2 cup of salsa
- 1 5-oz bag of chickpea tortilla chips
- 1 15.5-oz can low-sodium black beans, rinsed and drained
- 1 large green bell pepper, diced
- 2 ribs celery, sliced
- 2 tbsp fresh cilantro, chopped for garnish

Directions

1. Place a large skillet over medium-high heat, and add salsa and chips. Cook, stirring frequently, until chips have soaked into the salsa, about 5 minutes.

2. Add black beans, bell pepper, and celery. Cook for another 4-5 minutes until veggies are slightly tender. Remove from heat.

3. Garnish with cilantro.

Mediterranean Lentil Tacos With Cucumber-Yogurt Sauce

Ingredients

- 1 cup dry (brown) lentils, rinse and drain
- 12-oz jar of roasted red peppers drained
- 2 lemons, juice, divided
- 3 cloves garlic, minced
- 4 tbsp extra-virgin olive oil, divided
- 1/4 tsp kosher salt divided
- 8 6-inch whole wheat tortillas, warmed
- 1 cup plain, unsweetened non-dairy yogurt, such as cashew or coconut yogurt
- 2 Persian cucumber, unpeeled, shredded
- Parsley topping (optional)

Directions

1. Add lentils and 1 ¾ cups of water to a pressure cooker and cook on high for 9 minutes, until soft. Release steam and drain any remaining liquid.

2. Add red peppers, garlic cloves, juice of 1 lemon, 3 tbsp olive oil, and ⅛ tsp salt to a food processor and blend until smooth, about 1 minute. Add to cooked lentils.

3. In a medium mixing bowl, stir together yogurt, shredded cucumbers, juice of 1 lemon, 1 tbsp olive oil, and ⅛ tsp salt.

4. Divide lentils evenly among 8 tortillas. Serve with yogurt sauce and sprinkle on parsley, if desired.

Chocolate, Peanut Butter, Banana, and Oatmeal Smoothie

Ingredients

- 1 1/2 cups plain, unsweetened soy milk (or milk of your choice)
- 1/4 cup old-fashioned oats.
- 1 tbsp unsweetened cocoa powder
- 1 tbsp natural peanut butter
- 1 tbsp hemp hearts
- 1 small ripe banana (or 1/2 large banana)

Directions

Combine all ingredients in a blender and blend on high until completely smooth, about 1 minute.

Sweet Potato Nachos

Ingredients

- 1 sweet potato
- 2 tsp extra-virgin olive oil
- 1 dash of kosher salt
- 1 dash freshly ground black pepper
- 1 Roma tomato, diced
- 1/2 cup low-sodium black beans, drained and rinse
- 1/2 avocado chopped
- Thinly sliced red onion, to taste
- 1/4 cup queso (from recipe) or cheddar cheese
- 1 jalapeño thinly sliced

Directions

1. Preheat oven to 350 degrees F. Line a large baking sheet with parchment paper.

2. Leaving the skin intact, thinly slice the sweet potato using a mandoline or a very sharp chef's knife. Place sweet potato slices in a mixing bowl and drizzle with olive oil. Gently toss to make sure both sides of each slice are coated in oil.

3. Arrange slices in a single layer on a prepared baking sheet. Season with salt and pepper.

4. Bake until chips are golden brown and crispy, about 20 to 30 minutes. Watch carefully to make sure they don't burn.

5. Cool completely. Top with remaining nacho ingredients just before serving.

Keto Chocolate, Almond, and Coconut Chia Pudding Recipe

Ingredients.

- 1 cup unsweetened almond milk
- 1 tsp unsweetened cocoa powder
- 2 tbsp almond butter
- Liquid Stevia, to taste (optional)
- 2 tbsp chia seeds
- 1 tbsp unsweetened shredded coconut

Directions.

1. In a small bowl, whisk to combine almond milk, cocoa powder, almond butter, and Stevia (if using), or add ingredients to a blender and pulse to combine.

2. Stir in chia seeds, cover, and set in the fridge overnight.

3. Top with coconut and serve..

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Quercetin: Its Importance, Sources, and Potential Benefits

QUERCETIN IS A powerful antioxidant that can be obtained from natural food sources or in supplement form. This versatile compound has gained increasing attention due to its potential health benefits, particularly in combating inflammation and preventing various diseases. In this article, well delve into what quercetin is, explore its potential uses, and discuss the latest research findings.

What Is Quercetin, and Why Is It Important?

Quercetin is a type of flavonoid, a group of plant pigments found abundantly in antioxidant-rich foods like berries, apples, and green tea. As an antioxidant, quercetin plays a vital role in neutralizing harmful free radicals, which can contribute to chronic inflammation in the body. This inflammation, if left unchecked, has been linked to serious diseases such as cancer, heart disease, and high blood sugar. While quercetin can be naturally sourced from foods, it's also available in supplement form.

This has led people to question whether supplementation is necessary to reap its potential benefits. To shed light on this, we turn to expert opinions and the latest research.

The Uses of Quercetin

Quercetin finds its primary applications in the treatment of heart and blood vessel conditions, potential cancer prevention, and reducing inflammation caused by infections, arthritis, and intense workouts. Some also believe it could help

control blood sugar levels, although more human studies are needed to establish its efficacy.

Potential Health Benefits of Quercetin

Quercetin's antioxidant properties can reduce chronic inflammation, thereby potentially lowering the risk of heart disease, cancer, and high blood sugar. Some specific benefits associated with quercetin include:

1. CARDIOPROTECTION

Quercetin is believed to protect against atherosclerosis, oxidative stress, and endothelial dysfunction, contributing to heart disease prevention.

Research suggests it may also have antihypertensive effects, reducing the risk of high blood pressure.

2. BLOOD SUGAR MANAGEMENT

While more research is needed, quercetin has shown promise in enhancing insulin function and improving glucose metabolism in diabetic patients.

3. CANCER PREVENTION

In vivo studies suggest that quercetin could reduce the loss of cell viability, potentially preventing various cancers. However, more human studies are required to confirm these findings.

4. ALLERGY RELIEF

Quercetin's mast cell stabilizing properties make it a natural option for allergy support.

Emerging research supports its anti-allergic capabilities, such as reducing inflammation and inhibiting histamine production associated with allergies and allergic asthma

5. EXERCISE RECOVERY

Limited research suggests that quercetin supplementation may aid in muscle recovery after intense exercise. However, more studies are needed to establish its effectiveness.

6. NEUROPROTECTION

Quercetins antioxidant and anti-inflammatory mechanisms have prompted research into its potential neuroprotective effects, which could reduce the risk of dementia, including Alzheimer's disease.

Foods Rich in Quercetin

A well-balanced diet rich in fruits and vegetables can provide an average of 13 milligrams (mg) of quercetin per day. Foods that contain quercetin include:

- Apples
- Asparagus
- Berries
- Broccoli
- Cherries
- Green peppers
- Onions
- Peas
- Red leaf lettuce
- Tomatoes

For most individuals, obtaining quercetin from dietary sources is sufficient, as these foods also offer a wide range of additional nutrients. Supplements should only be considered under the guidance of a healthcare professional due to potential interactions with other supplements, herbs, and medications.

Recommended Dosage and Safety

If supplementation is recommended by your healthcare provider, it is crucial to follow the recommended dosage. Quercetin supplements are typically taken in doses ranging from 250 to 1,000 mg daily for up to 12 weeks. However, for therapeutic purposes, a more conservative approach of 500 mg one to two times daily is advisable.

It's essential to be aware of potential side effects and safety concerns. Quercetin supplements may not be suitable for individuals with kidney problems or estrogen-dependent cancer. While there haven't been reports of adverse effects at doses of up to 1,000 mg per day for eight weeks in athletes, the safety of long-term, high-dose use remains uncertain. Pregnant and lactating women should exercise caution and consult their healthcare provider before taking quercetin supplements.

Supplement and Drug

Interactions

Quercetin supplements may interact with certain medications, potentially affecting their effectiveness. These interactions include anti-diabetes medications, anti-hypertensive drugs, cyclosporine, diclofenac, herbs or supplements that lower blood sugar or pressure, midazolam, pravastatin, quinolone antibiotics, quetiapine, and warfarin. In conclusion, quercetin is a valuable antioxidant found in various plant foods, offering potential health benefits, especially in reducing inflammation. A diet rich in fruits and vegetables is an excellent way to incorporate quercetin into your daily life. However, if supplementation is recommended, always consult with a healthcare professional to ensure it aligns with your specific needs and health conditions. Additionally, remember that quercetin supplements should not be viewed as a standalone solution, and a holistic approach to reducing inflammation is advisable, including stress management and addressing the underlying causes of inflammation.

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