NUTRINOME

Precission Genotype
Nutrition Assessments

Minerals
Vitamins
Diet and Metabolism

Thank you for using LifeNome, the personalized nutrition, fitness and wellbeing advice based on your genes.

We are excited to provide you with one of the most comprehensive genome-based nutrition and well-being information reports currently available. The information provided by LifeNome does not constitute medical advice and is provided solely as complementary insight to assist you and your doctor in making more personalized decisions for your nutrition and well being.

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- Polyunsaturated Fats Increased Benefits
- Low-carb Diet Effectiveness

- Choline Deficiency
- Sensitivity to Salt
- Zinc Deficiency
- Vitamin A (Retinol) Deficiency
- Vitamin B12 Deficiency
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- Phosphorus Deficiency
- Lycopene Deficiency
- Vitamin A (Carotene) Deficiency
- Vitamin B6 Deficiency
- Fat Overconsumption
- Risk from Saturated Fats
- Sweet Snack Preference

My Genetic Strengths Levels

Typical Slightly Advantaged Advantaged

My Genetic Risk Levels

Low Slightly Elevated Elevated

Minerals help your body grow, develop, and stay healthy. The body uses minerals to perform many different functions — from building strong bones to transmitting nerve impulses. Some minerals are even used to make hormones or maintain a normal heartbeat. In this section, you can explore how your unique genetics impacts your mineral processing, and whether you have genetic predisposition to mineral deficiencies. Certain groups of people, including serious athletes, vegetarians, vegans, pregnant and nursing women, elderly may have higher risk to certain mineral imbalances and are advised to monitor their mineral intake. Minerals are best supplied by ingesting specific foods but there are also a variety of supplements available. Discuss with your health-care provider if you consider taking supplements.

Calcium Deficiency

Typical

higher than **58%** of the population

MY GENETIC VARIANTS

rs1801725 rs2648708 rs4678176

6 MY TOTAL

WHAT IS CALCIUM DEFICIENCY?

Calcium is the most abundant mineral in the human body, and a major constituent of bones and teeth. It plays a central role in the functions of your nervous system, muscles, controlling blood vessel and insulin secretion. Calcium levels are tightly regulated. It is important to get enough calcium as long term calcium deficiency can result in bone loss and osteoporosis. Calcium requirements increase after age of 50 for women and after age of 70 for men. Meeting your daily calcium intake long-term health benefits: from reducing your risk of osteoporosis to regulating your blood pressure levels to decreasing chances for some types of cancer. Human body does not produce calcium, so you must get it through dietary sources. Too high calcium levels in the blood (hypercalcemia) are not good either as they may weaken the bones, contribute to kidney, heart and brain problems. It is important to consult your health care provider if you are considering taking calcium supplementation.

YOUR GENETIC VARIANTS

These are 3 genetic variants (SNPs) associated with Calcium Deficiency out of 11 that we are using for the determination of your predisposition for this trait.

RECOMMENDATIONS

- Meet your daily calcium intake requirements from foods.
- Calcium is provided by a wide variety of foods.: fortified foods (milk, beverages, and cereals), dairy products (milk, kefir, Greek yogurt, hard cheeses), green leafy vegetables, sardines and salmon (with soft bones), legumes and beans.
- You can assess your calcium intake by using this tool: http://www.iofbonehealth.org/calcium-calculator.

REFERENCES

Read more about Calcium Deficiency by checking out the following articles:

Resource 1 Resource 2

Choline Deficiency

Elevated

higher than **95%** of the population

MY GENETIC VARIANTS

rs2236225 rs4646365 rs4646406

3 MY TOTAL

WHAT IS CHOLINE DEFICIENCY?

Choline is a water-soluble essential micronutrient. It is not actually considered a mineral, and it is usually grouped within the B-complex vitamins. Choline is a methyl donor and it is involved in many key processes, including methylation reactions, lipid transport, maintenance of the structural integrity of cell membranes, nerve signaling, and metabolism. Choline is vital for regulation of homocysteine levels, and normal brain functioning. As the liver and the muscles are the major organs for methyl group metabolism, choline deficiency causes muscle damage and abnormal deposition of fat in the liver, which may result in a condition called nonalcoholic fatty liver disease. Choline can be made de novo in the body in small amounts but it must largely be consumed in the diet for optimal health. Endurance athletes and bodybuilders may be at higher risk for choline deficiency. People who drink a lot of alcohol are prone to lower levels of choline. Studies recommend to increase choline intake during pregnancy and breastfeeding.

YOUR GENETIC VARIANTS

These are 3 genetic variants (SNPs) associated with Choline Deficiency out of 6 that we are using for the determination of your predisposition for this trait.

RECOMMENDATIONS

- You may want to consider a higher than recommended choline intake.
- The following food sources are rich in choline: chicken and turkey liver, eggs, milk, peanuts, soy beans, legumes and enriched breakfast cereals. In addition, several fruits and vegetables, including avocado, onions, spinach, Brussels sprouts and broccoli.
- If you are a bodybuilder, an endurance athlete (marathon runner), or a heavy alcohol drinker it is likely that you may need more choline than other individuals.
- Consider consulting a health care provider to discuss your choline intake.

REFERENCES

Read more about Choline Deficiency by checking out the following articles:

Resource 1 Resource 2

Coenzyme Q10 Deficiency

Slightly Elevated

higher than **55%** of the population

MY GENETIC VARIANTS

rs2965749 rs8500

2 MY TOTAL

WHAT IS COENZYME Q10 DEFICIENCY?

Coenzyme Q10 (CoQ10) is a fat-soluble natural compound primarily synthesized by the body. It is also consumed in the diet. Coenzymes generally help enzymes to ensure biochemical reactions run smoothly. CoQ10 is found in every cell of the body as it is needed for basic cellular functions. Cell mitochondria requires CoQ10 to produce energy for cell growth and maintenance. CoQ10 is present in higher concentrations in organs with higher energy requirements such as the kidneys, liver, and heart. Cellular CoQ10 also functions as an antioxidant. Taking a combination of nutrients that include CoQ10 has been found to benefit patients with cardiovascular disorders, including quicker recovery from surgeries. Studies identified common genetic variants that are significantly associated with Q10 levels. One of the tested genetic variations is in the NQO1 gene that helps to convert CoQ10 to a bioavailable form, ubiquinol. People with genetic variations in the NQO1 gene may not be able to make that transformation. According to the Mayo clinic, CoQ10 levels decline gradually with age. In addition, some prescription drugs may lower CoQ10 levels. Rare genetic defects that cause primary CoQ10 deficiency (which is a severe disorder that severely compromises neuronal and muscular function), are not tested by Lifenome.

YOUR GENETIC VARIANTS

These are 2 genetic variants (SNPs) associated with Coenzyme Q10 Deficiency out of 5 that we are using for the determination of your predisposition for this trait.

RECOMMENDATIONS

- You may want to consider a slightly higher intake of coenzyme Q10 than the recommended average.
- CQ10 can be found in organ meats such as heart, liver, and kidney, as well as beef, fish, soy and canola oils, peanuts, pistachios and sesame seeds.
- Research shows that CoQ10 has antioxidant benefits, it helps with heart disease, as well as skin appearance and fine wrinkles.
- Some medicines (statins and anticoagulants) may lower CoQ10 levels.
- If you consider CoQ10 supplementation, seek out the ubiquinol form that is the preferred form of coenzyme Q10 in the blood. This form is best transported to the mitochondria, where it plays out its crucial role in the generation of energy from food.
- Because CoQ10 is fat-soluble, take with a meal containing fat.
- While no major side effects for CoQ10 have been reported, always tell your doctor if you are using a dietary supplement.

REFERENCES

Read more about Coenzyme Q10 Deficiency by checking out the following articles:

Resource 1 Resource 2 Resource 3

Copper Deficiency

Typical

higher than **65%** of the population

MY GENETIC VARIANTS

rs11204828 rs1175549 rs11806477

4 MY TOTAL

WHAT IS COPPER DEFICIENCY?

Copper is another essential trace mineral that has a number of important functions in the human body. It is a co-factor in many oxidation-reduction reactions and it plays important role in health of blood vessels, nerves, immune system, bones, and connective tissues (hair, skin, nails, tendons, ligaments). It is integral for energy production, formation of collagen, iron absorption. Copper has been used by the ancient Egyptians to sterilize drinking water and wounds, and Hippocrates used copper for variety of disorders. Copper is now been added to skin-care products to reduce the appearance of fine lines, and boost skin elasticity. Severe copper deficiency is rare, and may be caused by malnutrition, disorders that impair nutrient absorption (Crohn's disease), some surgeries, and medications. Several genetic variants were associated with copper levels and they may contribute to copper imbalances that are linked to impaired immune function, contribute to anemia, and premature skin aging.

YOUR GENETIC VARIANTS

These are 3 genetic variants (SNPs) associated with Copper Deficiency out of 6 that we are using for the determination of your predisposition for this trait.

RECOMMENDATIONS

- Meet your daily copper intake requirements.
- Food sources: shellfish, including oysters, organ meats (kidneys, liver), whole grains, beans, nuts, avocado, potatoes. Dark leafy greens, black pepper, and yeast are also sources of copper in the diet. In addition, dried fruits, chocolate, cocoa are also rich with copper.
- People who take high amounts of zinc, iron, or vitamin C may need more copper.
- Copper supplements can interact with certain medications or cause copper toxicity, and even acute poisoning.
- Before you start taking copper supplementation, consult your doctor.

REFERENCES

Read more about Copper Deficiency by checking out the following articles:

Resource 1 Resource 2 Resource 3 Resource 4 Resource 5

Glutathione Deficiency

Typical

higher than **55%** of the population

MY GENETIC VARIANTS

rs2302109 rs7483

2 MY TOTAL

WHAT IS GLUTATHIONE DEFICIENCY?

Glutathione is a powerful antioxidant that is produced naturally by the liver. It is involved in tissue building, immune response, nutrient metabolism, and regulation of cellular events, including cell proliferation and apoptosis. Glutathione is often called the master antioxidant as it scavenges free radicals, peroxides, lipid peroxides and heavy metals. Glutathione is required for proper utilization and functioning of other antioxidants such as vitamins C, E, selenium and carotenoids. Glutathione deficiency contributes to oxidative stress, which plays a key role in aging and the age-related diseases. Genetic variations (and deletions) in genes (GPX1 GSTP1 GSTT1 GSTM1) lead to lower production and activity of glutathione compromising its detoxification capacity. There is a growing scientific evidence that glutathione helps control inflammation, fight infections, and boost immune system. It has been used to treat acne and as a skin lightening agent. Glutathione occurs naturally in many foods but its absorption from fruits and vegetables may be low. Adequate amounts of protein increases the production of glutathione in our bodies.

YOUR GENETIC VARIANTS

These are 2 genetic variants (SNPs) associated with Glutathione Deficiency out of 14 that we are using for the determination of your predisposition for this trait.

RECOMMENDATIONS

- Boost the body's production of glutathione by consuming the following food sources: beef, pork, poultry, fish, cheese, tofu, legumes. These foods are high in essential amino acids that provide building blocks for producing glutathione.
- Studies showed that the expression and activity of GSTT1and GSTM1 genes coding for glutathione can be induced by the consumption of cruciferous vegetables (cauliflower, cabbage, garden cress, bok choy, broccoli, Brussels sprouts).
- Regular exercise boosts glutathione production, however athletic over-training may result in lower glutathione.
- Glutathione supplements are readily available but as always discuss it with your healthcare provider.

REFERENCES

Read more about Glutathione Deficiency by checking out the following articles:

Resource 1 Resource 2 Resource 3 Resource 4

Iron Deficiency

Typical

higher than **30%** of the population

MY GENETIC VARIANTS

rs1351452 rs1375515 rs228924

10 MY TOTAL

WHAT IS IRON DEFICIENCY?

Iron is an essential mineral that our bodies need for many functions. Iron is a key element in the metabolism of almost all living organisms. It is a part many proteins, including oxygen-carrying proteins, hemoglobin (found in red blood cells) and myglobin (found in muscle cells). Iron is also an essential component of antioxidant enzymes and metabolizing enzymes (cytochromes). Absorption, transport and storage of iron are tightly regulated, as iron is both an essential and potentially toxic. Iron deficiency is the most common nutrient deficiency in the world. Symptoms of iron deficiency may include fatigue, rapid heart rate and palpitations. Iron deficiency may interfere with physical and athletic performance. Young children, women of childbearing age, as well as vegetarians and vegans, are at higher risk of iron deficiency.

YOUR GENETIC VARIANTS

These are 3 genetic variants (SNPs) associated with Iron Deficiency out of 17 that we are using for the determination of your predisposition for this trait.

RECOMMENDATIONS

- Make sure to follow generally recommended guidelines for iron intake.
- There are two types of iron: heme iron from animal sources and non-heme iron from plant sources. Heme iron is absorbed more readily. Foods rich in heme iron include beef, poultry, liver, oysters, salmon, tuna. Good sources of non-heme iron include beans, fortified cereals, and dark leafy greens like spinach.
- If you are into strenuous physical activity, make sure your iron levels are within the norm.
- Do not take iron supplements without supervision of a healthcare professional as too much iron is harmful to the body.

REFERENCES

Read more about Iron Deficiency by checking out the following articles:

Resource 1 Resource 2 Resource 3

Iron Overload

Typical

higher than **42%** of the population

MY GENETIC VARIANTS

rs235756

1 MY TOTAL

WHAT IS IRON OVERLOAD?

While iron is an essential mineral, too much iron may damage your body. Genetic variations affect how much iron is absorbed leading to iron overload despite normal iron intake. The excess of iron in the body can lead to fatigue, anorexia, dizziness, nausea, vomiting, headache, weight loss, and shortness of breath. Some people have a genetic disorder of iron metabolism, called hereditary haemochromatosis (HH) dubbed the Celtic Curse as people of Celtic ancestry are at higher risk for carrying the HH variants. As many as one in 10 people have at least one genetic variation associated with iron overload. These people are carriers, and they can pass the gene on to their children but will not get the medical condition. Carriers, as well as other people who have variants in genes that regulate iron absorption, can still have iron build up, in particular if they consume alcohol in excess, or suffer from liver inflammation.

YOUR GENETIC VARIANTS

This is 1 genetic variant (SNP) associated with Iron Overload out of 6 that we are using for the determination of your predisposition for this trait.

RECOMMENDATIONS

- To minimize the risk of iron build-up, monitor your red meat, animal liver and raw shellfish intake
- If you are into strenuous physical activity, make sure your iron levels are within the norm.
- Do not take iron supplements without supervision of a healthcare professional as too much iron is harmful to the body.

REFERENCES

Read more about Iron Overload by checking out the following articles:

Resource 1 Resource 2

Magnesium Deficiency

Slightly Elevated

higher than **82%** of the population

MY GENETIC VARIANTS

rs11891 rs13146355 rs3925584

5 MY TOTAL

WHAT IS MAGNESIUM DEFICIENCY?

Magnesium is an essential mineral involved in numerous physiological pathways, including energy metabolism, nerve control, neurotransmitter release, and blood pressure regulation. Magnesium is an important electrolyte needed for proper muscle function, strong bones and good heart health. Magnesium imbalances have been linked to various complications such as muscle cramps, constipation, poor sleep, tension or migraine headaches, anxiety and depression, chronic fatigue and premenstrual syndrome. In a long term, magnesium deficiency has been associated with higher risk of osteoporosis, hypertension, cardiovascular disease, insulin sensitivity. Several genetic variants have been associated with magnesium levels: some variants contribute to lower levels of magnesium, while others are associated with higher magnesium.

YOUR GENETIC VARIANTS

These are 3 genetic variants (SNPs) associated with Magnesium Deficiency out of 11 that we are using for the determination of your predisposition for this trait.

RECOMMENDATIONS

- You may want to consider a slightly higher intake of magnesium than the recommended daily allowance through food sources.
- Foods rich in magnesium include: Nuts (brazil, almonds, cashews), seeds (pumpkin, sesame), avocados, oats and legumes are some of the best sources of magnesium. In addition, bananas and dark chocolate are rich in magnesium.
- If you are an athlete, and sweat a lot, or if you notice muscle cramps, weakness, or twitches, make sure your magnesium levels are adequate.
- Other signs of low magnesium include poor sleep, irritability, and headaches.
- Many diuretics, including caffeine, alcohol, as well prescription diuretic medicines, affect magnesium levels.
- If you consider taking magnesium supplementation, talk to your health care provider to discuss potential side effects, and to determine optimal dose.

REFERENCES

Read more about Magnesium Deficiency by checking out the following articles:

Resource 1 Resource 2 Resource 3

Phosphorus Deficiency

Slightly Elevated

higher than **70%** of the population

MY GENETIC VARIANTS

rs1697421 rs947583

2 MY TOTAL

WHAT IS PHOSPHORUS DEFICIENCY?

Phosphorus is another essential mineral that is required by every cell in the body for normal functioning. It is the second most abundant mineral in the body. It contributes to healthy bone mineralization and healthy teeth maintenance. In fact, about 85% of the body's phosphorus is in bones and teeth. In addition, phosphorus plays role in cell signaling, energy production, digestion, hormonal balance, proper nutrient utilization as well as muscle and nerve functioning. While serious dietary phosphorus deficiency is uncommon, low calcium-to-phosphorus intake ratio may be detrimental to bone health, especially in women at increased risk for osteoporosis. Symptoms of phosphorus deficiency include weak bones, stiff joints, numbness, weakness, loss of appetite, anxiety. Too much phosphorus is not good either as it affects the balance of minerals in the body

YOUR GENETIC VARIANTS

These are 2 genetic variants (SNPs) associated with Phosphorus Deficiency out of 2 that we are using for the determination of your predisposition for this trait.

RECOMMENDATIONS

- You may want to consider a slightly higher intake than the recommended 1,000 mg of phosphorus per day.
- Beef, and chicken, and dairy products are good dietary sources of phosphorus. Fish, such as cod, tuna, sardines, halibut, whiting are all high in phosphorus. Beans, nuts and seeds are the best non-animal food source of phosphorus.
- Some health conditions (diabetes, Crohn disease and celiac disease) and medications (antacids and diuretics) and heavy alcohol consumption interfere phosphorus levels in the body.
- Athletes use phosphate supplements before heavy workouts and competitions to reduce muscle pain and fatigue.
- Consult a registered dietitian or physician to make sure you are meeting your daily requirements for this nutrient.

REFERENCES

Read more about Phosphorus Deficiency by checking out the following articles:

Resource 1 Resource 2 Resource 3 Resource 4

Selenium Deficiency

Typical

higher than **58%** of the population

MY GENETIC VARIANTS

rs2163813 rs352889 rs567754

6 MY TOTAL

WHAT IS SELENIUM DEFICIENCY?

Selenium (Se) is an essential trace mineral that plays important role in healthy functioning of reproductive and immune systems, and thyroid gland. Selenium is a powerful antioxidant, and it is a part of more than two dozen selenoproteins that act in synergy with vitamin C, vitamin E and glutathione. Selenium deficiencies in general population are more frequent in the areas with low levels of selenium in the soil. In the US, selenium concentrations in the soil are higher in Midwestern and Western States than in the South and Northeast. In the UK, according to several studies, many soils are deficient in selenium. Very low concentrations of selenium in some areas of China led to government-sponsored supplementation program. Individuals with selenium imbalances are more susceptible to physiological responses to stress. Research suggests that optimal selenium intake contributes to lower risk of age-related chronic diseases, longevity, and boosts fertility. Several genetic variations have been found to be associated with lower levels of selenium. Life-style factors that contribute to selenium imbalances include smoking, excessive alcohol consumption, stress, oral contraception, and auto-immune conditions (such as rheumatoid arthritis, lupus, celiac disease).

YOUR GENETIC VARIANTS

These are 3 genetic variants (SNPs) associated with Selenium Deficiency out of 10 that we are using for the determination of your predisposition for this trait.

RECOMMENDATIONS

- Meet your daily needs by consuming foods high in selenium.
- The richest food sources of selenium are organ meats (calf's liver) and seafood, followed by muscle meats. Selenium is present in soil and therefore is most highly concentrated in plant-based foods grown in selenium-rich soil, including fruits, vegetables and breads. The selenium content of food is highly variable because it depends so heavily on soil conditions. Highly regarded sources of selenium include a variety of mushrooms (in particular crimini and shiitake mushrooms), and Brazil nuts.
- Selenium can be toxic at high levels.
- Consult healthcare practitioner if you consider taking selenium supplements.

REFERENCES

Read more about Selenium Deficiency by checking out the following articles:

Resource 1 Resource 2 Resource 3 Resource 4

Sensitivity to Salt

Elevated

higher than **90%** of the population

MY GENETIC VARIANTS

rs1010069 rs12721241 rs16998073

13 MY TOTAL

WHAT IS SENSITIVITY TO SALT?

Sodium, the primary element we get from salt, is essential for life. It is important for multiple body functions from maintaining the proper balance of water and minerals, to conducting nerve impulses, and muscle contractions. Too much sodium in the diet can lead to fluid retention, and high blood pressure. If this becomes chronic, it can lead to heart disease, stroke, kidney disease and congestive heart failure. Individuals vary considerably in their response to sodium intake, and salt-sensitivity (a measure of how your blood pressure responds to salt intake) is at least in part determined by genetics. The mechanisms underlying salt sensitivity are complex. The kidney is critical to overall fluid and electrolyte balance and long-term regulation of blood pressure.

YOUR GENETIC VARIANTS

These are 3 genetic variants (SNPs) associated with Sensitivity to Salt out of 16 that we are using for the determination of your predisposition for this trait.

RECOMMENDATIONS

- You may want to consider reducing your daily intake of sodium well below the recommended 2300 mgs.
- Some ways to reduce salt intake include: limiting processed and prepared foods, eating fresh rather than packaged meats, choosing fresh fruit and vegetables.
- Read food labels to look for hidden salt in foods like bread, bagels, cottage cheese or pies.
- Salt preference is an acquired taste that can be unlearned. It takes about 6-8 weeks to get used to eating food with much lower quantities of salt, but once it is done, its actually difficult to eat foods like potato chips because they taste way too salty.
- Among people who are salt-sensitive, excess sodium intake in the long term may result in high blood pressure, heart problems, increased calcium loss in the urine, osteoporosis, stomach cancer, or asthma.
- If you see these symptoms regularly, discuss your concerns with your physician.

REFERENCES

Read more about Sensitivity to Salt by checking out the following articles:

Resource 1 Resource 2

Zinc Deficiency

Elevated

higher than **90%** of the population

MY GENETIC VARIANTS

rs12898259 rs12906126 rs17811680

5 MY TOTAL

WHAT IS ZINC DEFICIENCY?

Zinc is an essential trace mineral that is needed for all forms of life. Zinc is required for many regulatory, catalytic, and structural processes in the body. It plays important role in healthy functioning of immune system, wound healing, cell division, and protein synthesis. Zinc is also needed for the senses of smell and taste. Zinc deficiency has been linked to impaired immune system function, increased colds and infections, diarrhea, loss of appetite, delayed wound healing, hair loss, taste abnormalities, and mental lethargy. Because zinc helps repair damaged tissues and heal wound, it is used in skin care products to treat acne and skin irritations. Several genetic variants have been associated with lower levels of zinc.

YOUR GENETIC VARIANTS

These are 3 genetic variants (SNPs) associated with Zinc Deficiency out of 9 that we are using for the determination of your predisposition for this trait.

RECOMMENDATIONS

- You may want to consider consuming foods that are high in zinc.
- High-protein foods contain high amounts of zinc. Shellfish, beef, pork, and lamb contain more zinc than fish. The dark meat of a chicken has more zinc than the light meat. Other good sources of zinc are seafood, nuts, seeds, whole grains, legumes, and yeast.
- Vegetarians and vegans are at greater risk for zinc deficiency, because the zinc from plant foods is four times more difficult to absorb than zinc from meats.
- Antibiotics as well as diuretics including caffeine and alcohol may interfere with zinc levels.
- If you suffer from acne, or skin irritations, look for skin care products that contain zinc.
- If you consider zinc supplementation, remember that too much zinc can be as dangerous as its deficiency. Always follow recommendations of your health practitioner.

REFERENCES

Read more about Zinc Deficiency by checking out the following articles:

Resource 1 Resource 2

Vitamins allow your body to grow and develop. They also play important roles in bodily functions such as metabolism, immunity and digestion. There are 13 essential vitamins, including vitamins A, C, D, E, and K and B vitamins such as riboflavin and folate. Gain insights into how your genetic variations may influence how your body processes and absorbs vitamins, and whether you are genetically predisposed to vitamin imbalances and deficiencies. This knowledge will encourage you to consume adequate amounts of the vitamin(s). Discuss with your health-care provider if you consider taking vitamin supplements.

Lutein and Zeaxanthin Deficiency

Typical

higher than **42%** of the population

MY GENETIC VARIANTS

rs13230419 rs1722505 rs4926339

5 MY TOTAL

WHAT IS LUTEIN AND ZEAXANTHIN DEFICIENCY?

Lutein and zeaxanthin (LZ) are yellow to red xanthophylls, a type of naturally occurring carotenoids. They are found in high concentrations in the macula of the human eye. In fact, the small yellowish area of the eye retina near the optic disk that provides central vision, is called the macula lutea, from the Latin macula (spot) and lutea (yellow). Lutein and zeaxanthin block blue light from reaching the underlying structures in the retina, reducing the risk of light-induced oxidative damage that could lead to macular degeneration and cataracts, which are the leading causes of visual impairment and acquired blindness. Lutein and zeaxanthin also have important general antioxidant functions in the body. Along with other natural antioxidants, including vitamin C, beta carotene and vitamin E, they guard the body from damaging effects of free radicals. Lutein may also contribute to protection against atherosclerosis (buildup of fatty deposits in arteries), the disease that leads to most heart attacks.

YOUR GENETIC VARIANTS

These are 3 genetic variants (SNPs) associated with Lutein and Zeaxanthin Deficiency out of 9 that we are using for the determination of your predisposition for this trait.

RECOMMENDATIONS

- Aim at intake of at least 6 milligrams of LZ. According to a study from Harvard University leads to over 40% lower risk for macular degeneration. This is needed to maintain your healthy vision.
- Eat the leafy and cruciferous vegetables of yellow, orange and green colors to get Lutein and zeaxanthin (LZ). Lutein is absorbed better when ingested with a small amount of fat, such as olive oil.
- Consume all varieties of cooked summer and winter squash, peas, yellow corn, beet greens, pumpkin, Brussels sprouts, broccoli, romaine and iceberg lettuce, asparagus and carrots. These are good food sources of LZ and contain between 1 to 4 milligrams of LZ per serving.
- Include other sources of LZ: eggs, orange juice, corn, and other foods with yellow color.

REFERENCES

Read more about Lutein and Zeaxanthin Deficiency by checking out the following articles:

Resource 1 Resource 2 Resource 3

Lycopene Deficiency

Slightly Elevated

higher than **62%** of the population

MY GENETIC VARIANTS

rs1042031 rs12934922 rs1672879

5 MY TOTAL

WHAT IS LYCOPENE DEFICIENCY?

Lycopene is a bright red carotene, and it gives many fruits and vegetables (tomatoes, watermelons, papayas, pink grapefruits, red carrots) their red color. Lycopene is the most powerful antioxidant that is commonly found in the diet: it has a high capacity to remove free radicals. It also helps to protect the skin from the damage by sunlight. Lycopene is present at higher levels in skin, liver, lungs, prostate, colon and adrenal glands. Scientific studies have linked higher consumption of lycopene rich foods with reduced risk of various diseases, including cardiovascular disease, asthma, some cancers, and age-related vision problems. Lycopene has not got an official status of an essential nutrient. Nevertheless, it is widely considered beneficial for immune system, skin and eye health.

YOUR GENETIC VARIANTS

These are 3 genetic variants (SNPs) associated with Lycopene Deficiency out of 11 that we are using for the determination of your predisposition for this trait.

RECOMMENDATIONS

- Optimize your lycopene intake requirements from your diet: think cooked tomatoes (fresh tomato pasta sauce, tomato juice, tomato soup, paste). Tomatoes account for more than 85% of the dietary intake of lycopene in North American diets.
- Cook tomatoes with olive oil or other good fats as lycopene from cooked tomatoes is absorbed 2.5 times better than from fresh tomatoes. To protect skin from sun damage, the Mayo clinic recommends taking 55 grams of tomato paste in olive oil. This provides 16 milligrams of lycopene
- Include watermelons, guava, papaya, pink grapefruit in your diet, in particular if you happen to not like tomatoes, or are allergic to them,
- Consider lycopene supplementation. The lycopene from the supplements is about as easy for the body to absorb as dietary lycopene. The Mayo clinic recommends taking lycopene supplementation for various conditions and concerns, including heart diseases, blood pressure, infertility, and as a general antioxidant
- Experiment with lycopene-rich& skin care: full of natural antioxidants, anti-aging properties, and protecting against pollution

REFERENCES

Read more about Lycopene Deficiency by checking out the following articles:

Resource 1 Resource 2 Resource 3

Vitamin A (Carotene) Deficiency

Slightly Elevated

higher than **68%** of the population

MY GENETIC VARIANTS

rs1527479 rs1722505 rs865716

3 MY TOTAL

WHAT IS VITAMIN A (CAROTENE) DEFICIENCY?

Vitamin A, the group of fat-soluble vitamins, is essential for immune system functioning, reproduction, healthy vision, maintenance of strong bones and teeth, red blood cell production, tissue repair and skin health. Vitamin A comes in two forms: biologically active form, retinol, and pro-vitamin Carotenoids (including alpha- and beta-carotenes) that are converted into retinol. Carotenoids are important antioxidants and anti-inflammatory agents, and have tremendous protective benefits for heart conditions, respiratory problems, elevated glucose levels, and various other ailments. Alpha and beta-carotenes contribute to skin and hair health. Humans cannot produce carotenoids themselves and therefore need it directly from food sources. Carotenoids come from plant sources. Carotenoid-rich foods are often, but not always, have orange, bright red, or yellow colors. In fact, the word carotene comes from the Latin word for carrot. Genetic variants in CD36 and SCARB1 genes have been linked to lower levels of beta-carotene.

YOUR GENETIC VARIANTS

These are 3 genetic variants (SNPs) associated with Vitamin A (Carotene) Deficiency out of 6 that we are using for the determination of your predisposition for this trait.

RECOMMENDATIONS

- You may need slightly extra intake of carotenoids compared to the average population.
- Vitamin A is included in most multivitamins, and the U.S. recommended dietary allowance (RDA) for adults is as follows: 900 micrograms daily (3,000 IU) for men and 700 micrograms daily (2,300 IU) for women; for pregnant women 19 years old and older, 770 micrograms daily (2,600 IU); and for lactating women 19 years old and older, 1,300 micrograms daily (4,300 IU). (Source: May Clinic).
- Best carotenoid-rich foods are sweet potatoes, carrots, broccoli, kale, spinach, pumpkin, collard greens, apricot, papaya, mango, peas, tomatoes, cheddar cheese and eggs.
- Carotenoids need to be consumed with a fat for the body to absorb them: cook carotenoid-containing vegetables in oil.
- Add carotenoid-rich skin- and hair-care products to your beauty regimen.
- If you consider taking carotenoid supplements, consult a registered dietitian or physician.

REFERENCES

Read more about Vitamin A (Carotene) Deficiency by checking out the following articles:

Resource 1 Resource 2 Resource 3

Vitamin A (Retinol) Deficiency

Elevated

higher than **95%** of the population

MY GENETIC VARIANTS

rs10882272 rs11645428 rs12934922

5 MY TOTAL

WHAT IS VITAMIN A (RETINOL) DEFICIENCY?

Vitamin A, the group of fat-soluble vitamins, is essential for immune system functioning, reproduction, healthy vision, maintenance of strong bones and teeth, red blood cell production, tissue repair and skin health. Vitamin A comes in two forms: biologically active form, retinol, and pro-vitamin A carotenoids (including beta-carotene, lutein, lycopene) that need to be converted into retinol to be useful in the body. Carotenoids come from plant sources, while retinol comes from animal sources. Some specific immune, inflammatory, genetic, and reproductive-related benefits of vitamin A can only be obtained from the retinoid forms of the vitamin A. These retinoid forms can be especially important with respect to pregnancy and childbirth, infancy, childhood growth, and resistance to infectious disease. Plasma retinol levels do not decline until liver vitamin A sources are almost depleted and thus do not accurately reflect retinol imbalance. Studies show that variations in several key genes in retinol metabolism pathway impair the conversion of carotenoids to retinol, increase breakdown, or decrease absorption of retinoic acid, therefore affecting the levels of retinol.

YOUR GENETIC VARIANTS

These are 3 genetic variants (SNPs) associated with Vitamin A (Retinol) Deficiency out of 7 that we are using for the determination of your predisposition for this trait.

RECOMMENDATIONS

- Optimize your retinol intake.
- Best retinol-rich foods include animal liver, egg yolks, butter and heavy cream.
- If you a pregnant or nursing woman; or/and vegetarian/vegan, you are under higher risk of retinol deficiency, and you need to make sure you are meeting your daily requirements for this essential vitamin.
- If you consider retinol supplementation, consult a doctor or a registered dietitian.

REFERENCES

Read more about Vitamin A (Retinol) Deficiency by checking out the following articles:

Resource 1 Resource 2 Resource 3

Vitamin B12 Deficiency

Elevated

higher than **82%** of the population

MY GENETIC VARIANTS

rs12377462 rs17037397 rs1801131

9 MY TOTAL

WHAT IS VITAMIN B12 DEFICIENCY?

Vitamin B12 (cobalamin) is required for normal functioning of brain, nervous and digestive systems, red blood cell formation. It is involved in DNA synthesis, fatty acid and amino acid metabolism. Vitamin B12 can be only manufactured by bacteria, and generally it can be found in animal food sources. Slight imbalances in vitamin B-12 can lead to anemia, fatigue, stomach inflammation, and affect nervous system. No toxic or adverse effects have been associated with large intakes of vitamin B12 from food or supplements in healthy people. Genetic variants in several genes, including FUT2, MTHFR, MTRR, TCN2, have been linked to levels of vitamin B12.

YOUR GENETIC VARIANTS

These are 3 genetic variants (SNPs) associated with Vitamin B12 Deficiency out of 15 that we are using for the determination of your predisposition for this trait.

RECOMMENDATIONS

- You are likely to benefit from increased intake of vitamin B12. Recommended dietary amounts (RDAs) are 2.4 micrograms daily for ages 14 years and older, 2.6 micrograms daily for pregnant females, and 2.8 micrograms daily for breastfeeding females.
- Top foods that contain vitamin B12 are liver, red meat, fish and shellfish, milk and dairy products, fortified soy, almond or rice beverages and products, fortified cereals, nutritional yeast and eggs.
- Since Vitamin B12 is found primarily in animal products, strict vegetarians and vegans in particular are at risk for a deficiency.
- Consult a registered dietitian or physician to make sure you are meeting your daily requirements for vitamin B12 intake, in particular if you are a vegetarian or vegan.

REFERENCES

Read more about Vitamin B12 Deficiency by checking out the following articles:

Resource 1 Resource 2 Resource 3

Vitamin B1 Deficiency

Typical

higher than **40%** of the population

MY GENETIC VARIANTS

0 MY TOTAL

WHAT IS VITAMIN B1 DEFICIENCY?

Vitamin B1 (Thiamine), the first vitamin B that was discovered, is sometimes called anti-stress vitamin as it improves body`s ability to withstand stress, strengthens the immune system, fights depression and assists healthy functioning of the nervous system. Thiamine is involved in several enzyme functions associated with the metabolism of carbohydrates, and fatty acids. Severe thiamine deficiencies are rare (except in critically ill people and alcoholics) and they are associated with genetic diseases such as maple syrup urine disease and beriberi. Thiamine imbalances can result from poor dietary intake, reduced gastrointestinal absorption, increased metabolic requirements, or excessive loss of thiamin due to genetic variations.

YOUR GENETIC VARIANTS

You don't have any genetic variants (SNPs) associated with Vitamin B1 Deficiency out of 3 that we are using for the determination of your predisposition for this trait.

RECOMMENDATIONS

- Meet your daily requirement of thiamine through your diet.
- The best sources of thiamin include yeast extract, pork, fortified breakfast cereals, enriched grain products and soy products. Additional risk factors include gluten free and low gluten diet, depression, stress, and excessive alcohol consumption.

REFERENCES

Read more about Vitamin B1 Deficiency by checking out the following articles:

Resource 1 | Resource 2 | Resource 3

Vitamin B2 Deficiency

Elevated

higher than **92%** of the population

MY GENETIC VARIANTS

rs1801131 rs1801133 rs1801394

3 MY TOTAL

WHAT IS VITAMIN B2 DEFICIENCY?

Vitamin B2 (riboflavin) is involved in vital metabolic processes in the body, and is necessary for energy production and normal cell function and growth. It is also crucial in helping other B vitamins undergo the chemical changes that make them useful and plays an important role in iron absorption. Emerging research shows that riboflavin may play a role in cancer prevention as well as helping with migraine headaches. Too little riboflavin can cause weakness, throat swelling/soreness, a swollen tongue, skin cracking (including cracked corners of the mouth), hair loss, dermatitis, and anemia. Riboflavin deficiency can also affect vision, including blurred vision and burning, itching, watering, sore, or bloodshot eyes, as well eyes becoming light-sensitive and easily fatigued. People with some genetic variations need to monitor their vitamin B2 intake. Excess riboflavin is excreted through the urine (often temporarily causing urine to turn a bright yellow color several hours after taking it), and there is no common risk for an overdose.

YOUR GENETIC VARIANTS

These are 3 genetic variants (SNPs) associated with Vitamin B2 Deficiency out of 3 that we are using for the determination of your predisposition for this trait.

RECOMMENDATIONS

- You may want to consider extra intake of this essential vitamin, compared to the average population.
- Dietary sources of riboflavin include: dairy products (such as milk, cheese and yogurt), eggs, enriched or fortified cereals and grains, nuts, lean meats, liver, dark green vegetables (such as asparagus, broccoli, spinach and turnip greens), fish and poultry.
- Additional risk factors for vitamin B2 imbalances include gluten free diet, and pregnancy.
- Consult a registered dietitian or physician to make sure you are meeting your daily requirements for vitamin B2 intake.

REFERENCES

Read more about Vitamin B2 Deficiency by checking out the following articles:

Resource 1 Resource 2 Resource 3

Vitamin B3 Deficiency

Typical

higher than **80%** of the population

MY GENETIC VARIANTS

0 MY TOTAL

WHAT IS VITAMIN B3 DEFICIENCY?

Vitamin B3 (niacin or nicotinic acid) is essential for normal functioning of digestive and nervous systems, dealing with oxidative stress, DNA repair, and skin health. It is important in metabolism of fat, carbohydrates, and alcohol. Severe niacin deficiencies are rare, and are usually found in areas of malnutrition. Consumption of large quantities of alcohol contributes to the risk of niacin deficiencies that can cause nausea, headaches, tiredness, decreased tolerance to cold, dry and inflamed skin. Several genetic variants are associated with increased risk of niacin imbalances.

YOUR GENETIC VARIANTS

You don't have any genetic variants (SNPs) associated with Vitamin B3 Deficiency out of 6 that we are using for the determination of your predisposition for this trait.

RECOMMENDATIONS

- Make sure to have adequate doses of niacin through your diet.
- The best sources of niacin are beets, brewer's yeast, beef liver, beef kidney, fish such as salmon, swordfish, tuna, sunflower seeds, peanuts. New studies have shown that niacin is beneficial to the skin health, specifically for problems involving pigmentation and dry skin.
- Risk factors for vitamin B3 imbalances include depression, neurological disorders, high cholesterol and triglyceride levels, cardiovascular diseases.
- You should not take niacin supplementation except under your doctor's supervision.

REFERENCES

Read more about Vitamin B3 Deficiency by checking out the following articles:

Resource 1 Resource 2 Resource 3

Vitamin B5 Deficiency

Typical

higher than **48%** of the population

MY GENETIC VARIANTS

rs12898259

1 MY TOTAL

WHAT IS VITAMIN B5 DEFICIENCY?

Vitamin B5 (Pantothenic acid) is essential to many biochemical reactions in all forms of life (including plants and animals). Vitamin B5 is required for the breakdown of fats and carbohydrates, maintenance of healthy digestive system, production of red blood cells, sex and stress related hormones. While severe vitamin B5 deficiencies are very rare, imbalances may cause fatigue, depression, irritability, nausea, and upper respiratory infections.

YOUR GENETIC VARIANTS

This is 1 genetic variant (SNP) associated with Vitamin B5 Deficiency out of 3 that we are using for the determination of your predisposition for this trait.

RECOMMENDATIONS

- Make sure to consume adequate amount of B5 through your diet.
- Foods rich in vitamin B5 include animal organs (liver and kidney), fish, shellfish, milk products, eggs, avocados, legumes, mushrooms, and sweet potatoes.
- Higher doses have been shown to help the healing of skin wounds, mild eczemas, lower cholesterol and triglycerides levels, and improve symptoms of rheumatoid arthritis. Risk factors for vitamin B5 imbalances include depression, stress, and respiratory infections. No upper limit for vitamin B5 has been set.

REFERENCES

Read more about Vitamin B5 Deficiency by checking out the following articles:

Resource 1 Resource 2

Vitamin B6 Deficiency

Slightly Elevated

higher than **75%** of the population

MY GENETIC VARIANTS

rs1697421 rs1801133 rs1801181

5 MY TOTAL

WHAT IS VITAMIN B6 DEFICIENCY?

Vitamin B6 (and its derivative pyridoxal 5'-phosphate, PLP) are involved in numerous essential processes, including protein metabolism, normal functioning of immune and nervous systems, production of hemoglobin, and maintenance of normal levels of homocysteine. Vitamin B6 together with vitamin B2, B9 (folate) and choline, facilitates the methylation cycle which is fundamental to life. Even slight imbalances in vitamin B6 levels are linked to various conditions. Symptoms of a vitamin B6 imbalance include nerve inflammation, irritability, depression, dermatitis, cracked and sore lips, inflamed tongue and mouth, and confusion. Several studies identified genetic variants associated with lower levels of vitamin B6.

YOUR GENETIC VARIANTS

These are 3 genetic variants (SNPs) associated with Vitamin B6 Deficiency out of 9 that we are using for the determination of your predisposition for this trait.

RECOMMENDATIONS

- You may want to consider slightly higher than average vitamin B6 intake from food sources.
- Vitamin B6 is found in fortified cereals, 100% bran, legumes, meat, poultry, fish, liver, nuts and seeds, blackstrap molasses, bananas, peanut butter, many vegetables, and non-citrus fruit. Various common drugs, including non-steroid anti-inflammatory drugs such as ibuprofen and oral contraceptives, interfere with vitamin B6 metabolism.
- Other risk factors for vitamin B6 imbalances include high levels of homocysteine, cardiovascular problems, asthma, ADHD, cognitive decline.
- Consult a registered dietitian or physician if you are considering B6 supplementation.

REFERENCES

Read more about Vitamin B6 Deficiency by checking out the following articles:

Resource 1 Resource 2

Vitamin B7 Deficiency

Typical

higher than **50%** of the population

MY GENETIC VARIANTS

rs7651039

1 MY TOTAL

WHAT IS VITAMIN B7 DEFICIENCY?

Vitamin B7 (or biotin) is required by all organisms. It is important for converting food into glucose, which is used to produce energy, producing fatty acids and amino acids Biotin is essential for the normal function of the nervous system as well as the maintenance of normal skin and mucous membranes, activating metabolism in the hair roots and fingernail cells. Biotin must be obtained from the diet as it can be only synthesized by plants, bacteria, yeast and algae. Genetic variations in biotinidase enzyme are associated with lower levels of biotin. Symptoms of biotin imbalance include hair loss, brittle fingernails, fatigue, insomnia, depression.

YOUR GENETIC VARIANTS

This is 1 genetic variant (SNP) associated with Vitamin B7 Deficiency out of 7 that we are using for the determination of your predisposition for this trait.

RECOMMENDATIONS

- Meet your daily biotin intake requirements based on the daily recommended allowance.
- Foods such as egg yolk, liver, and whole-grain cereal are rich in biotin
- Risk factors for biotin imbalances include pregnancy and smoking.

REFERENCES

Read more about Vitamin B7 Deficiency by checking out the following articles:

Resource 1 Resource 2

Vitamin B9 Deficiency

Elevated

higher than **95%** of the population

MY GENETIC VARIANTS

rs17037397 rs1801131 rs1801133

11 MY TOTAL

WHAT IS VITAMIN B9 DEFICIENCY?

Vitamin B9 (folate) is essential for vital processes such as DNA synthesis, methylation, cell repair and maintenance, protein metabolism, and the formation of blood cells. It is really important for pregnant women, and women trying to conceive. Folic acid and folate are often used interchangeably, but folic acid is the type of folate found in vitamin supplements and fortified foods. Folate deficiencies are associated with anemia, elevated levels of homocysteine, pregnancy complications, increased risk of cardiovascular diseases.

YOUR GENETIC VARIANTS

These are 3 genetic variants (SNPs) associated with Vitamin B9 Deficiency out of 17 that we are using for the determination of your predisposition for this trait.

RECOMMENDATIONS

- You may want to consider a higher than average recommended intake to meet your daily requirements for folate from food sources.
- Good dietary sources of folate include: dark green vegetables like spinach, asparagus and broccoli, bananas, strawberries, oranges, tomato juice, legumes, nuts, cereals, organs meats like liver and kidneys.
- Some foods that are often fortified with folic acid include enriched breads, bagels, cereals, flours, cornmeal, pastas and rice.
- Common drugs, including nonsteroidal anti-inflammatory drugs (aspirin, ibuprofen), oral contraceptives, cholesterol lowering and blood pressure control medications may interfere with folate metabolism.
- If you are in doubt how to best supplement your folate, consult a registered dietitian or physician. If you are concerned about your MTHFR variants (rs1801133 and rs1801131), please read the provided references.

REFERENCES

Read more about Vitamin B9 Deficiency by checking out the following articles:

Resource 1 Resource 2 Resource 3 Resource 4

Vitamin C Deficiency

Typical

higher than **8%** of the population

MY GENETIC VARIANTS

rs6133175

1 MY TOTAL

WHAT IS VITAMIN C DEFICIENCY?

Vitamin C (ascorbic acid) is a water-soluble compound that is critical in numerous vital processes. Vitamin C is essential for normal functioning of immune system, production of red blood cells, healthy connective tissues, blood vessels, bones, teeth, and gums. It is a powerful antioxidant, and it participates in iron absorption. While vitamin C deficiencies are rare in developed countries, higher blood levels of vitamin C has been linked to vitality, longevity, lower risk of death from all causes, including cardiovascular diseases and cancer. Vitamin C is commonly taken during winter months to help fight off colds. Humans cannot produce vitamin C and must get this essential vitamin on a daily basis. Scientific studies identified several genetic variations associated with lower levels of vitamin C. If you spend lots of time in the gym, consider boosting your vitamin C levels. People who suffer a lot from colds , as well as smokers, and heavy drinkers, would benefit from higher intake of vitamin C.

YOUR GENETIC VARIANTS

This is 1 genetic variant (SNP) associated with Vitamin C Deficiency out of 11 that we are using for the determination of your predisposition for this trait.

RECOMMENDATIONS

- Meet your daily vitamin C requirements through foods.
- Vitamin C can be found in fruits such as oranges, grapefruits, cantaloupes, Kiwi, mango, papaya, pineapple, strawberries, raspberries, blueberries, cranberries and watermelon.
- Vegetables such as broccoli, Brussels sprouts, cauliflower, green and red peppers, spinach, cabbage, turnip greens, sweet and white potatoes, and tomatoes also have a high vitamin C content.

REFERENCES

Read more about Vitamin C Deficiency by checking out the following articles:

Resource 1 Resource 2 Resource 3

Vitamin D Deficiency

Typical

higher than **28%** of the population

MY GENETIC VARIANTS

rs1544410 rs1993116 rs2060793

7 MY TOTAL

WHAT IS VITAMIN D DEFICIENCY?

Vitamin D is a fat-soluble vitamin that is critical to bone and muscle health, normal functioning of immune, endocrine and cardiovascular systems. Vitamin D can be synthesized in the skin upon exposure to sunlight: it is metabolized into active form and regulates hundreds of genes by binding to vitamin D receptor (VDR). There is a steady increase in cases of severe vitamin D deficiencies in developed countries, mainly due to sun protection measures. Other factors that contribute to vitamin D deficiency include environmental conditions (air pollution, geographical locations), as well as dark skin, being over 50, family history of osteoporosis, excessive weight, and genetics. Large-scale studies identified genetics variants in several genes (including the vitamin binding receptor, VDR; vitamin binding protein GC, and NAD coenzyme) that contribute to vitamin D deficiencies.

YOUR GENETIC VARIANTS

These are 3 genetic variants (SNPs) associated with Vitamin D Deficiency out of 13 that we are using for the determination of your predisposition for this trait.

RECOMMENDATIONS

- Meet your daily intake of Vitamin D based on the recommended daily allowance.
- Food rich in vitamin D include fatty fish such as tuna, mackerel, trout, herring, sardines, kipper, anchovies, or carp.
- Vitamin D can also be found in beef liver, cheese, egg yolks, and some mushrooms.
- Sun exposure (using proper precautions) is very important as vitamin D gets through the skin into ours bodies. During sunny times, the body can make sufficient vitamin D with just a few minutes a day of midday sun exposure without sunscreen. It is recommended to get at least 15-30 minutes of unprotected sun exposure 2-4 times a week. Check your skin sun sensitivity reports assessing your potential risks of exposure to the UV radiation.
- An alternative to sun exposure is vitamin D supplementation under the supervision of health care provider.

REFERENCES

Read more about Vitamin D Deficiency by checking out the following articles:

Resource 1 Resource 2 Resource 3 Resource 4

Vitamin E Deficiency

Elevated

higher than **92%** of the population

MY GENETIC VARIANTS

rs1042031 rs1527479 rs2108622

7 MY TOTAL

WHAT IS VITAMIN E DEFICIENCY?

Vitamin E is a fat-soluble nutrient that includes eight different naturally occurring compounds (four tocopherols and four tocotrienols). Vitamin E acts as an antioxidant, helping to protect cells from the damage caused by free radicals. It is required for normal functioning of immune system, blood vessels and many other organs in the body. Vitamin E reduces the risk of life-threatening blood clots. Studies showed that higher levels of vitamin E are beneficial for healthy cardiovascular system, prevention of cataracts, age-related macular degeneration and fatty liver disease. Vitamin E is sometimes used for improving physical endurance, increasing energy, reducing muscle damage after exercise, and improving muscle strength. Vitamin E is essential for healthy skin, as it has anti-inflammatory and photo-protective properties. Vitamin E imbalances are relatively common, and caused by diet that does not include sufficient amount of good fats, fat malabsorption disorders, and genetic variations.

YOUR GENETIC VARIANTS

These are 3 genetic variants (SNPs) associated with Vitamin E Deficiency out of 12 that we are using for the determination of your predisposition for this trait.

RECOMMENDATIONS

- You may want to consider a higher intake of vitamin E compared to the recommended daily allowance.
- Vitamin E can be found in vegetable oils, nuts, such as peanuts, hazelnuts, and, especially, almonds, seeds like sunflower seeds, avocados, whole grains, wheat germs, and to a lesser extent in green vegetables, such as spinach and broccoli.
- Vitamin E can act as an anticoagulant, which increases the risk of bleeding problems. The Food and Nutrition Board of the Institute of Medicine has set upper intake levels for vitamin E. For adults, a tolerable upper intake limit (UL) is 1000 mg per day: this is more than an order of magnitude higher than the recommended daily allowance, and beyond what the most vitamin E-rich diet could ever contain.
- Topical application can supply skin with vitamin E forms that are not available from the diet.
- Consult a registered dietitian or physician to make sure you are meeting your daily requirements for vitamin E.

REFERENCES

Read more about Vitamin E Deficiency by checking out the following articles:

Resource 1 Resource 2 Resource 3 Resource 4

Vitamin K Deficiency

Typical

higher than **72%** of the population

MY GENETIC VARIANTS

rs2108622 rs3093216 rs7294

4 MY TOTAL

WHAT IS VITAMIN K DEFICIENCY?

Vitamin K is a group of fat-soluble vitamins (including phylloquinone, or vitamin K1, phytonadione, and K2, menaquinone) that is essential for promoting healthy blood clotting, and healthy bones. Growing body of research indicates that optimum intake of vitamin K contributes to longevity. Vitamin K plays protective role against many modern diseases, including atherosclerosis, osteoporosis, diabetes, and some types of cancer. Low vitamin K intake increases the risk of excessive bleeding, mineralization of blood vessels, and also risk of bone fractures. Vitamin K is often used to treat skin to remove spider veins, bruises, scars, stretch marks, burns and it has been known to speed up healing. Genetic variations contribute to vitamin K imbalances: in fact some variants have been linked to higher levels of circulating phylloquinone levels, while others contribute to lower vitamin K levels.

YOUR GENETIC VARIANTS

These are 3 genetic variants (SNPs) associated with Vitamin K Deficiency out of 9 that we are using for the determination of your predisposition for this trait.

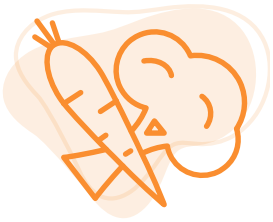
RECOMMENDATIONS

- Make sure you eat a balanced diet, and include vitamin K-rich foods.
- Both plant and animal foods can provide us with significant amounts of vitamin K. Vegetable oils such as extra virgin olive oil, fresh green vegetables, including spinach, kale, broccoli, lettuce, Swiss chard, parsley, are the best source of vitamin K.
- Eggs, meats and seafood contain measurable amounts of vitamin K2, as do cheeses, yogurts, and fermented soy.
- People taking prescription anticoagulants (such as warfarin) need to monitor their dietary intake of vitamin K containing foods closely.

REFERENCES

Read more about Vitamin K Deficiency by checking out the following articles:

Resource 1 Resource 2 Resource 3



Have you wondered which diet is more effective for your unique biology? Unlike the ads in many magazines and the offers of many businesses, there is no universal best diet that works for everyone. How you process carbs, fat and protein are unique to your body's enzymatic processes and your genetic makeup has a strong influence on what works best for sustainable weight loss. Learn more about how your genetics impacts your diet and metabolism in this section.

Bitter Taste Sensitivity

Elevated

higher than **95%** of the population

MY GENETIC VARIANTS

rs10246939 rs1726866 rs713598

4 MY TOTAL

WHAT IS BITTER TASTE SENSITIVITY?

Taste perception plays a fundamental role in our dietary preferences and behaviors, by shaping aversions (or cravings) to foods and drinks. Adverse responses to bitterness are instinctive and drive rejection and avoidance behaviors. The perception of bitterness is due to genetic variations in several bitter taste receptors: when food enters the mouth, the molecules, like phenylthiocarbamide (PTC) compound, interact with saliva, and then bind to taste receptors in the mouth, giving the sensation of bitter taste. People with these genetic variations are sensitive to bitter vegetables that are beneficial (like broccoli, Brussel sprouts, cabbage) or drinks (like coffee and dark beers). There is a growing evidence that taste genes play a much broader role in human health. A new study found that people who are naturally more sensitive to bitterness are more likely to add sodium to their food, often exceeding recommended daily dietary guidelines. At the same time, these people are more likely to avoid ingredients that are beneficial for health, including dark leafy greens and broccoli.

YOUR GENETIC VARIANTS

These are 3 genetic variants (SNPs) associated with Bitter Taste Sensitivity out of 4 that we are using for the determination of your predisposition for this trait.

RECOMMENDATIONS

- You have genetic variations that may make you more sensitive to bitterness in vegetables. This implies that you may be among the portion of the population that may find it difficult to eat dark leafy green vegetables, in particular broccoli or Brussels sprouts.
- If you feel adventurous, try recipes that hide the bitterness in these foods, like Brussels sprouts glazed with honey!

REFERENCES

Read more about Bitter Taste Sensitivity by checking out the following articles:

Resource 1 Resource 2

Caffeine Metabolism Impairment

Typical

higher than **50%** of the population

MY GENETIC VARIANTS

0 MY TOTAL

WHAT IS CAFFEINE METABOLISM IMPAIRMENT?

Cytochrome P450 1A2 (CYP1A2) is the main responsible enzyme for the metabolism of caffeine. People with the AA genotype at rs762551 (within the CYP1A2 gene) are fast metabolizers, while those with the AC or CC are slow metabolizers. For people with normal caffeine metabolism it only takes 45 minutes for 99% of the caffeine to be absorbed through these membranes. In humans, the half-life for caffeine is anywhere from 4 to 6 hours on average, which explains why the average energy drink or coffee's effect lasts about 4 to 6 hours. However, those with genetic variations impairing their metabolism can become hypersensitive to Caffeine. These people react to very small amounts of caffeine. Even at amounts less than 100 mg, people who are hypersensitive to caffeine can experience overdose symptoms such as insomnia, jitters, and an increased heartbeat. For these people, it can take as much as twice as long for caffeine to metabolize.

YOUR GENETIC VARIANTS

You don't have any genetic variants (SNPs) associated with Caffeine Metabolism Impairment out of 1 that we are using for the determination of your predisposition for this trait.

RECOMMENDATIONS

- You seem to have a normal predisposition for caffeine metabolism. This means you can usually have 200-400 mg of caffeine daily without any adverse reactions.
- This equates to 2-3 cups of brewed coffee (not Starbucks), two 16 fl.oz. energy drinks, or 7-8 cups of black tea.
- You should not have trouble sleeping as long as the caffeine is consumed early enough in the day.

Carb Overconsumption

Elevated

higher than **95%** of the population

MY GENETIC VARIANTS

rs1542608 rs197273 rs2024125

5 MY TOTAL

WHAT IS CARB OVERCONSUMPTION?

Carbohydrates serve as the primary energy source for the brain and its role as a source of kilocalories to maintain body weight. Individuals with specific genetic variations are more likely to crave carbs than others. This may result in over-consumption of carbs for such individuals. The recommended intake for carbohydrate intake is 45-65% of total calories intake. Starch and sugar are the major types of carbohydrates. Grains and vegetables (corn, pasta, rice, potatoes, breads) are sources of starch. Natural sugars are found in fruits and juices. Sources of added sugars are soft drinks, candy, fruit drinks, and desserts.

YOUR GENETIC VARIANTS

These are 3 genetic variants (SNPs) associated with Carb Overconsumption out of 10 that we are using for the determination of your predisposition for this trait.

RECOMMENDATIONS

- You may crave carbs more than is healthy. Make sure that your diet contains a balanced combination of carbs, protein and fat, ensure adequate amounts of fiber and limit added sugar.
- Recommended requirement for carbohydrate intake is 45-65% of total calories intake. These values are calculated based on carbohydrate role as the primary energy source for the brain and its role as a source of kilocalories to maintain body weight.
- Starch and sugar are the major types of carbohydrates. Grains and vegetables (corn, pasta, rice, potatoes, breads) are sources of starch.
- Natural sugars are found in fruits and juices. Sources of added sugars are soft drinks, candy, fruit drinks, and desserts.

REFERENCES

Read more about Carb Overconsumption by checking out the following articles:

Resource 1

Difficulty in Losing Weight

Elevated

higher than **88%** of the population

MY GENETIC VARIANTS

rs1440581 rs16129 rs322695

4 MY TOTAL

WHAT IS DIFFICULTY IN LOSING WEIGHT?

Not everyone loses weight at the same rate. Some people lose a few pounds a week after they follow any calorie restrictive diet, while others attempt all kinds of trendy weight-loss diets, but do not see results. Studies found that genetics is, at least, in part to blame for difficulty in losing weight. Studies have shown that carriers of some genetic variations have more difficulties losing weight and improving their metabolic health than people with reference, or common, alleles. People with genetic variants associated with obesity, sensitivity to fat (FTO, PPARG), type 2 diabetes (TCF7L2) emotional eating (CLOCK, SIRT1) and food addiction (DRD2), do not lose weight as easily as other people while on the same diet and exercise regiment. It is important to remember that genetics plays role in weight loss and weight maintenance. Some medical conditions and medications can also hinder weight loss. The most common ones are hypothyroidism, hormonal changes in women, chronic stress and depression.

YOUR GENETIC VARIANTS

These are 3 genetic variants (SNPs) associated with Difficulty in Losing Weight out of 11 that we are using for the determination of your predisposition for this trait.

RECOMMENDATIONS

- You seem to have a higher genetic-based predisposition towards weight loss difficulty, so we would recommend that you consider an intake of up to 20% less than the recommended caloric restrictions recommended by tools like the Mayo Clinic Healthy Weight Pyramid.However do not go under 1200 calories of intake, since this will result in potential nutrient deficiencies for your body.
- Make sure to follow the directions of the tool with regards to the optimal intake and eat a healthy and balanced diet. One of the problems with dieting is that people count calories but forget about essential vitamins and minerals.
- Make sure to exercise. numerous studies show that diet alone may not be sufficient for long-term weight-loss. You may need to stay motivated longer to see the impact of your new diet and exercise plan.
- If you are still struggling with weight loss, monitor your alcohol intake.
- Consider discussing with your physician whether any medications or health conditions may interfere with your weight-loss efforts.

REFERENCES

Read more about Difficulty in Losing Weight by checking out the following articles:

Resource 1 Resource 2

Fat Overconsumption

Slightly Elevated

higher than **75%** of the population

MY GENETIC VARIANTS

rs12327666 rs13290799 rs954108

3 MY TOTAL

WHAT IS FAT OVERCONSUMPTION?

Fat is a dense source of energy and essential fatty acids, and it also facilitates the absorption of fat soluble vitamins. However too much fat consumption may result in heart disease and becoming overweight. Several recent studies in the US and Europe indicate that the percentage of energy derived from saturated fat is above the acceptable range, while the opposite was observed for mono-unsaturated and poly-unsaturated fat. Several genetic variations are known to influence the amount of fat consumed by individuals and their overall fat intake craving.

YOUR GENETIC VARIANTS

These are 3 genetic variants (SNPs) associated with Fat Overconsumption out of 10 that we are using for the determination of your predisposition for this trait.

RECOMMENDATIONS

- While occasional over-consumption of fat is absolutely fine, make sure this does not become a habit that you develop.
- It is important for you to not exceed the general recommendations for daily consumption of fats. Recommended daily calories from fat should constitute 25-35%.
- Ensure that your diet is full of good (mono-unsaturated and poly-unsaturated) fats and watch for the bad (saturated) fats.
- If you are not a vegetarian, substitute fatty fish (salmon, mackerel,tuna) instead of meats high in saturated fat.
- Incorporate foods high in polyunsaturated and monounsaturated fats like avocados, nuts, and olive oil.

REFERENCES

Read more about Fat Overconsumption by checking out the following articles:

Resource 1

Fat Taste Perception

Elevated

higher than **65%** of the population

MY GENETIC VARIANTS

rs1527479

1 MY TOTAL

WHAT IS FAT TASTE PERCEPTION?

There is growing evidence that foods we crave are at least partially determined by our genetics. Genetic variation in taste receptors (or taste buds) may account for differences in our food choices and dietary habits. Research reported that people with a variant in the CD36 gene do not taste dietary fats as much. These people crave fats more than people with who detect lower amounts of fats in food. In fact, there is consistent emerging evidence that fat is the sixth primary taste, with some people being genetic super-tasters and others low-tasters of fat. Low fat taste perception is linked with dietary consumption of fatty foods which in combination with other factors lead to extra weight.

YOUR GENETIC VARIANTS

This is 1 genetic variant (SNP) associated with Fat Taste Perception out of 1 that we are using for the determination of your predisposition for this trait.

RECOMMENDATIONS

- You seem to be a low taster of fat.
- This means that you are more likely to crave and over-consume fats than individuals whose fat taste perception is not impaired.
- Since you may not notice the fat content of meals through taste, make sure to read labels and pay attention to ingredients when cooking or eating out.
- Monitor your fat intake to not go beyond 40% of your daily intake, and consume good fats.

REFERENCES

Read more about Fat Taste Perception by checking out the following articles:

Resource 1 Resource 2

Low-carb Diet Effectiveness

Slightly Advantaged

higher than **65%** of the population

MY GENETIC VARIANTS

rs1042714 rs10850219 rs192210

6 MY TOTAL

WHAT IS LOW-CARB DIET EFFECTIVENESS?

Carbohydrates are the main fuel source, and they provide vitamins, minerals, antioxidants and fiber in the diet. While your body uses carbohydrates as its main fuel source, there are substantial health benefits to limiting your carbohydrate intake. There are two major types of carbohydrates, simple (bad) and complex (good). Simple carbohydrates include sugary foods, pasta, bread, and white rice. Complex carbohydrates are whole grains, and legumes, including brown rice, and whole wheat breads. It is beneficial to eat more complex carbohydrates. People with genetic variations in several genes associated with obesity, insulin sensitivity, and high levels of bad cholesterol (LDL) are more sensitive to carbohydrates in their diet. These people may benefit more from low carbohydrate diet that reduces the amount of calories from carbohydrates and consuming nearly equal proportions of fats and proteins. A low-carb diet restricts the type and amount of carbohydrates you eat. In general, a low-carb diet focuses on proteins, including meat, poultry, fish and eggs, and some non starchy vegetables. A low-carb diet generally excludes or limits most grains, legumes, fruits, breads, sweets, pastas and starchy vegetables, and sometimes nuts and seeds.

YOUR GENETIC VARIANTS

These are 3 genetic variants (SNPs) associated with Low-carb Diet Effectiveness out of 10 that we are using for the determination of your predisposition for this trait.

RECOMMENDATIONS

- A low-carb diet is more likely to be effective for you than individuals who do not have predisposition to carb-sensitivity.
- Limit your daily carb intake to less than 40% of total calories consumed. To monitor the actual usage, there are many tools that allow you to enter daily foods and see your nutritional intake. One such tool is MyFitnessPal
- You can find more than 100 low-carb diet recipes by clicking here (this will take you to a third party site).
- For the carbs you do consume, try to eat more complex carbohydrates such as whole grains, and legumes, including brown rice, and whole wheat breads.
- Low-carb diets may help prevent or improve serious health conditions, such as metabolic syndrome, diabetes, high blood pressure and cardiovascular disease. (Mayo Clinic)
- Choosing a low-carb diet may improve blood cholesterol or blood sugar levels, at least temporarily (Mayo Clinic)
- It is not recommended that you reduce your carb in-take to less than 60 grams per day of carbs. If you suddenly and drastically cut carbs, you may experience a variety of temporary health effects, including headache, bad breath, weakness, fatigue, constipation, or diarrhea.

REFERENCES

Read more about Low-carb Diet Effectiveness by checking out the following articles:

Resource 1 Resource 2

Low-fat Diet Effectiveness

Typical

higher than **55%** of the population

MY GENETIC VARIANTS

rs1440581 rs16129 rs2287019

5 MY TOTAL

WHAT IS LOW-FAT DIET EFFECTIVENESS?

General recommendation is to limit fat intake to 35% of total calories and to control saturated fat intake. A low-fat diet restricts fat intake to 20%, while increases protein and complex carbohydrate intake. Monitoring saturated fats is particularly important: at least 12% of daily calories should come from poly- and monounsaturated fats. The other 80% of calories in the diet come from carbohydrates and protein with general recommendations to consume about 55-60% of carbs and 20-25% of proteins. Low fat high protein diet is based on boosting protein intake to 40%, while decreasing carbohydrate intake to 40%. Numerous large-scale studies on weight loss found that people with variations in genes associated with sensitivity to fat (such as FTO, PPARG, APOA2, LIPC) are more responsive to low fat diets if their goal is weight loss.

YOUR GENETIC VARIANTS

These are 3 genetic variants (SNPs) associated with Low-fat Diet Effectiveness out of 17 that we are using for the determination of your predisposition for this trait.

RECOMMENDATIONS

- There is no increased effectiveness of low-fat diet above normal for your weight loss and healthy weight maintenance.
- However everyone benefits from monitoring fats in the diet, and it is much more important to consume fewer trans- and saturated fats, and more of polyunsaturated and monounsaturated fats contained in fish, olive oils, avocados and nuts.

REFERENCES

Read more about Low-fat Diet Effectiveness by checking out the following articles:

Resource 1 Resource 2 Resource 3

Low Protein Intake Risk

Elevated

higher than **88%** of the population

MY GENETIC VARIANTS

rs1350036 rs838133 rs9553939

3 MY TOTAL

WHAT IS LOW PROTEIN INTAKE RISK?

Protein is the major structural component of all cells in the body, and functions as enzymes, transport carriers and as some hormones. Large study identified genetic predispositions associated with protein intake. Some genetic variations are associated with a tendency for lower protein intake, while others are found to be associated with higher consumption of protein.

YOUR GENETIC VARIANTS

These are 3 genetic variants (SNPs) associated with Low Protein Intake Risk out of 5 that we are using for the determination of your predisposition for this trait.

RECOMMENDATIONS

- You have genetic variations that were more frequently found in people with lower protein intake.
- You need to ensure that your diet meets the daily recommended values for protein intake. Only 10-35% of daily calories need to come from protein.
- There is no defined intake level at which potential adverse effects of excessive consumption of protein have been identified. The upper limit (35%) is set based on recommended daily amounts of fats and carbohydrates.
- Proteins from animal sources (meat, fish, eggs, milk, cheese, yogurt) provide all nine indispensable amino acids, and are considered complete proteins for this reason.
- Proteins from plant sources tend to be deficient in one or more of the indispensable amino acids, and are called incomplete proteins.
- Vegans need to make sure to combine sources.

REFERENCES

Read more about Low Protein Intake Risk by checking out the following articles:

Resource 1

Low Resting Metabolic Rate

Typical

higher than **65%** of the population

MY GENETIC VARIANTS

rs1549060 rs166988 rs2075577

4 MY TOTAL

WHAT IS LOW RESTING METABOLIC RATE?

Body weight depends on the balance between energy intake and energy expenditure. Energy intake comes from calories consumed, and energy expenditure is the energy that body uses to maintain normal body temperature and essential processes such as metabolism, breathing, brain functioning. Individual differences in the energy cost of self-maintenance (resting metabolic rate, RMR) are substantial, and depend on age, weight, environment, and genetics. The heritability of RMR is 40-50% of the variance remaining after adjustment for age, gender, and fat-free mass. Uncoupling proteins, UCP1 and UCP3, play important roles in regulating body temperature and energy expenditure: these proteins are found in brown fats and they are involved in metabolic process by which energy is dissipated as heat in response to excess of caloric intake and cold stress. People with genetic variations in the UCP genes tend to have lower RMR.

YOUR GENETIC VARIANTS

These are 3 genetic variants (SNPs) associated with Low Resting Metabolic Rate out of 10 that we are using for the determination of your predisposition for this trait.

RECOMMENDATIONS

- Given your normal/fast resting metabolic rate (RMR) you should be able to burn your calories efficiently, provided you are on a healthy diet and do not have issues with fat or carb processing.
- Calculate your RMR/BMR and the calories you need eat for a particular weight using the USDA Supertracker Calcuator.
- As the RMR tends to decrease with age, most people need to monitor their calorie intake and incorporate physical activities in their daily lives to maintain healthy energy balance.
- To ensure you are eating the right kind of foods, check your NutriNome report to see if you have carb or fat processing predispositions.

Low Vegetable Intake

Elevated

higher than **85%** of the population

MY GENETIC VARIANTS

rs10246939 rs1726866 rs713598

3 MY TOTAL

WHAT IS LOW VEGETABLE INTAKE?

It is a well-known fact that consumption of fruits and vegetables adds important under-consumed nutrients to diets. Fruits and vegetables reduce the risk of heart disease, stroke, and some cancers, and help manage weight. Most U.S. residents consume too few fruits and vegetables. It is important to ensure you have adequate amounts of fruits and vegetables in your diet.

YOUR GENETIC VARIANTS

These are 3 genetic variants (SNPs) associated with Low Vegetable Intake out of 3 that we are using for the determination of your predisposition for this trait.

RECOMMENDATIONS

- You have genetic variations found in people with consume fewer vegetables.
- This could be due to adverse taste to some bitter vegetables, or some other factors. Be creative with vegetable recipes, add some natural sweetness to bitter green leafy vegetables (honey glazed Brussels sprouts, or baked pumpkin with dates and apple), eat vegetables and fruits in different colors to ensure you have adequate vegetable intake.

REFERENCES

Read more about Low Vegetable Intake by checking out the following articles:

Resource 1

Mediterranean Diet Effectiveness

Typical

higher than **22%** of the population

MY GENETIC VARIANTS

rs1801133

1 MY TOTAL

WHAT IS MEDITERRANEAN DIET EFFECTIVENESS?

Mediterranean diet is known to have many health benefits. It is rich in monounsaturated (good) fats that are important in reducing risks of heart disease, increasing good cholesterol, delaying cognitive decline. It is also associated with longevity. Research by Mayo Clinic has shown that the traditional Mediterranean diet reduces the risk of heart disease. The diet has been associated with a lower level of oxidized low-density lipoprotein (LDL) cholesterol the badcholesterol that's more likely to build up deposits in your arteries. According to the Mayo Clinic, a meta-analysis of more than 1.5 million healthy adults demonstrated that following a Mediterranean diet was associated with a reduced risk of cardiovascular mortality as well as overall mortality. The Mediterranean diet is also associated with a reduced incidence of cancer, and Parkinson&'s and Alzheimer's diseases. Women who eat a Mediterranean diet supplemented with extra-virgin olive oil and mixed nuts may have a reduced risk of breast cancer (Mayo Clinic). In people with genetic variations in the ADIPOQ, gene and Mediterranean diet also helps to facilitate fat loss and to improve metabolic health. Genetic variations in several other genes, including PPARG, MTHFR, TCF7L2, LPL and MLXIPL, were found to be associated with increased advantage of following the Mediterranean diets.

YOUR GENETIC VARIANTS

This is 1 genetic variant (SNP) associated with Mediterranean Diet Effectiveness out of 4 that we are using for the determination of your predisposition for this trait.

RECOMMENDATIONS

- Although you are not genetically predisposed for increased effectiveness of the Mediterranean diet, there are substantial health benefits to switching more to that diet.
- This would mean consuming 35% of daily calories from fats, including up to 22% from monounsaturated fats, 20% of good quality proteins from fish and meats, and up to 40% of carbohydrates.
- Check out the Mediterranean diet recipes of Mayo Clinic for inspriation.

REFERENCES

Read more about Mediterranean Diet Effectiveness by checking out the following articles:

Resource 1 Resource 2 Resource 3

Monounsaturated Fats Increased Benefits

Typical

higher than
58%
of the population

MY GENETIC VARIANTS

rs102275 rs1931575 rs3134950

3
MY TOTAL

WHAT IS MONOUNSATURATED FATS INCREASED BENEFITS?

In addition to tremendous health benefits of omega-3 (alpha linoleic acid) and omega-6 (linoleic acid) fats, there are several other fats that are important for good health. These include monounsaturated (healthier) fatty acids such as omega-7 (palmitoleic acid found in macadamia nuts, for example), omega-9 (oleic acid found in olive oil), as well as some saturated fats (for example, those found in coconut oil or peanuts). These fats are known for their anti-inflammatory properties, lowering triglycerides, reducing blood pressure. The Mediterranean Diet, known for its numerous health benefits, is heavily influenced by monounsaturated fats. They are also good for keeping heart healthy. Good quality monounsaturated fats are also beneficial for skin as they maintain water level in the epidermis and supply the ceramides and fats that keep the bricks and mortar of the skin and hair healthy and intact.

YOUR GENETIC VARIANTS

These are 3 genetic variants (SNPs) associated with Monounsaturated Fats Increased Benefits out of 6 that we are using for the determination of your predisposition for this trait.

RECOMMENDATIONS

- Follow generally recommended guidelines for monounsaturated fats intake.
- Consumer olive oil and nuts to meet your daily intake needs.

REFERENCES

Read more about Monounsaturated Fats Increased Benefits by checking out the following articles:

Resource 1

Overweight Potential

Typical

higher than **28%** of the population

MY GENETIC VARIANTS

rs1042714 rs12970134 rs17782313

3 MY TOTAL

WHAT IS OVERWEIGHT POTENTIAL?

Multiple studies have demonstrated a significant role for genetics in overweight potential and obesity. Genetic variations influencing our propensity to gaining and keeping extra weight are not uncommon. The genes that were once beneficial to our ancestors during food shortages have become liabilities in today's environment of food excess. Some people have the tendency to gain weight through fat consumption. Variants in the FTO, FABP2 and PPARG genes have been found to be associated with this problem. Variants in two lipolytic receptors in fat cells, ADRB2 and ADRB3, are found to be associated with high BMI and excessive weight gain due to high carb intake, in particular refined carbs. Genetic variants in MC4R gene are associated with increased frequency of snacking, and higher risk of diabetes. While overweight related traits have a significant genetic component, diet, habits, and lifestyle play important roles too.

YOUR GENETIC VARIANTS

These are 3 genetic variants (SNPs) associated with Overweight Potential out of 9 that we are using for the determination of your predisposition for this trait.

RECOMMENDATIONS

- Your overall genetics-based propensity for becoming overweight is typical.
- Follow general recommendations to keep a balanced diet and maintain a healthy BMI (20-25)
- To assess your current BMI, use the Mayo Clinic BMI Calculator.

REFERENCES

Read more about Overweight Potential by checking out the following articles:

Resource 1 Resource 2

Polyunsaturated Fats Increased Benefits

Advantaged

higher than **85%** of the population

MY GENETIC VARIANTS

rs10761785 rs174537 rs174546

9 MY TOTAL

WHAT IS POLYUNSATURATED FATS INCREASED BENEFITS?

Polyunsaturated fats are mainly omega-3 and omega-6 fatty acids. Omega-3 fats are a key family of polyunsaturated fats (EPA/DHA/ALA) that humans must get from food. Omega-3s are beneficial for the heart and brain health: they lower blood pressure and heart rate, improve blood vessel function, reduce triglycerides and system inflammation. They are good for eye health and skin appearance. Scientific studies show that omega-3s can help fight depression and improve attention. Along with omega-3 fats, omega-6 fats play a crucial role in brain function, and normal growth and development. Omega-6s help stimulate skin and hair growth, maintain bone health, regulate metabolism, and maintain the reproductive system. Several large-scale studies identified genetic variations in and near the FADS enzymes that interfere with metabolism of omega-3 and omega-6 fats. While both omega-3 and omega-6 fatty acids are essential for human body, a healthy diet should contain an equal ratio of omega-6 to omega-3. The main problem with a typical Western diet is that it contains way too many Omega-6s relative to Omega-3s.

YOUR GENETIC VARIANTS

These are 3 genetic variants (SNPs) associated with Polyunsaturated Fats Increased Benefits out of 10 that we are using for the determination of your predisposition for this trait.

RECOMMENDATIONS

- You have genetic variations in or near the FADS enzymes that play key roles in fatty acid metabolism, thereby requiring additional sources of omega-3 and omega-6 in your diet.
- While both omega 3 and omega6 fatty acids are essential, the goal is to increase the intake of omega-3 fats while limiting the intake of omega-6 fats (from fried and processed foods).
- Aim to eat fish high in DHA and EPA omega-3 fatty acids two to three times a week.
- These include anchovies, herring mackerel, salmon (wild has more omega-3s than farmed), sardines, lake trout, tuna. Walnuts and flax seed have omega-3s and 6s too.
- Talk to your doctor or registered dietitian about optimizing your dietary intake of omega 3 and 6 fatty acids. Getting professional advice is particularly important if you are taking medications.

REFERENCES

Read more about Polyunsaturated Fats Increased Benefits by checking out the following articles:

Resource 1 Resource 2 Resource 3

Risk from Saturated Fats

Slightly Elevated

higher than **70%** of the population

MY GENETIC VARIANTS

rs5082

1 MY TOTAL

WHAT IS RISK FROM SATURATED FATS?

It is no secret that large amounts of saturated fats are not good for anyone. People with genetic variations in the FABP and APOA2 genes were found to be under higher risk of elevated triglycerides, elevated cholesterol and extra weight.

YOUR GENETIC VARIANTS

This is 1 genetic variant (SNP) associated with Risk from Saturated Fats out of 2 that we are using for the determination of your predisposition for this trait.

RECOMMENDATIONS

- You have risk alleles that were found to put you under slightly higher risk for increased triglycerides, cholesterol, and extra weight, if you consume saturated fats. Watch for saturated fats in your diet.

Satiety Impairment

Typical

higher than **40%** of the population

MY GENETIC VARIANTS

rs1137101 rs992472

2 MY TOTAL

WHAT IS SATIETY IMPAIRMENT?

Satiety refers to the physical sensation of fullness from eating. When satiety is normal, the brain receives a signal that enough calories have been consumed, reducing the feeling of hunger. People with genetic variations in the FTO, LEPR and DNMT3B genes are more likely to be eating more without feeling full and satisfied. There is also a correlation between low satiety and weight gain. Genetic variation associated with low satiety are also linked to higher consumption of high-sugar and high-fat foods.

YOUR GENETIC VARIANTS

These are 2 genetic variants (SNPs) associated with Satiety Impairment out of 3 that we are using for the determination of your predisposition for this trait.

RECOMMENDATIONS

- Your sense of satiety should be intact and you should stop eating before you feel overly stuffed.
- Keep a healthy diet and exercise as appropriate for your age group.

REFERENCES

Read more about Satiety Impairment by checking out the following articles:

Resource 1 Resource 2 Resource 3

Snacking

Elevated

higher than **95%** of the population

MY GENETIC VARIANTS

rs1051168 rs17782313 rs2025804

4 MY TOTAL

WHAT IS SNACKING?

Some people feel hungry more often than others and are impulsively driven to frequent snacking, which if left unchecked can result in extra weight. Variations in the MC4R, leptin receptor (LEPR), NMB and BDNF genes, have been linked to increased snacking. Genetic variations in the MC4R gene are also significantly associated with higher BMI and obesity.

YOUR GENETIC VARIANTS

These are 3 genetic variants (SNPs) associated with Snacking out of 4 that we are using for the determination of your predisposition for this trait.

RECOMMENDATIONS

- If you find yourself constantly snacking and are concerned about getting extra weight, you may either blame your genes or consider making some adjustments to your behavior.
- A good goal for a between-meal snack is something with fewer than 100 calories. Generous portions of fruits or vegetables can easily help fill you up while staying below that calorie count.
- To get an idea of snacks that meet these requirements, mix and match from the following during your day: Medium apple (95 calories), Small banana (90 calories), Two kiwis (84 calories), 20 medium baby carrots (70 calories), 20 grapes (68 calories), Medium orange (65 calories), 20 cherry tomatoes (61 calories), Medium peach (58 calories), medium red pepper (37 calories) or 20 pea pods (28 calories).

REFERENCES

Read more about Snacking by checking out the following articles:

Resource 1 Resource 2 Resource 3

Starch Metabolism

Typical

higher than **68%** of the population

MY GENETIC VARIANTS

rs11185098 rs1330403 rs1930212

3 MY TOTAL

WHAT IS STARCH METABOLISM?

Starch is a complex carbohydrate. Foods high in starch include grains (oats, barley, rice), and starchy vegetables (potatoes, beans, corn, lentils). Starch is metabolized by a digestive enzyme, called amylase. In some people, amylase can account for up to half of total protein in the saliva, while other people have barely detectable levels of this enzyme. Large variation in levels of amylase depends on various factors, including stress, as well as genetics. Interestingly, populations who historically relied on starch (rice, potato) for dietary energy have higher levels of the amylase than populations who consumed high-protein diets. People with high levels of amylase were found to be good metabolizers of starch-rich diet, while people with low levels of amylase enzyme are poor metabolizers of starch, and they may be at greater risk for increased blood glucose levels, insulin resistance and diabetes if they consume starch-rich diets.

YOUR GENETIC VARIANTS

These are 3 genetic variants (SNPs) associated with Starch Metabolism out of 5 that we are using for the determination of your predisposition for this trait.

RECOMMENDATIONS

- Your ability to metabolize starch-rich diet is typical
- Starchy foods often need to be limited if you're following a low-carb diet.
- However, the U.S. Department of Agriculture recommends you fill one-fourth of your plate with these foods at each meal since they provide essential nutrients.
- Your body needs 5 to 8 ounces per day from the breads and grains group, depending on your age and activity level, at least half of which should come from whole grains. A slice of bread, one-half cup of oatmeal or rice, a mini bagel, a cup of dry cereal and 3 cups of popcorn are all equivalent to 1 ounce.
- You should also consume 4 to 6 cups of starchy vegetables and 1 to 2 cups of beans each week as a part of your daily recommended intake of 2 to 3 cups of vegetables.

Sweet Snack Preference

Slightly Elevated

higher than **62%** of the population

MY GENETIC VARIANTS

rs838133

1 MY TOTAL

WHAT IS SWEET SNACK PREFERENCE?

Scientists from 23andme looked at taste preferences among about over 110,000 customers of European ancestry and identified two genetic bio markers associated with preference of sweet snacks to salty or savory ones. The study identified variants in two genes, FGF21 and FTO. These genes are not associated with sweet tooth and taste receptors. These genes affect how people metabolize food. This is yet another example that while your culture, habits and your age influence the foods you tend to like, genetics plays it important role too.

YOUR GENETIC VARIANTS

This is 1 genetic variant (SNP) associated with Sweet Snack Preference out of 2 that we are using for the determination of your predisposition for this trait.

RECOMMENDATIONS

- You have a slightly elevated genetics-driven preference for sweet snacks over salty and savory.
- Healthy snacks can satisfy your hunger and keep you from eating extra helpings at your next meal, which can lower total daily calories.
- Snacks can also supply afternoon energy and extra nutrients.
- If you're trying to lose weight, try these 100-calorie snacks: 1 cup sliced bananas and fresh raspberries; 2 cups of carrots; 3 1/2 cups air-popped popcorn; 5 rye or pumpernickel crackers; 2 tablespoons of peanuts; 2 domino-sized slices of low-fat colby or cheddar cheese.

Sweet Tooth

Typical

higher than **30%** of the population

MY GENETIC VARIANTS

rs2014357

1 MY TOTAL

WHAT IS SWEET TOOTH?

A person with a sweet tooth has a higher sugar craving than the average person. If a person has a high sweet tooth predisposition, it is likely that they will often crave sweets and snack on sugary foods. Genetic variations in TAS1R2, GLUT2, FUT1, may be responsible for sugar cravings, and preference of sweet snacks. This may lead to weight gain, elevated glucose levels as well as pose future threats of Type-II diabetes, in particular in people with predispositions to these conditions. Remember, it is recommended that healthy adults may consume of added sugars up to to 150 calories per day (37.5 grams or 9 teaspoons) for men, and 100 calories per day (25 grams or 6 teaspoons) for women.

YOUR GENETIC VARIANTS

This is 1 genetic variant (SNP) associated with Sweet Tooth out of 5 that we are using for the determination of your predisposition for this trait.

RECOMMENDATIONS

- While you may crave sugars and sugary foods and drinks but this is more likely to be an acquired taste rather than genetically influenced.
- It is very important to monitor your sugar intake. If you are serious about controlling your sugar cravings, it may be easier for you to do than you think.
- Aim at getting your sugar craving naturally. Avoid processed foods, read the labels, do not go hungry, and make sure your blood sugar is stable.
- Eat more greens, fermented foods and sea vegetables.
- Finally. drink plenty of water, exercise, and be outdoors.

REFERENCES

Read more about Sweet Tooth by checking out the following articles:

Resource 1 | Resource 2 | Resource 3 | Resource 4

Trans Fats Sensitivity

Elevated

higher than **75%** of the population

MY GENETIC VARIANTS

rs102275 rs1535 rs174534

12 MY TOTAL

WHAT IS TRANS FATS SENSITIVITY?

Trans fatty acids (trans fats) cannot be synthesized by humans. Trans fats are considered the worst type of fat you can eat. Trans fats are of two types: natural and artificial. Natural trans fats can be found in small quantities in dairy and meat products. Artificial trans fats are created in an industrial process that adds hydrogen to liquid vegetable oils, producing partially hydrogenated oils. Trans fats are linked to adverse health outcomes: they raise bad cholesterol levels (LDL) and lower good cholesterol levels (HDL), increase risk of developing heart diseases and type 2 diabetes. It is common knowledge that trans-fats are not healthy. People with genetic variants in or near the fatty acid desaturase (FADS1 and 2) cluster are more sensitive to adverse effects of trans fats.

YOUR GENETIC VARIANTS

These are 3 genetic variants (SNPs) associated with Trans Fats Sensitivity out of 13 that we are using for the determination of your predisposition for this trait.

RECOMMENDATIONS

- You need to minimize intake of trans fats, in particular those that are contained in processed food.
- The American Heart Associations recommends limiting the amount of trans fats to less than 1 percent of your total daily calories.
- Look for 0 g trans fat on the Nutrition Facts label and no hydrogenated oils in the ingredients list.

REFERENCES

Read more about Trans Fats Sensitivity by checking out the following articles:

Resource 1 Resource 2