MaxGen LABS

TheWorks

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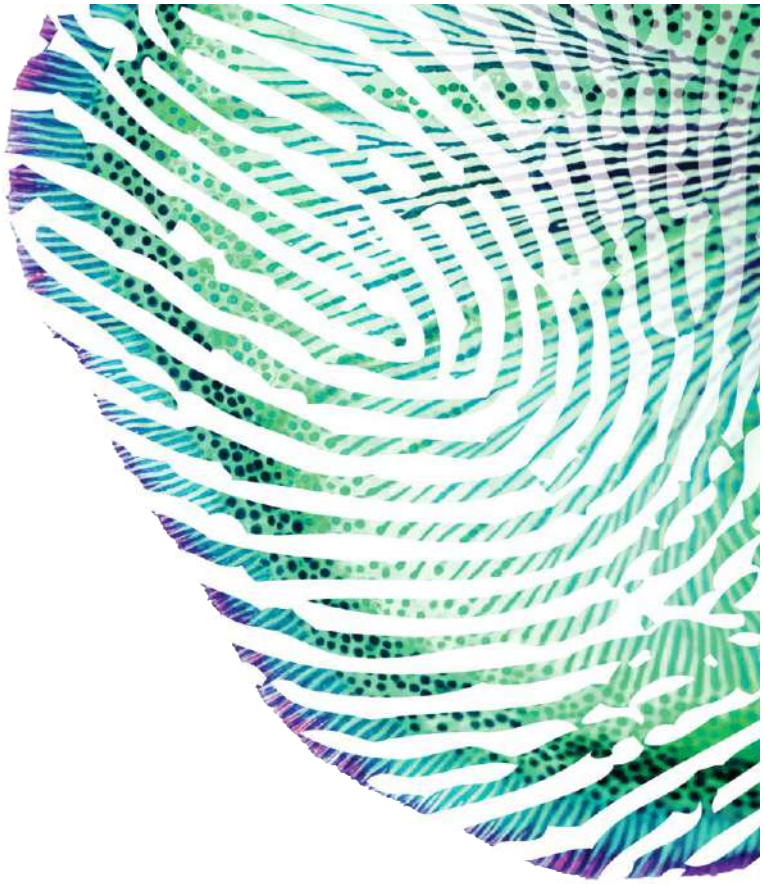


SAMPLE REPORT

TheWorks

Consult with a licensed healthcare professional before making any changes based on the information contained within this report. These recommendations and explanations are based on clinical observations by MaxGen Labs and current medical research, which is subject to change. The results and information provided are for educational purposes only, are not personalized to your specific health status, and are not intended to diagnose, treat, or cure any disease or condition. The use of this test and its recommendations have not been approved by the FDA. MaxGen Labs and its staff are not responsible for how this test is used or for any damages resulting from its use. It is the responsibility of the user to seek appropriate professional advice before acting on the report. This report does not replace professional medical care, and some recommendations may not comply with legal or medical guidelines in your jurisdiction.

Welcome to Your Personalized Nutrigenomic Report

This report offers personalized genetic insights designed to enhance your health and well-being. It is organized to guide you from foundational health elements to more specific and advanced areas, ensuring a comprehensive approach to your overall wellness. Always discuss any dietary or supplement changes with your physician or dietitian, especially if medications or complex health issues are involved. For assistance in finding a physician or dietitian, contact MaxGen Labs or visit our website.

Nutrigenomics Overview

Nutrigenomics is the study of how our genes interact with our diet and lifestyle to influence health and disease. This emerging field focuses on understanding the relationship between nutrition, gene expression, and overall well-being. By examining genetic variations, known as single nucleotide polymorphisms (SNPs), nutrigenomics helps identify how individual genetic differences can affect nutrient metabolism, dietary needs, and responses to various foods. This personalized approach allows for tailored dietary and lifestyle recommendations that can optimize health and prevent disease.

Importance of Nutrigenomics

The importance of nutrigenomics lies in its ability to provide personalized health insights based on an individual's unique genetic makeup. Traditional dietary guidelines often adopt a one-size-fits-all approach, which may not be effective for everyone due to genetic differences. By leveraging the principles of nutrigenomics, we can develop customized nutrition plans that address specific genetic predispositions, enhance nutrient absorption, and mitigate potential health risks. This personalized approach not only improves dietary effectiveness but also empowers individuals to make informed lifestyle choices that support long-term health and wellness.

Finding a Practitioner

Unlike genetic mutations that require the expertise of medical geneticists, nutrigenomic testing focuses on how your genes interact with your diet and lifestyle. For this, you should consult dietitians or practitioners who are specifically trained in nutrition and genetics. These professionals can provide personalized dietary advice based on your genetic profile. To find qualified practitioners near you, visit the MaxGenlabs.com website, where you can access a directory of experts who specialize in nutrigenomics.

Report Structure

The Foundational section is a great starting point for any wellness protocol. The recommendations within this section are generally accepted as basic health and wellness practices. Many focus on lowering the demand or stress on specific pathways within the body. By analyzing genetic weaknesses in different pathways, this section prioritizes which areas to focus on. Often, following these simple foundational recommendations can result in noticeable health improvements.

The Core section takes a more active role in supporting the body, diving deeper into specific pathways that may need additional help. Utilizing the latest research, this section prioritizes areas of nutrition, supplementation, and proactive lifestyle changes. It addresses not only vitamin absorption but also potential issues with vitamin bioactivation and cellular utilization, offering specific dietary forms of particular vitamins. These recommendations can make significant health improvements and are often more advanced and should be considered after implementing foundational changes.

The Advanced section delves deeply into the genetics behind specific enzymes, hormones, receptors, and other protein functions within the body. The recommendations here can include very targeted nutritional supplementation or lifestyle changes, important for both immediate health and preventative care. These suggestions are often based on longevity and aging research. It's easy to become overwhelmed with health protocols, diets, supplements, and reports like this one. We highly recommend starting with the Foundational section of the report. Many health goals can be achieved with guidance on basic practices. There are also times when new supplements or diets can cause adverse effects. We have done our best to predict and prioritize other pathways in these situations based on genetics.

High Quality Supplements

When choosing supplements, it's crucial to opt for high-quality brands to ensure safety and efficacy. Avoid buying supplements from sources like Amazon, where product authenticity and quality control can be questionable. Instead, choose reputable brands and trusted sources. We've partnered with Xymogen and Wholescripts to offer you a 10% discount on their high-quality supplements. Use the provided link to purchase directly from these reliable manufacturers and ensure you're getting the best for your health. www.wholescripts.com/register/MaxGen

10% Off - Direct from Manufacturer

How to use this report

This guide is designed to help you navigate and make the most of the information provided. Begin at page one and progress through the report sequentially, as the sections are arranged in order of physiological importance, starting with the most critical areas of your health. This ensures you address the most significant aspects first. You don't need to implement all the recommendations at once; focus on one section at a time and make gradual changes. Don't skip ahead! You may start feeling improvements early on as you begin to make lifestyle and diet choices that better fit you. And its perfect

Throughout the report, you'll find detailed descriptions of potential symptoms related to various genetic predispositions. Monitor your symptoms as you make changes, and use this feedback to guide your next steps. Remember that genetics is about probabilities, not certainties. The recommendations are based on your genetic tendencies, but they are not absolute. Your lifestyle, environment, and other factors also play significant roles in your health.

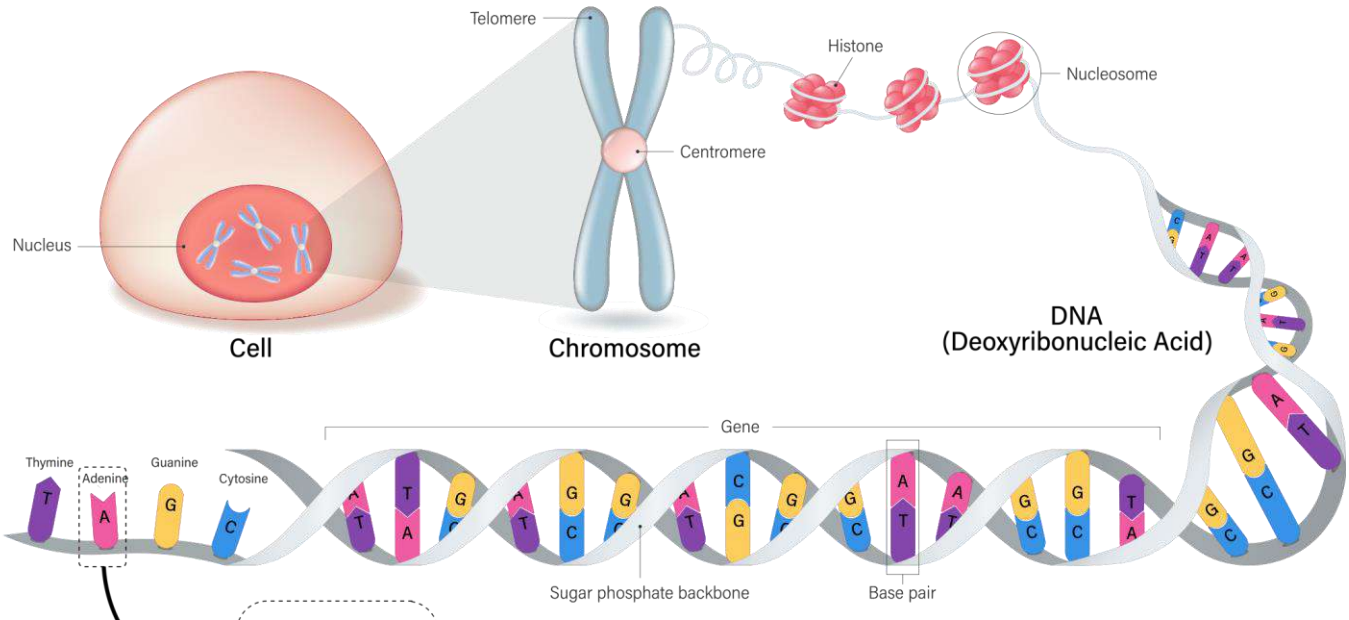
For personalized advice and to ensure you are making the best decisions, consider consulting with a dietitian or a nutritionally trained practitioner. They can help you interpret the report and tailor the recommendations to your unique needs. By following these guidelines, you can effectively use this report to improve your health and well-being. Remember, progress is a journey, and taking it one step at a time will help you achieve the best results.

Terminology

- **DNA and Genes**: DNA (deoxyribonucleic acid) is the molecule that carries genetic information in your cells. Genes are specific segments of DNA that contain instructions for the development, functioning, growth, and reproduction of your body.
- **Alleles:** An allele is a variant form of a gene, represented by different sequences of DNA bases (A, T, C, and G) at a specific location on a chromosome. These variations can result in different traits, such as eye color, and can be either dominant or recessive.
- **SNPs (Single Nucleotide Polymorphisms):** SNPs are the most common type of genetic variation among individuals. Each SNP represents a variation in a single DNA building block, known as a nucleotide. These variations can influence how individuals respond to certain drugs, their susceptibility to environmental factors, and their risk of developing particular diseases.

Genotype Information:

- **Wild Type (WT):** Refers to the typical or 'normal' sequence of a gene.
- **Heterozygous (+/-):** Indicates the presence of two different alleles for a particular gene.
- **Homozygous (++ or --):** Indicates the presence of two identical alleles for a particular gene.



Single Nucleotide Change

These single nucleotide changes are called Single Nucleotide Polymorphisms (SNPs). These are not acquired genetic mutations but naturally occurring variants. These variants can have no influence to very profound influences on biological processes in the body. These natural variants are what we look at within this report to determine what lifestyle changes might be ideal for you.

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Lifestyle

The Lifestyle page provides practical and actionable recommendations designed to enhance your overall health and well-being through simple yet effective lifestyle modifications. These recommendations are based on your genetic insights and focus on foundational elements such as sleep, stress management, addiction, and environmental factors. By implementing these strategies, you can reduce stress on specific pathways within your body and create a solid foundation for improved health. Start with the recommendations that resonate most with you, and gradually incorporate more changes to experience the full benefits of a personalized approach to wellness.

Sleep Tendencies

Good sleep habits are essential for maintaining overall health and well-being. In this section, we will explore effective strategies to cultivate healthy sleep habits that support restorative rest and enhance daily functioning.

You have a biological tendency towards an average bed times, average sleep duration, higher stress & anxiety levels, and decreased sleep quality.

Weight Loss & Sleep

There is a strong connection between sleep and weight management. Poor sleep quality and insufficient sleep can disrupt hormones that regulate appetite, leading to weight gain and other metabolic issues.

Your genetic profile indicates a normal need for sleep in relation to weight loss. Maintaining regular sleep patterns supports healthy metabolism and weight management.

Tips for Better Sleep

Achieving better sleep often requires making specific changes to your daily routine and environment. This section provides tips to help you create an optimal environment and adopt habits that promote restful and uninterrupted sleep.

Consider increasing morning sun exposure, daily exercise, calming pre-sleep routine, ensure your room is dark while sleeping, progressive muscle relaxation techniques, consume foods high in tryptophan, consider taking magnesium or L-theanine.

Avoid for Better Sleep

Identifying and avoiding sleep disruptors is crucial for achieving a good night's rest. This section outlines common sleep inhibitors and provides guidance on how to minimize their effects, helping you to avoid interruptions and enjoy more restorative sleep.

Consider avoidingblue light exposure at night, heavy meals for dinner, evening exercise, green tea, methyl donating supplements,caffeine & nicotine after 3PM.

Sleep Apnea

Sleep apnea and dyspnea are associated with significant health risks, including cardiovascular disease, reduced quality of life, and increased mortality.

Normal risk for sleep apnea/dyspnea

Smoking Toxicity

Smoking introduces harmful chemicals into the body, leading to issues such as lung cancer, heart disease, and respiratory problems.

You have a normal risk of adverse effects of cigarette smoking. Consider quitting to avoid compications from smoking.

Quitting Difficulty

Some individuals struggle more with quitting, focusing on the role of genetics in addiction and withdrawal.

Quitting smoking may be very manageable for you, suggesting that standard smoking cessation programs could be effective.

Support for Quitting

This section offers tailored recommendations and resources, including behavioral therapies and pharmacological aids, to help you quit smoking based on your genetic profile and personal needs.

You may require a standard Nicotine Replacement Therapy, and stress management to quit smoking.

How Do You Learn Best?

Effective learning strategies are crucial for individuals of all ages to reach their full academic and personal potential. By understanding each person's unique cognitive strengths and challenges, parents, educators, and learners themselves can tailor educational approaches to enhance the learning experience. This section provides a comprehensive overview of personalized learning strategies, with a particular focus on children but also relevant for adults. Drawing on insights from cognitive psychology, educational research, and genetic factors, these strategies aim to develop effective study habits, improve memory retention, and foster a love for learning. Whether supporting a child struggling with schoolwork or enriching an adult's educational journey, these strategies offer valuable tools to optimize the learning process and achieve academic goals.

Reward-Based Learning: Incorporate rewards and incentives to enhance motivation and reinforce learning.
Interactive Activities: Engaging in interactive learning activities can help reinforce concepts and improve retention.

Dietary Habits

Understanding dietary habits and their underlying genetic influences is essential for promoting overall health and well-being. Our eating behaviors, including cravings, meal patterns, and food preferences, are shaped by a complex interplay of genetic, environmental, and psychological factors. By exploring the genetic basis of various eating habits, we can uncover how genetic predispositions influence responses to stress and emotions, drive snacking behavior, and affect sensitivity to certain tastes. Additionally, examining genetic factors can shed light on tendencies toward overeating, the effectiveness of dietary strategies like intermittent fasting, and risks associated with eating disorders such as anorexia. This comprehensive approach helps in developing personalized strategies for maintaining a healthy diet and improving overall health outcomes.

Emotional Eating

Emotional under and overeating are complex behaviors often influenced by genetic factors that regulate our response to stress, hunger, and satiety. Emotional eating occurs when individuals use food as a coping mechanism to manage emotions.

You have a normal risk of emotional eating. Continue maintaining healthy eating habits and coping strategies to support overall well-being.

Cravings & Snacking

Snacking desire, or the frequent urge to eat between meals, is often driven by a combination of genetic and environmental factors. Genetics can influence hunger signals, and reward pathways, making some individuals more prone to cravings and snacking

You are less prone to frequent snacking. Your genetic profile suggests a lower tendency to crave snacks between meals. Maintain balanced meals to support your overall health and well-being.

Bitter Taste

Some individuals have a heightened sensitivity to bitterness due to genetic variations, leading to a reduced desire to eat vegetables. This trait, influenced by genes such as TAS2R38, affects taste receptors and can make certain vegetables taste excessively bitter.

You can taste bitter flavors, which may make some foods like broccoli and Brussels sprouts taste more intense. To enjoy these foods, try different cooking methods and seasonings.

Sweet Tooth

A preference for sweet foods, often referred to as a "sweet tooth," is influenced by genetic variations that affect taste receptors and reward pathways. Genes can play a significant role in sweet taste perception and cravings for sugary foods.

You have a low tendency to crave sweets. Your genetic profile indicates a lower likelihood of seeking sugary foods. Maintain balanced meals to support overall health.

Overeating

Overeating can be influenced by genetic factors that affect appetite regulation and satiety signals. Genes play a significant role in hunger and food intake, predisposing some individuals to consume more than necessary.

You may experience less feelings of fullness than the average person. Consider watching portion sizes, increasing dietary fiber, and eating slower to help manage your appetite and support satiety.

Intermittent Fasting

The effectiveness of intermittent fasting may be influenced by genetic variations affecting metabolism and energy utilization. Genes involved in metabolic regulation, impacting how individuals respond to fasting periods.

You are likely to have a typical response to intermittent fasting

Carbohydrate Sensitivity

Carbohydrate sensitivity refers to how well an individual can metabolize and tolerate carbohydrates. Genes play a role in glucose metabolism and insulin sensitivity, impacting how the body responds to carbohydrate intake.

You are likely very sensitive to carbohydrates. Consider limiting your intake, especially of simple carbohydrates.

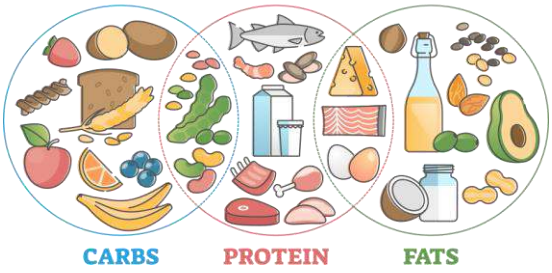
Eating Disorders

Anorexia nervosa and bulimia have genetic components, with certain genes influencing appetite, anxiety, and body image. Variants in these genes are associated with higher risks of developing eating disorders. Understanding this genetic tendency can help you seek treatment, if needed, sooner.

You have a low risk for eating disorders. Maintaining a balanced diet and healthy eating habits, along with regular mental health check-ins, can help support overall well-being.

Diets

Exploring various dietary approaches can provide valuable insights into maintaining and improving health. Each diet has unique principles and benefits, often influenced by genetic predispositions that affect metabolism, nutrient absorption, and overall dietary response. Understanding these factors can help tailor diets to individual needs, optimizing health outcomes and promoting well-being. In this guide, we will delve into several popular diets and related genetic considerations, offering a comprehensive overview to help you make informed dietary choices.



DASH Diet

The DASH (Dietary Approaches to Stop Hypertension) diet emphasizes the consumption of fruits, vegetables, whole grains, and lean proteins while reducing sodium intake. This diet is particularly beneficial for individuals with genetic predispositions to high blood pressure.

You are likely to see substantial benefits from following the DASH diet, with significant improvements in blood pressure and cardiovascular health.

Ketogenic Diet

The Ketogenic diet focuses on high fat, moderate protein, and very low carbohydrate intake to induce a state of ketosis, where the body burns fat for fuel. Genetic factors can impact an individual's ability to adapt to and benefit from a ketogenic diet, influencing fat metabolism and weight management.

You are likely to have a decreased benefit from a ketogenic diet.

Mediterranean Diet

The Mediterranean diet promotes the consumption of fruits, vegetables, whole grains, fish, and healthy fats, such as olive oil, while limiting red meat and processed foods. This diet is associated with numerous health benefits, particularly for cardiovascular health.

You are likely to see significant health benefits from following the Mediterranean diet, with substantial improvements in heart health, weight management, and overall well-being.

Hunter Gatherer diet

The Hunter-Gatherer diet, also known as the Paleo diet, emphasizes whole foods that were available to our pre-agricultural ancestors, such as lean meats, fish, fruits, vegetables, nuts, and seeds. Genetic variations can influence how well an individual adapts to this diet, particularly in terms of carbohydrate metabolism.

You may experience a slight increase in health benefits from the Hunter-Gatherer diet. This includes marginally improved nutrient intake and enhanced well-being.

Weight Loss and GLP-1

Understanding the interplay between weight loss, dietary fat, and the hormone GLP-1 (glucagon-like peptide-1) is crucial for optimizing weight management strategies. GLP-1 plays a significant role in regulating appetite, insulin secretion, and glucose metabolism, influencing how your body responds to different types of fat and overall diet. Genetic variations can affect GLP-1 activity and its impact on weight loss efforts.

Obesity & Fat Intake

The relationship between fat intake and obesity is complex and influenced by genetics. Genetic variations affect how your body metabolizes and stores fat, influencing obesity risk. Understanding these genetic factors helps tailor dietary choices to support healthy weight management.

Your genotype is associated with a normal risk of obesity with increased fat intake

GLP-1 Agonist Effectiveness

GLP-1 agonists, such as those used in the treatment of type 2 diabetes, work by enhancing insulin secretion and reducing blood sugar levels. The effectiveness of these medications can be influenced by genetic variations, which affects the response to treatment.

You may experience a moderately reduced response to GLP-1 drugs. While these medications may still be beneficial, they might not be as effective as in others. Monitoring and possible adjustments in therapy may be needed.

Natural GLP-1 Options

Natural GLP-1 options involve dietary and lifestyle choices that naturally stimulate the production of GLP-1, a hormone that enhances insulin secretion and appetite regulation. Foods rich in fiber and protein, as well as regular physical activity, and berberine can stimulate GLP-1 production.

You are likely to experience the standard benefits of berberine, which include improved blood sugar control, enhanced insulin sensitivity, and better overall metabolic health.

Weight loss & Diet

Weight loss in response to diet can vary widely among individuals, influenced by genetic factors that affect metabolism, appetite, and fat storage. Certain genetic variations determine how effectively your body responds to different dietary approaches, impacting the success of weight loss efforts.

You may experience moderately decreased weight loss with diet.

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Fats

Understanding dietary habits and their underlying genetic influences is essential for promoting overall health and well-being. Our eating behaviors, including cravings, meal patterns, and food preferences, are shaped by a complex interplay of genetic, environmental, and psychological factors. By exploring the genetic basis of various eating habits, we can uncover how genetic predispositions influence responses to stress and emotions, drive snacking behavior, and affect sensitivity to certain tastes.

Additionally, examining genetic factors can shed light on tendencies toward overeating, the effectiveness of dietary strategies like intermittent fasting, and risks associated with eating disorders such as anorexia. This comprehensive approach helps in developing personalized strategies for maintaining a healthy diet and improving overall health outcomes.

HDL-Cholesterol

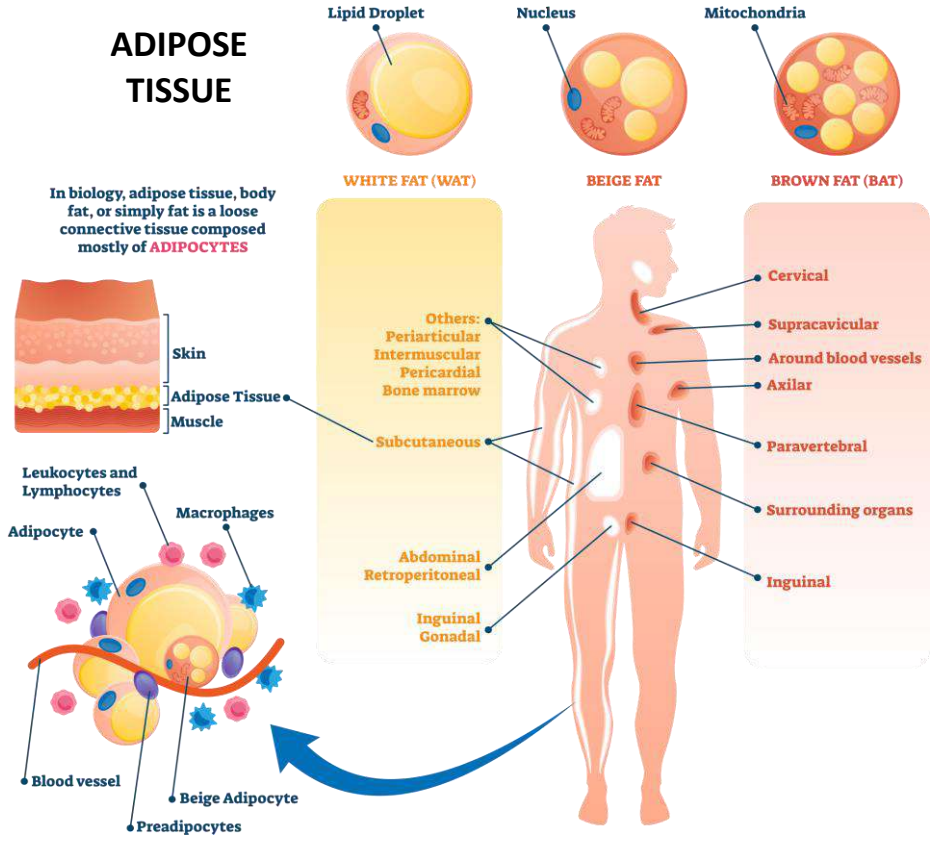
HDL cholesterol, often referred to as "good" cholesterol, plays a crucial role in heart health by transporting cholesterol from the arteries to the liver for removal. Genetics significantly influence HDL cholesterol levels, affecting how efficiently your body manages cholesterol.

Your genotype scores show that you likely have normal levels of HDL cholesterol (HDL-C), which supports cardiovascular health.

Monounsaturated Fats

Monounsaturated fats are a type of healthy fat found in foods such as olive oil, avocados, and various nuts and seeds. These fats are known for their beneficial effects on heart health, including reducing bad cholesterol levels and improving overall cardiovascular function.

Your genotype is associated with moderately lower BMI and obesity risk with increased monounsaturated fat diet.



Saturated Fats

Understand how saturated fats affect inflammation and receive recommendations on dietary adjustments to minimize inflammatory responses.

The sum of your genotype scores is associated with an increased sensitivity to saturated fats.

HDL Cholesterol & Fat Intake

HDL cholesterol, known as "good" cholesterol, is crucial for heart health by helping remove cholesterol from the bloodstream. The type of fats you consume can influence HDL levels, with healthy fats often boosting these levels.

Your genotype has been associated with lower HDL-c with high fat intake

Triglycerides

Triglycerides are a type of fat found in the blood, essential for storing energy but potentially harmful at high levels. Genetics play a significant role in regulating triglyceride levels, influencing how your body processes and stores fats.

Your genotype scores indicate an increased level of circulating triglycerides after eating a fatty meal.

Inflammation & Fats

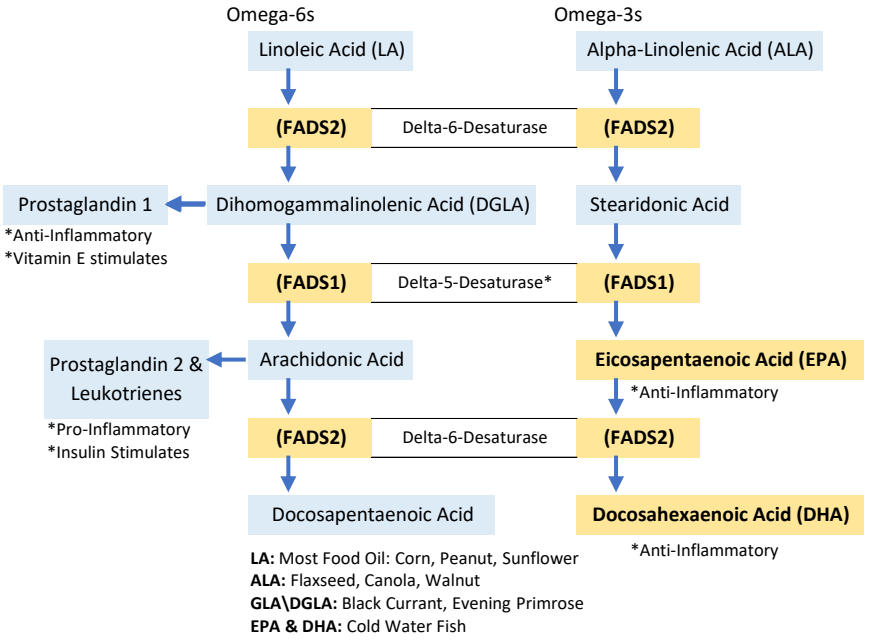
Inflammation is a natural immune response, but when overactive, it can lead to cardiovascular, neurological, and autoimmune diseases. The Standard American Diet (SAD) is rich in inflammatory foods and chemicals, worsening these conditions. Certain genes may increase your susceptibility to inflammation, making it crucial to maintain low inflammation levels for good health.
An anti-inflammatory diet emphasizes foods that reduce inflammation and is linked to lower risks of heart disease, diabetes, and certain cancers. Focus on nutrient-dense, whole, unprocessed foods rich in antioxidants and omega-3 fatty acids. Reducing intake of processed foods, sugary beverages, and trans fats in favor of anti-inflammatory options can significantly improve health and well-being.

Chronic Inflammation

Cardiovascular Disease	Bone Diseases
Neurological Disorders	Muscular Diseases
Diabetic Complications	Skeletal Diseases
Metabolic Complications	Arthritis
Autoimmune Disease	Cancer
Respiratory Disease	Skin Conditions

Anti-Inflammatory Foods

Blueberries	Grass fed butter
Ginger/Turmeric	Free-range eggs
Dark Chocolate	Grass fed beef
Good fats	Wild caught fatty fish
Olive Oil	Broccoli



LA: Most Food Oil: Corn, Peanut, Sunflower
ALA: Flaxseed, Canola, Walnut
GLA\DGLA: Black Currant, Evening Primrose
EPA & DHA: Cold Water Fish

Pro-Inflammatory Foods

Sugar	Bad fats
Vegetable oils	Processed meats
Fried foods	Trans fats
Wheat flour	Fast foods
Dairy	Conventional meats

Other Causes of Inflammation

Lack of sleep	Poor gut health
Lack of exercise	Infection
Lack of rest	Toxic exposures
Over training	Food Sensitivities

Generalized Inflammation

Assess your body's overall inflammation and understand the factors contributing to elevated levels, helping you manage and reduce chronic inflammation effectively.

You are at a regular risk of inflammation, consistent with the general population.

Labs Your Physician May Order

HS-CRP: High Sensitive C-Reactive Protein
ESR: Erythrocyte Sedimentation Rate
Omega 3/6 Ratios or Fatty Acid Tests
LPS: lipopolysaccharide

Omega 6 / Arachidonic Acid

Learn about the role of arachidonic acid in your diet and its impact on inflammation, along with guidance on managing its intake for better health.

You are at normal risk of Omega 6 sensitivity. It is still advisable to avoid excessive omega 6 containing foods.

Fish Oil

Determine your genetic predisposition for needing fish oil supplements, which are known to help reduce inflammation and support neurological health. This section is very important for nursing mothers.

You have a mild increased need for omega-3s (fish oils) for neurological health. Consider eating a diet containing fish.

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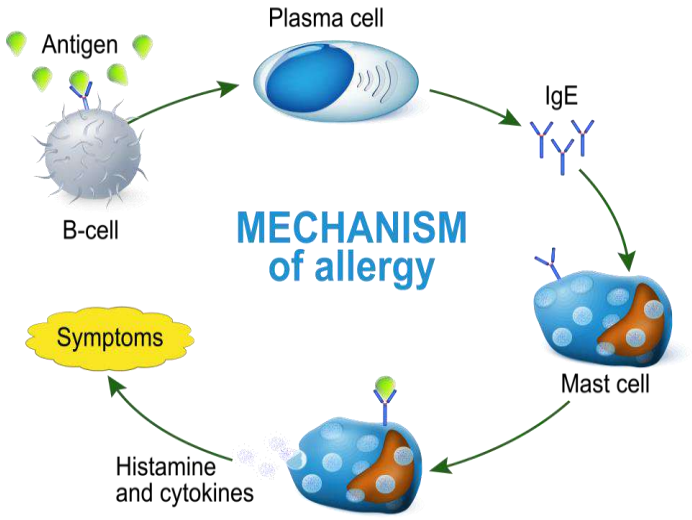
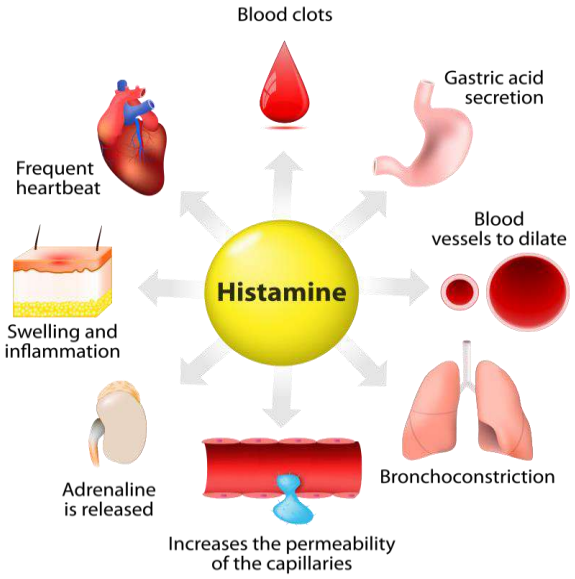
Histamine Sensitivity

Histamine is a crucial chemical in the body, playing key roles in both the immune system and as a neurotransmitter. During allergic reactions or mast cell degranulation, histamine is released, leading to common allergy symptoms. Beyond its immune functions, histamine significantly impacts brain activities such as sleep-wake cycles, appetite, and cognitive function. In the digestive system, it stimulates gastric acid secretion, which is essential for food digestion.

The body primarily breaks down histamine using two enzymes: Histamine N-Methyltransferase (HNMT) and Diamine Oxidase (DAO/AOC1). When histamine levels become excessive, due to either dietary intake, environmental factors, or genetic predispositions, symptoms such as headaches, gastrointestinal distress, skin reactions, and respiratory issues can arise. Understanding how genetic variations influence histamine metabolism is vital for managing sensitivity and improving overall well-being.





High Histamine Foods

Alcohol/Ferments	Walnuts	Bananas
Citrus Fruits	Cashews	Wheat
Dried Fruits	Peanuts	Strawberries
Soured Foods	Spinach	Beans
Smoked Meats	Eggplant	Chocolate
Aged Cheese	Shellfish	Food Dyes
Tomatoes		Food Additives

High Histamine Symptoms

Headaches	Nasal Congestion
Migraines	Fatigue/Adrenal Fatigue
Digestive Issues	Irregular Menstrual Cycles
Irritable Bowl	Blood Pressure Issues
Anxiety	Nasal Congestion
Eczema	Fibromyalgia
Other Skin conditions	Adrenal Fatigue

Female Histamine Levels

Pregnancy: Decreased
Luteal Phase: Decreased
Follicular Phase: Increased
Ovulation: Increased
Menopause: Increased
Perimenopause: Variable
Increased Estrogen: Increased

DAO Enzyme Activity

Diamine oxidase (DAO) is crucial for breaking down histamine, a compound involved in immune responses and digestion. Reduced DAO activity can lead to histamine buildup, causing symptoms like headaches and digestive issues.

You have moderate reduction in DAO enzyme activity. You may benefit by consuming a low histamine diet. (%33 reduction)

DAO Enzyme Levels

DAO production, controlled by the AOC1 gene, is essential for managing histamine levels in the body. Genetic variations can reduce DAO production, leading to insufficient enzyme levels and increased histamine-related symptoms.

Mild reduction in DAO production. Slight risk of histamine intolerance symptoms, especially with high histamine foods.

HNMT

HNMT is responsible for breaking down histamine inside of your cells and is common in asthma. This enzyme requires adequate levels of SAMe from the methylation cycle.

We do not anticipate a decrease in HNMT activity.

MAO

MAO is downstream in the histamine breakdown pathway and can become overwhelmed if there are genetic variations in the MAO enzyme.

You are unlikely to have downstream histamine issues

Food Sensitivities & GI Health

Food sensitivities and gastrointestinal (GI) health are deeply interconnected, impacting overall well-being and quality of life. Unlike food allergies, which trigger an immediate immune response, food sensitivities often lead to more subtle and delayed symptoms, making them harder to diagnose and manage. Understanding the genetic and environmental factors that contribute to food sensitivities can help tailor dietary choices to improve GI health and prevent discomfort. This page explores the most common food sensitivities, their genetic underpinnings, and their impact on gastrointestinal health.

Gluten Sensitivity & Celiac Disease

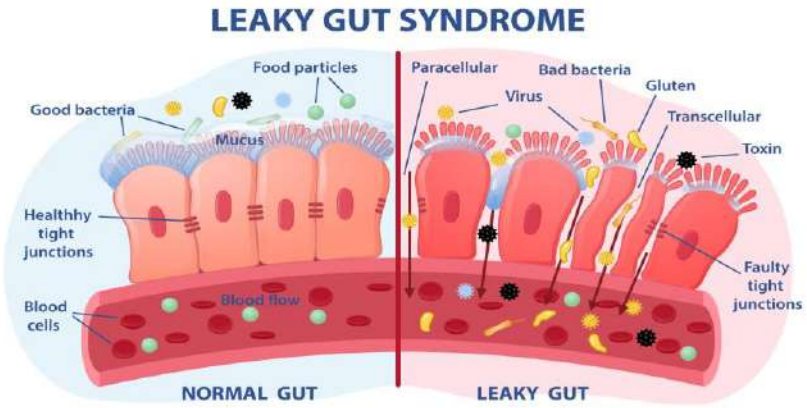
Gluten sensitivity involves an adverse reaction to gluten, a protein found in wheat, barley, and rye. Unlike celiac disease, which is an autoimmune disorder that causes intestinal damage, non-celiac gluten sensitivity (NCGS) does not cause such damage but can still lead to symptoms like bloating, diarrhea, and abdominal pain. Celiac disease requires strict adherence to a gluten-free diet to prevent serious health complications, while managing NCGS typically involves reducing or eliminating gluten to alleviate symptoms.

You have a mildly increased risk of gluten sensitivity. You may experience some symptoms of gluten sensitivity and might benefit from monitoring your gluten intake.

Dairy Sensitivity

Dairy sensitivity can manifest as an intolerance to lactose or an allergy to proteins found in milk, such as casein and whey. Symptoms range from digestive issues like bloating and diarrhea to allergic reactions such as hives and respiratory problems. Some individuals can lose significant amounts of weight when removing dairy from their diet.

Eliminating dairy could moderately reduce your weight. You may experience some symptoms like bloating, gas, or diarrhea after consuming dairy products.



Understanding Leaky Gut Syndrome

Leaky Gut Syndrome occurs when the lining of the small intestine becomes damaged, causing undigested food particles, toxins, and bad bacteria to leak through the intestinal wall into the bloodstream. This can trigger inflammation and changes in the gut microbiota, leading to a variety of health issues such as autoimmune diseases, food sensitivities, and digestive disorders. The image illustrates the difference between a healthy gut with tight junctions and a leaky gut where these barriers are compromised, allowing harmful substances to enter the bloodstream and disrupt overall health. Maintaining gut health through diet, probiotics, and lifestyle changes is crucial to preventing and managing leaky gut syndrome.

Peanut Sensitivity

Peanut sensitivity is a serious and potentially life-threatening condition that can cause severe allergic reactions. Symptoms can include hives, swelling, difficulty breathing, and anaphylaxis. Genetic factors can influence the risk of developing peanut allergies.

You have mild increased chance of developing allergic reactions to peanuts, such as hives, swelling, or difficulty breathing.

GI Barrier Integrity

The integrity of the gastrointestinal barrier is crucial for maintaining a healthy digestive system and preventing diseases. Variations in MYO9B have been linked to impaired barrier integrity, increasing susceptibility to gastrointestinal diseases such as celiac disease and inflammatory bowel disease (IBD).

You have a higher likelihood of reduced gastrointestinal barrier integrity, increasing the risk of leaky gut and potential digestive problems.

Non-Secretor Status

Non-secretor status refers to individuals who do not secrete ABO blood group antigens in their bodily fluids, including the digestive tract. This status is determined by the FUT2 gene and is associated with increased susceptibility to infections and differences in gut microbiota composition.

You are an FUT2 secretor, which means you secrete certain blood group antigens into bodily fluids. This can influence your gut microbiota and potentially offer some protection against infections.

Foods & Food Additives

Understanding the intricate relationship between our genetics and the foods we consume is essential for optimizing health and well-being. The Foods & Food Additives page explores how various dietary components such as fermented foods, tyramine-rich foods, green tea, smoked meats, and food dyes can impact our health. From the probiotics in fermented foods that boost beneficial gut bacteria to the potential migraine triggers in tyramine-rich foods, and from the antioxidant power of green tea to the health implications of smoked meats and artificial food dyes, this guide provides insights into making informed dietary decisions.

Examples of Common Food Dyes & Potential Reactions

Dye Name	Common Foods	Potential Risks
Red 40	Candy, Soda	Hyperactivity, Allergies
Red 3	Candy, Cocktail Cherries	Thyroid issues
Yellow 5	Snacks, Cereals	Allergic reactions, Hyperactivity
Yellow 6	Chips, Cheese, Beverages	Allergic reactions, potential carcinogen
Blue 1	Ice Cream, Drinks	Allergic reactions, potential cancer risk
Blue 2	Candy, Beverages	Hyperactivity, potential carcinogen
Green 3	Beverages, Candy, Ice Cream	Allergic Reactions, Potential carcinogen

Food Dyes

Artificial food dyes are widespread in processed foods and can cause hyperactivity, allergic reactions, and other adverse effects in susceptible individuals. Genetic variations in detoxification and metabolic pathways, such as those involving the CYP450 enzymes, can affect your sensitivity to these additives.

You are at a normal risk for sensitivity to food dyes and preservatives.

Fermented Foods

Fermented foods are rich in probiotics that promote gut health and aid digestion. However, individuals with genetic variations affecting histamine metabolism, such as mutations in the DAO or HNMT genes, may experience adverse reactions like headaches, digestive issues, and allergic responses.

You may be able to tolerate fermented containing foods. These can be very beneficial for gut flora diversity.

Tyramine Foods

Tyramine, found in aged cheeses, cured meats, and other fermented foods, can trigger headaches and other symptoms in individuals with genetic variations affecting monoamine oxidase (MAO) activity. Variants in the MAO-A gene can lead to reduced enzyme activity, resulting in higher tyramine sensitivity.

You may be able to tolerate tyramine containing foods well.

Green Tea

Green tea contains catechins, such as epigallocatechin gallate (EGCG), which have numerous health benefits, including antioxidant and anti-inflammatory properties. Individuals with certain COMT variants may experience different effects from green tea consumption that influence mood and cognitive function.

You may want to avoid consuming green tea and EGCG-containing supplements, particularly if you experience anxiety or have trouble sleeping at night.

Smoked Meats

Smoked meats often contain polycyclic aromatic hydrocarbons (PAHs) and other harmful compounds that can pose health risks. Genetic variations in detoxification pathways, such as those involving the CYP1A1 and CYP1B1 genes, can influence your sensitivity to these compounds.

You are likely to have normal risks from consuming smoked meats. Enjoy them in moderation.

Caffeine Metabolism

Caffeine metabolism varies widely among individuals, influenced by genetic factors that determine how quickly or slowly caffeine is processed in the body. Understanding your caffeine metabolism can help you tailor your caffeine intake to optimize alertness and avoid negative effects such as jitteriness or insomnia.

You have low sensitivity to caffeine, meaning you can likely consume higher amounts without experiencing negative side effects such as jitteriness or insomnia. (Rapid Metabolizer)

Sulfur Containing Foods

Sulfur-containing foods like garlic, onions, and cruciferous vegetables provide essential nutrients and health benefits. However, for individuals with genetic variations affecting sulfur metabolism, such as mutations in the CBS or SUOX genes, these foods can lead to digestive discomfort and other symptoms.

You have average need for cruciferous vegetables in your diet. Feel free to eat as many as you like!

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Toxic Exposures

Understanding your genetic susceptibility to environmental toxins is crucial for making informed lifestyle choices that can protect your health. Various genes influence how your body detoxifies harmful substances, such as pesticides, heavy metals, and industrial chemicals. Genetic variations can affect the efficiency of these detoxification pathways, leading to increased sensitivity and risk of adverse health effects. By identifying your genetic predispositions, you can take proactive steps to minimize exposure to these toxins, choose safer alternatives, and support your body's natural detoxification processes. It is advisable to avoid these exposures even if there is no identified genetic susceptibility

Aromatic Hydrocarbons

Aromatic hydrocarbons and dioxins are common environmental pollutants found in industrial emissions, tobacco smoke, and certain food products. These compounds can be highly toxic and carcinogenic, and genetic variations can affect your body's ability to detoxify and eliminate them.

You have an increased risk of toxicity from PAH, PHAH, PCBs, & Dioxins. Avoid smoke and chemicals as much as possible.

Insecticide Sensitivity

Insecticides are widely used in agriculture and home pest control. While effective for managing pests, they can pose health risks, especially for individuals with genetic variations affecting detoxification pathways. Consider choosing organic produce and minimizing the use of chemical pest control methods to reduce exposure.

You have a normal sensitivity to insecticides. It's still probably a good idea to avoid exposures.

Glyphosate Sensitivity

Glyphosate is a widely used herbicide found in many genetically modified crops. Genetic variations can influence how your body handles glyphosate exposure, potentially increasing your risk of adverse health effects. Consider choosing organic produce and minimizing exposure to glyphosate whenever possible.

You have a normal sensitivity to Glyphosate. Its's still probably a good idea to avoid exposures.

Phthalates & Parabens

Phthalates and parabens are common in many consumer products, from plastics to cosmetics. While useful, these chemicals can disrupt endocrine function, potentially causing hormonal imbalances and health issues. To reduce exposure, consider using products labeled as phthalate-free and paraben-free.

You have an average risk of toxicity from Phthalate & Parabens. Avoiding exposures to theses chemicals is still advised.

BPA & Plastics

Bisphenol A (BPA) and other plastic-related chemicals are pervasive in food packaging, containers, and household items. These substances can disrupt endocrine function and lead to various health issues. It's essential to use non-plastic alternatives and be mindful of your exposure to plastic products.

You have an average risk of toxicity from BPA and plastics. You may still want to avoid plastics when possible.

Butadiene & Benzene

Butadiene, benzene, styrene, and ethylene oxide are industrial chemicals found in products like synthetic rubber (play ground floors), plastics, and solvents. These substances are known carcinogens and can cause significant health issues, especially for individuals with genetic susceptibilities.

You have a normal sensitivity to butadiene, benzene, styrene, and ethylene oxide. However, it's still advisable to avoid exposure to these chemicals.

Iron Sensitivity

Iron is an essential nutrient, but excessive iron intake can be harmful, particularly for individuals with genetic variations affecting iron metabolism. Elevated iron levels can lead to conditions like hemochromatosis, causing fatigue and even organ damage.

You have a normal risk of iron sensitivity. Monitor your yearly labs for low iron.

Acetaminophen

Acetaminophen, commonly used for pain relief and fever reduction, can pose risks for individuals with certain genetic variations. These genetic differences can affect how your body metabolizes and detoxifies acetaminophen, potentially leading to adverse effects on the liver.

Based on the genetics we ran, you are likely to have a normal sensitivity to acetaminophen. Use sparingly when required.

Oxidative Stress

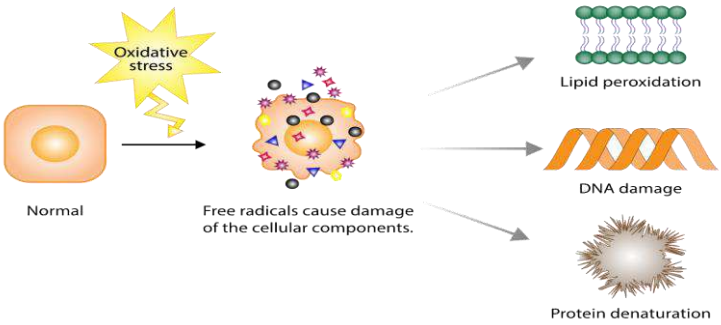
Oxidative stress occurs when there is an imbalance between free radicals and antioxidants in your body, leading to cellular damage and contributing to various health issues, including chronic diseases and aging. While oxidative stress is necessary for your immune system to fight off invaders, it is the imbalance between oxidative stress and antioxidants that is important. Your genetic profile can influence how well your body manages oxidative stress. This section provides insights into your genetic predispositions related to oxidative stress and offers personalized recommendations to enhance your antioxidant defenses. By understanding and addressing these genetic factors, you can take proactive steps to protect your cells from oxidative damage and support overall health and longevity.

CORE

Glutathione & Antioxidant Defense

Glutathione is a critical antioxidant that helps protect your cells from oxidative damage and supports your body's detoxification processes. The genes involved in glutathione synthesis and recycling play essential roles in maintaining the balance of oxidative stress and antioxidant defense. Variations in these genes can affect your body's ability to produce and utilize glutathione effectively, influencing your overall oxidative stress levels and susceptibility to damage from free radicals.

You have very mild reduction in peroxide degradation. Consider taking: selenium or Brazil nuts.



CORE

Superoxide Dismutase (SOD) Pathways

The Superoxide Dismutase (SOD) pathway is a crucial part of your body's defense against oxidative stress. SOD enzymes help convert superoxide radicals, harmful byproducts of cellular metabolism, into less damaging molecules like hydrogen peroxide. However, elevated Nitric Oxide Synthase (NOS) activity can lead to increased levels of nitric oxide (NO), which can react with superoxide to form peroxynitrite (ONOO-), a potent oxidant that contributes to the formation of nitrotyrosine. Variations in the genes responsible for SOD and NOS production can impact the efficiency of these processes, affecting your ability to manage oxidative stress and maintain cellular health.

You likely have a slow SOD and a fast NOS, this can result in an increase in the ROS nitrotyrosine. Consider supplementing Hydroxocobalamin and supplementing SOD/Catalase supplements, or increasing foods high in manganese.

CORE

Glutathione S-Transferases (GST) in Detoxification

The Glutathione S-Transferase (GST) pathway plays a vital role in detoxifying harmful substances and protecting your cells from oxidative damage. GST enzymes facilitate the conjugation of glutathione to various toxins, making them more water-soluble and easier for the body to excrete. Genetic variations in the GST genes can influence the efficiency of this detoxification process, potentially affecting your susceptibility to oxidative stress and toxin exposure.

You have the normal GSTP1 genotype, indicating typical antioxidant defense. Maintain a diet rich in antioxidants to support your body's detoxification processes.

Causes of Oxidative Stress

- Pollution
- UV Radiation
- Processed Foods
- Trans/Bad Fats
- Alcohol & Smoking
- Low intake of fruits & Vegetables
- Physical & Emotional Stress
- Medications
- Infections

Oxidative Stress Symptoms

- Fatigue
- Muscle & Joint Pain
- Memory Loss & Brain Fog
- Premature Aging
- Frequent Infections
- Headaches
- Cardiovascular problems
- Skin Disorders
- Respiratory issues & Coughing

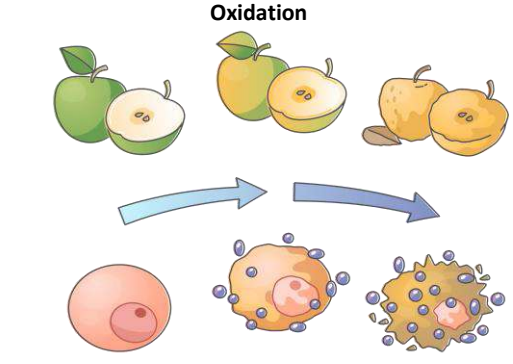
Foods

- Blueberries - anthocyanins
- Dark Chocolate - Flavonoids
- Artichokes - Fiber, Vit. C, Antioxidants
- Pecans - Antioxidants & Healthy Fats
- Spinach- Vit A & C, & Antioxidants
- Strawberries - Vit C & Antioxidants
- Goji Berries - Antioxidants
- Raspberries - Antioxidants
- Cruciferous Vegetables - Sulfur
- Brazil Nuts - Selenium

Supplements

- Vitamin C
- Vitamin E
- Zinc / Copper
- Selenium
- Co Q10
- N acetylcysteine (NAC)
- S-Acetyl-Glutathione
- Sulforaphane
- Methylene Blue

Oxidation



Core Nutrients

Vitamins D and A are essential nutrients that play critical roles in maintaining overall health and well-being. These fat-soluble vitamins are vital for numerous bodily functions, from supporting immune health and vision to ensuring proper bone growth and cellular function. However, the effectiveness and needs of these vitamins can vary significantly from person to person, influenced by genetic factors.

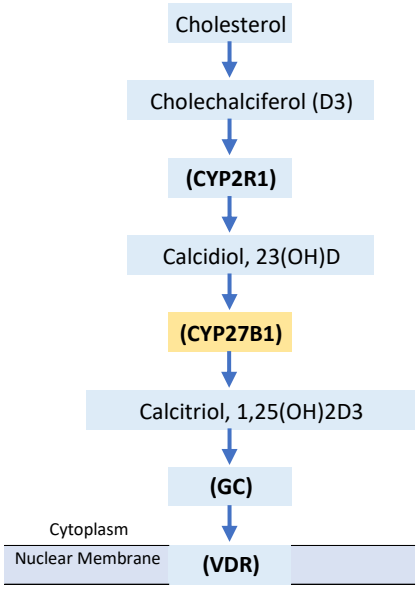
CORE

Vitamin D

Vitamin D plays a vital role in bone health, immune function, and overall well-being by helping the body absorb calcium and supporting immune responses. It must be converted in the liver and kidneys, with limited dietary sources making sunlight exposure or supplementation necessary for preventing deficiency. Ideally, UV exposure from 10 am to 3 pm for 10-30 minutes at least twice a week is recommended. For therapeutic dosing, D3 between 5,000 and 10,000 IU daily is advised. General wellness can be maintained with 1,000-2,000 IU daily.

Health Conditions

Rickets
Osteoporosis
Cancer
Inflammatory Bowel Disease
Multiple Sclerosis
Type I and II Diabetes



Vitamin D Testing

1,25 OH Vitamin D may be helpful in some complicated cases. Your Doctor may order the following tests.:
25-hydroxy (OH) vitamin D (Storage Vitamin D)
1,25 dihydroxy vitamin D (Active Vitamin D)

Vitamin D Foods

Cod Liver Oil
Swordfish
Salmon
Beef Liver
Egg Yolks
Cheese

Vitamin D Receptor (VDR)

The Vitamin D Receptor (VDR) is crucial for mediating the effects of vitamin D in the body. This receptor binds to vitamin D and regulates the expression of various genes involved in calcium absorption, bone health, and immune function. Genetic variations in the VDR gene can influence how effectively vitamin D performs these roles, impacting overall health and susceptibility to certain conditions.

Your VDR gene variants suggest minimally reduced function. Maintain adequate vitamin D through diet and regular exposure to sunlight.

Vitamin D Transport Protein (GC)

The GC gene encodes the vitamin D-binding protein (DBP), which is essential for the transport of vitamin D in the bloodstream. This protein binds to vitamin D and its metabolites, facilitating their distribution to various tissues in the body. Genetic variations in the GC gene can affect the levels and function of DBP, influencing vitamin D status and bioavailability.

We did not detect any variants in your vitamin D transport protein.

Vitamin D Activation (CYP2R1 & CYP27B1)

The CYP2R1 gene encodes an enzyme crucial for converting vitamin D into its active form, 25-hydroxyvitamin D [25(OH)D], essential for bone health, immune function, and other physiological processes. Additionally, the CYP27B1 gene further activates 25(OH)D into 1,25-dihydroxyvitamin D [1,25(OH)2D], which is the most potent form, playing a vital role in calcium homeostasis and overall health.

You likely have reduced vitamin D conversion. Higher supplement doses are necessary, along with regular monitoring of levels. Focus on vitamin D-rich foods and safe sun exposure to maintain adequate levels."

Vitamin A

The Beta-Carotene Monooxygenase 1 (BCMO1) gene plays a significant role in converting beta-carotene from plant-based foods into active Vitamin A, which is essential for vision, immune function, and skin health. Genetic variations in BCMO1 can affect how efficiently your body performs this conversion, impacting your overall Vitamin A status.

Vitamin A is a fat-soluble vitamin, and excessive intake can lead to toxic levels. Please discuss supplementation with a healthcare provider and monitor your blood retinol levels regularly.

Your BCMO1 gene variants suggest a less efficient conversion of beta-carotene to retinol. You may need to increase your intake of retinol-rich foods or consider a retinol supplement.

Low Vitamin A Symptoms

Vision issues
Chronic infections
Infertility
Mood disorders
Skin problems
Thyroid dysfunction
Growth delays

High Vitamin A Symptoms

Hair loss, Brittle nails
Liver damage
Mental confusion
Dry, rough skin
Cracked lips
Bone pain or tenderness
Fatigue

Dietary Sources Of Retinoids

Free range eggs
Organic Heavy Cream
Cod-liver oil
Grass fed butter
Grass fed beef & beef liver
Wild caught fatty fish & shrimp

Core Nutrients

Essential nutrients play vital roles in maintaining overall health and well-being. Phosphatidylcholine, derived from choline and influenced by PEMT variants, is important for liver function, brain health, and cell membrane integrity. Additionally, fat-soluble vitamins such as A, D, and E are crucial for vision, immune function, bone health, and antioxidant protection. Adequate intake through diet or supplementation is key, but managing intake is essential to avoid potential toxicity. Always discuss any changes with your physician or dietician.

CORE

Vitamin E

Vitamin E is a powerful antioxidant that protects cells from oxidative damage, supports immune function, and promotes skin health. It plays a crucial role in numerous bodily processes, including gene expression and cell signaling. While we are not focusing on specific genes for vitamin E, it interacts with multiple pathways in the body that are essential for maintaining optimal health.

We anticipate that you may have a slightly elevated need for Vitamin E. In addition to maintaining a balanced diet and healthy lifestyle, you might benefit from taking a multivitamin to ensure adequate Vitamin E intake.

Vitamin E Foods
- Nuts & Seeds
- Green Leafy Vegetables
- Fruits
- Seafood
- Eggs

Vit. E Health Conditions
- Oxidative Stress
- Fatigue
- Peripheral Neuropathy
- Muscle Weakness
- Immune Dysfunctions
- Cognitive Decline
- Anemia

CORE

Vitamin C

Vitamin C, also known as ascorbic acid, is a vital nutrient essential for numerous bodily functions. It plays a key role in collagen synthesis, immune function, antioxidant protection, and the absorption of iron from plant-based foods. As a powerful antioxidant, vitamin C helps protect cells from damage caused by free radicals, potentially reducing the risk of chronic diseases. Since the human body cannot produce or store vitamin C, it is crucial to obtain adequate amounts through diet or supplements.

There is no significant risk for vitamin C deficiency. Maintain a balanced diet rich in fruits and vegetables to support overall health.

Vitamin C Foods
- Guava
- Blackcurrants
- Kiwi
- Bell Peppers
- Strawberries
- Oranges
- Papayas
- Broccoli

Vit. C health Conditions
- Anemia
- Weakened Immune System
- Poor Wound Healing
- Skin Issues
- Gingivitis & Gum Disease
- Cardiovascular disease
- Fatigue & Mood Disorders
- Frequent Bruising
- Scurvy

CORE

Vitamin B6

Vitamin B6, also known as pyridoxine, is a crucial nutrient involved in numerous bodily functions, including amino acid metabolism, neurotransmitter synthesis, and the production of hemoglobin. Its active form, pyridoxal 5'-phosphate (P5P), plays a vital role in maintaining brain health, supporting immune function, and regulating mood. Vitamin B6 is also essential for converting food into energy and aiding in the formation of neurotransmitters such as serotonin and dopamine.

There is a mild risk for vitamin B6 deficiency. Incorporate more vitamin B6-rich foods like bananas, chickpeas, and nuts into your diet to ensure adequate intake.

Vitamin B6 Foods
- Poultry
- Fish
- Organ meats
- Potatoes
- Non-Citrus Fruits
- Legumes
- Nuts & Seeds

B6 Health Conditions
- Fatigue & Weakness
- Irritability & Mood Changes
- Dermatitis
- Anemia
- Peripheral Neuropathy
- Impaired Immune Function
- Seizures

CORE

Phosphatidylcholine

Phosphatidylcholine is a vital nutrient derived from choline, essential for various bodily functions including liver health, methylation, brain function, and maintaining the structural integrity of cell membranes. Genetic variations in the PEMT gene can influence choline requirements, making it important to ensure adequate intake through diet.

Given your genetic predisposition, you may benefit from phosphatidylcholine supplementation and a diet high in choline-rich foods.

Choline Foods
- Free Ranged Egg Yolks
- Beef Liver
- Chicken Breast
- Fish

Choline Health Conditions
- Liver Damage
- Non-Alcoholic Fatty Liver
- Memory Problems
- Difficulty Concentrating
- Anxiety & Depression
- Cardiovascular issues
- Developmental Problems
- Elevated Liver Enzymes

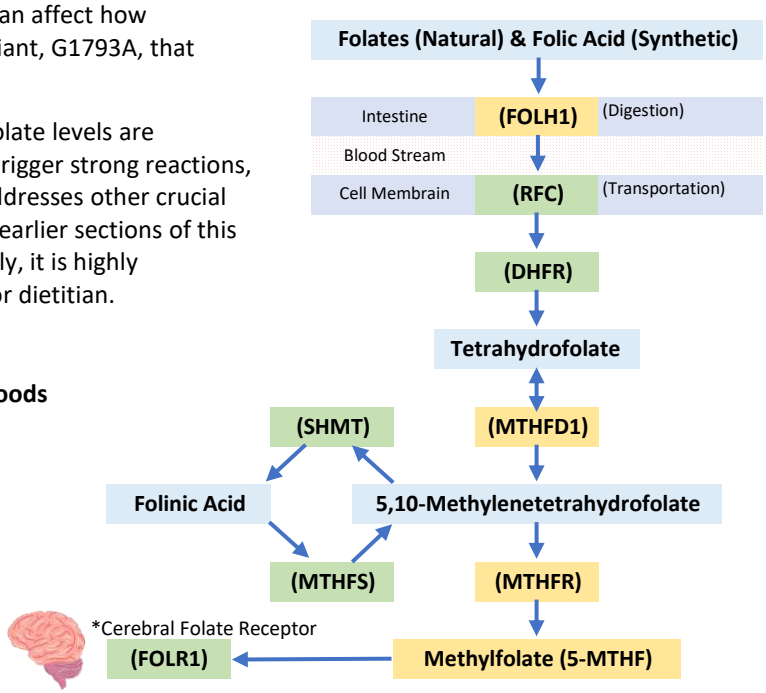
The Phosphatidylcholine & MTHFR Connection

By providing supplemental Phosphatidylcholine (PC), PC can help lower the demand on the methylation cycle. This is particularly important for individuals with MTHFR gene variants, which can impair the body's ability to process folate and support methylation. Ensuring adequate intake of PC can help alleviate some of the metabolic strain on the methylation pathway, thereby supporting better health and reducing the risk of complications associated with MTHFR mutations.

Methylation - MTHFR / Folate

Folate, also known as Vitamin B9, is very important for many body functions like making DNA, producing and breaking down neurotransmitters, detoxifying the body, and preventing heart disease. The MTHFR enzyme helps turn the folate we eat into Methylfolate, which is needed for over 200 different processes in our bodies, especially in the methylation cycle. There are two main types of MTHFR gene variants: C677T and A1298C, which can affect how how much Methylfolate is produced. We also include a third variant, G1793A, that is less researched but still potentially influential.

Many people experience significant improvements when their folate levels are optimized. However, Methylfolate is a potent nutrient that can trigger strong reactions, such as anger and aggression, in some individuals. This report addresses other crucial factors before discussing Methylfolate. It's essential to read the earlier sections of this report before considering Methylfolate supplements. Additionally, it is highly recommended to work with a nutritionally trained practitioner or dietitian.



Associated Symptoms & Conditions

- Depression
- Anxiety
- ADD/ADHD
- Miscarriage
- Infertility
- Bipolar
- Schizophrenia
- Autism
- Migraines
- Cardiovascular Disease
- Blood Clots
- Detoxification Issues
- Estrogen Issues
- Cancer
- Midline defects
- Elevated Homocysteine
- And More

MTHFR Friendly Foods

- Green Leafy Vegetables
- Liver
- Asparagus
- Broccoli
- Free Range Eggs
- Beans & Lentils
- Did we say Liver yet?

MTHFR Results

MTHFR C677T	Heterozygous	Decreased Activity
MTHFR A1298C	Heterozygous	Slight Decreased Activity
MTHFR G1793A	Wild Type	Normal Activity

You are compound heterozygous for C677T and A1298C variants. This combination results in a 50-60% reduction in MTHFR enzyme activity. You may benefit from the recommendations on this page.

Methylfolate Sensitivity & Recommendations

When using Methylfolate supplements, start with a low dose and increase gradually. Adults typically start with 400 mcg. Research shows benefits from 400 mcg to 15 mg, but many people do well with less than 2 mg. There are other forms of folate like, Folinic Acid that may be less stimulating to some. Methylfolate and Folinic acid are more bioavailable forms than the synthetic, Folic Acid. If you are symptomatic consider these recommendations.

You may be sensitive to methylfolate but might tolerate very low doses (400 to 800 mcg). However, consider starting with folinic acid (800 to 1,600 mcg daily).

Methyl Donor Sensitivity

Methyl donors like folate, vitamin B12, and betaine are vital for DNA methylation, neurotransmitter synthesis, and detoxification. Symptoms may include, anger, agitation, fatigue, mood changes, and difficulty concentrating.

You are likely sensitive to methyl donating nutrients. Use caution and be aware of symptoms like anger, aggression, anxiety, and insomnia with their usage. Creatine can be a good support for methylation in complicated cases.

Folate Absorption & Compounding Genes

Other genetic factors can further compound MTHFR-related issues (MTHFD1) and even reduce folate absorption (FOLH1), making it harder for the body to maintain optimal folate levels.

You have heterozygous variant(s) on additional folate genes. This may only slightly influence your folate metabolism. Ensure your yearly labs include folate testing.

Cellular Utilization

Even if blood levels of folate appear normal, genetic variations can impact the transport of folate into your cells, producing symptoms.

You are predicted to have a regular cellular uptake of folate.

Follow Up Labs

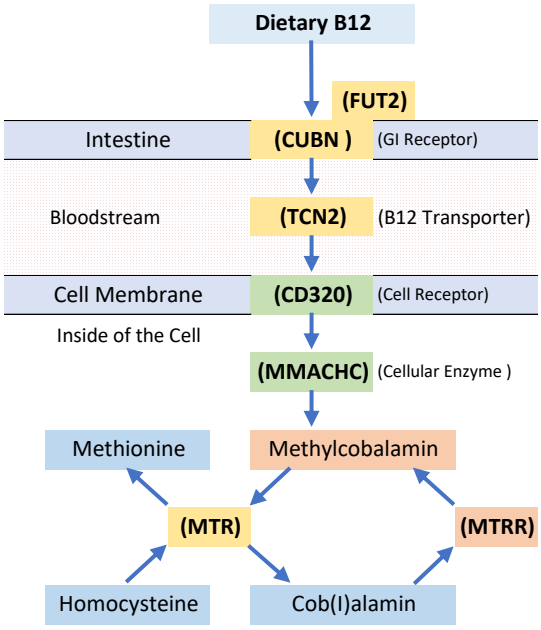
Regular monitoring and follow-up laboratory tests are essential for individuals with variations in the MTHFR gene. These follow-up labs can help assess the effectiveness of dietary and lifestyle interventions, and ensure adequate nutrient levels.

Consider adding serum folate, RBC folate, and homocysteine tests to your yearly labs. Most people feel better when their serum folate levels are above 15 ng/mL.

CORE

B12

Are you getting enough Vitamin B12 (Cobalamin) in the right form? Since your body cannot produce B12, it's crucial to ensure you obtain adequate amounts from your diet or supplements. Vitamin B12 is vital for numerous bodily functions, including neurotransmitter production, energy metabolism, and red blood cell formation. Many people experience significant improvements in well-being by switching to the correct form of B12 based on their genetics or by increasing their intake. Consider incorporating yearly micronutrient testing into your health routine to monitor your B12 levels. Always opt for methylcobalamin, hydroxocobalamin, or adenosylcobalamin supplements, and avoid cyanocobalamin when possible.



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Low B12 Symptoms		Foods High in B12	Common B12 Labs
Anxiety	Fatigue	Liver	B12, Serum
Pale Skin	Weakness	Fish	Urinary MMA
Smooth Tongue	Poor Balance	Meat	Homocysteine
Constipation	Memory loss	Dairy Products	B12 Binding Capacity
Diarrhea	Neuropathy	Eggs	
Heart Palpitations	Tingling Feet	Clams	
Dizziness	Depression	(Animal Products)	

CORE

Intestinal Absorption

Vitamin B12 absorption occurs in the small intestine and is essential for DNA synthesis, red blood cell formation, and neurological health. Key proteins like intrinsic factor and cubilin facilitate this process. Genetic variations, such as those in the CUBN gene, can impact absorption efficiency, influencing dietary and supplementation needs.

CORE

You have a variant in the CUBN gene that may slightly reduce Vitamin B12 absorption. Consider increasing dietary B12 intake or taking a B12 supplement to maintain adequate levels. Injectable B12 could be considered if oral supplements are insufficient.

Cellular Uptake

Cellular uptake of Vitamin B12 is crucial for its utilization in various bodily functions. Even if blood levels of Vitamin B12 appear normal, genetic variations in the CD320 gene, can impair the transport of B12 into cells, potentially leading to functional deficiencies. Lithium Orotate in low doses has been said to help improve this transport.

CORE

You have a normal CD320 gene, indicating typical cellular uptake of Vitamin B12. Maintain a diet rich in B12 sources like meat, fish, dairy, and fortified foods. Regular monitoring of your B12 levels is recommended to ensure optimal health.

Labs & Lab Ranges

The FUT2 variant can cause a false elevation in serum B12 levels. This can result in a 20% false elevation in labs. Normal ranges are 200 to 1080pg/ml. Optimal ranges tend to be 500 to 1080pg/ml. Someone with the FUT2 Variant may require a level close to 600 to feel improvements in mood and energy.

PubMed Research: PMID29040465

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You carry one copy of the FUT2 variant. This may slightly affect your B12 levels. To ensure accuracy, aim for B12 levels within 540-700 pg/mL. Discuss with your healthcare provider if you need further testing or supplementation. PMID: 29040465

Methylcobalamin

Methylcobalamin is a naturally occurring, bioactive form of Vitamin B12. It is readily utilized by the body and supports brain health, nerve function, and the methylation cycle. This form is especially beneficial for individuals with MTHFR mutations who may have difficulty converting other forms of B12.

CORE

You have a significant increased need for methylcobalamin.But, you are likely to react negatively to supplemental methylcobalamin. Start with an extremely small dose or opt for hydroxocobalamin which can convert into methylcobalamin.

Adenosylcobalamin

Adenosylcobalamin is another bioactive form of Vitamin B12 that is crucial for mitochondrial health. It supports energy production at the cellular level and is essential for the proper function of the Krebs cycle. This form is particularly useful for individuals experiencing fatigue and issues with energy metabolism.

CORE

You may be sensitive to methylcobalamin. Adenosylcobalamin could be a great alternative, especially if you are experiencing fatigue.

Hydroxocobalamin

Hydroxocobalamin is a naturally occurring form of Vitamin B12 that can be converted into both methylcobalamin and adenosylcobalamin in the body. It has a longer half-life in the bloodstream compared to other forms, making it effective for B12 injections. Hydroxocobalamin is also known for its ability to bind and neutralize cyanide.

CORE

You have no increased need for Hydroxocobalamin, however it is still a great form of B12 to consider taking.

Cyanocobalamin

Cyanocobalamin is a synthetic form of Vitamin B12 often found in low-cost supplements and fortified foods. It contains a cyanide molecule, which the body must detoxify and remove. This form is less efficiently converted to active forms (methylcobalamin and adenosylcobalamin) in the body. cyanocobalamin is not recommended.

CORE

You have an average ability to use cyanocobalamin. You should still consider using other forms of vitamin B12 when possible.

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Hormones

Hormones play a pivotal role in numerous bodily functions, from metabolism and energy levels to mood and reproductive health. The conversion of T4 to T3, total hormone production by CYP17A1, and the regulation of hormone availability by SHBG are essential processes that ensure your body functions optimally. Genetic variations can significantly impact these processes, influencing your overall hormonal health.

Regular testing and monitoring of hormone levels, alongside a personalized approach to diet and supplementation, can lead to significant improvements in well-being. Consider incorporating regular hormone level testing into your health routine to keep track of your hormonal balance and ensure optimal health.

Thyroid T4 to T3 Conversion

Thyroid T4 to T3 conversion is a critical process in maintaining metabolic balance and overall energy levels. This conversion transforms inactive thyroxine (T4) into the active triiodothyronine (T3). Genetic variations, particularly in the DIO1 gene, can affect the efficiency of this conversion, thereby influencing thyroid function and metabolic rate.

You may have a mild reduction in T4 to T3 conversion. If symptomatic discuss additional T3 testing with your physician. Consuming selenium-rich foods or supplements may support this conversion.

Thyroid — Liver & Kidneys

Thyroxine (T4) → **(IDO1)** → **Triiodothyronine (T3)**

Nutrients That Help with T4 to T3 Conversion

Selenium: Brazil nuts, seafood, meat, eggs
Zinc: Oysters, red meat, poultry, beans, nuts, dairy
Iodine: Iodized salt, seaweed, shrimp, fish
Iron: Red meat, poultry, fish, lentils, beans
Vitamin A: Carrots, sweet potatoes, dark leafy greens

Low Thyroid Symptoms

Fatigue
Weight Gain
Cold Intolerance
Dry Skin & Hair
Hair Loss
Constipation
Depression
Memory Issues
Goiter

Total Hormone Levels

Sex hormone production involves both genetics and lifestyle. The CYP17A1 gene is crucial for converting cholesterol into DHEA, which then forms hormones like testosterone and estrogen. Hormone levels vary naturally between individuals due to genetic differences, which can affect what nutrients each person needs to support their hormone production.

You may have a mild increase in hormone levels. You may want to focus on avoiding toxic exposure and supporting detoxification pathways discussed previously in this report and be careful with supplements like DHEA.

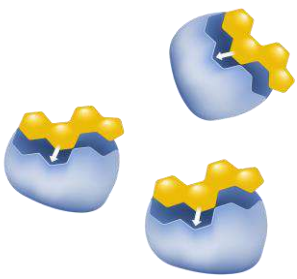
Adrenals, Testes, and Ovaries

Cholesterol & Pregnenolone → **CYP17A1** → **Androgens (DHEA/Testosterone)**, **Estrogens (E1/E2)**, **Cortisol**

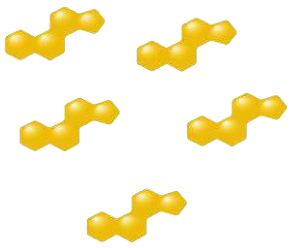
SHBG and Free Hormones

Sex Hormone Binding Globulin (SHBG) regulates the availability of free hormones in the body. Free hormones are those that are not bound to proteins like SHBG and are biologically active, whereas bound hormones are attached to proteins and are not readily available for use by the body.

You may have increased SHBG levels, which can impact the balance of free hormones in your body. This genotype is fairly common. If you experience symptoms of low hormone levels, free hormone testing may be beneficial.



SHBG Bound Hormones



Free Active Hormones

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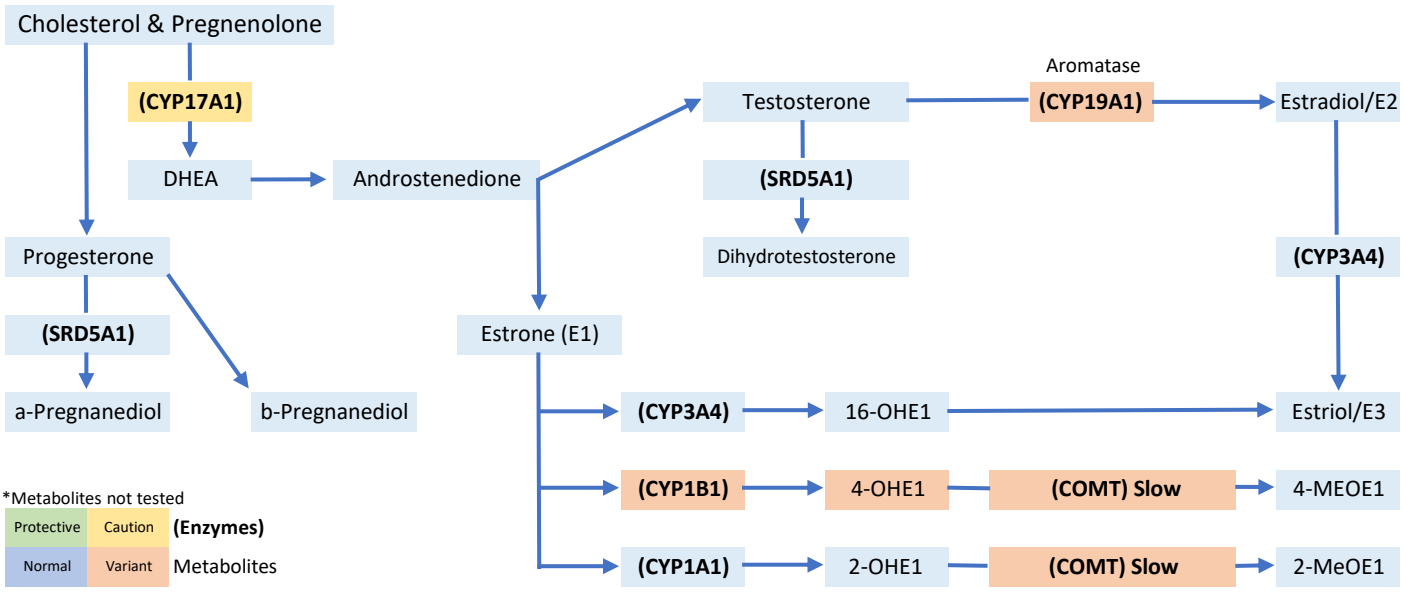
Hormones - Male

Hormones play a critical role in maintaining various physiological functions in men's health, including metabolism, muscle growth, energy levels, and reproductive health. Understanding how genetic variations influence hormone production and metabolism can provide valuable insights into optimizing health through personalized nutrition. This report delves into key hormones relevant to men, such as testosterone and dihydrotestosterone (DHT), and explores how specific genetic variations impact their levels and activity. By integrating genetic information with nutritional guidance, this report aims to offer practical strategies for managing hormone balance and promoting overall well-being in men.



Aromatase & Estrogen

Aromatase plays a key role in the conversion of androgens to estrogens, which is essential for maintaining hormonal balance in men. It impacts various aspects of male health, including fertility, bone density, cognitive function, and cardiovascular health.

Your aromatase activity may be significantly increased, raising estrogen levels. Monitor insulin and blood sugar. Maintain a healthy BMI, and limit sugar, soy, chickpeas, beer, and wine. Elevated migraine risk.

Dihydrotestosterone (DHT)

The enzyme 5α-reductase(SRD5A1), which is involved in the production of dihydrotestosterone & α-Pregnanediol. Elevated activity of this enzyme can lead to symptoms such as polycystic ovary syndrome (PCOS), thinning hair, acne, and facial hair growth.

You likely have normal SRD5A1 activity, resulting in typical levels of DHT and α-Pregnanediol. Maintain a balanced diet and regular exercise to support overall hormone health.

2-Hydroxyestrogen

2-Hydroxyestrogens (2-OHE1) is considered protective due to their less estrogenic activity compared to other estrogen metabolites,(16-OHE1 & 4-OHE1). Higher levels of 2-OHE1 are associated with a reduced risk of hormone-related conditions.

You likely have normal CYP1A1/2 activity, resulting in typical 2-OHE1 levels. Continue a balanced diet to maintain healthy estrogen metabolism.

4-Hydroxyestrogen

4-hydroxyestrogens are potentially harmful estrogen metabolites produced by the CYP1B1 enzyme. They play significant roles in cell proliferation and DNA integrity.

You likely have high CYP1B1 activity, leading to increased 4-OHE levels. This may impact hormone balance and cellular health; consider cruciferous vegetables and supplements like DIM & Ca-D-Glucarate.

16-Hydroxyestrogen

16-hydroxyestrogens are estrogen metabolites produced by the CYP3A4 and CYP3A5 enzymes. These metabolites play crucial roles in cellular processes and hormone metabolism.

You likely have normal CYP3A4 activity, resulting in typical 16-OHE1 levels. Maintain a balanced diet to support overall estrogen metabolism and health.

Catechol Estrogen Detox

The COMT enzyme is crucial for the methylation and inactivation of catecholamines and catechol estrogens. This can potentially lead to increased accumulation of harmful catechol estrogens.

You likely have slow COMT activity, resulting in reduced catechol estrogen metabolism. Focus on foods rich in B vitamins and consider B-vitamin supplements. Avoid Green Tea and Quercetin.

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Neurological - Dopamine

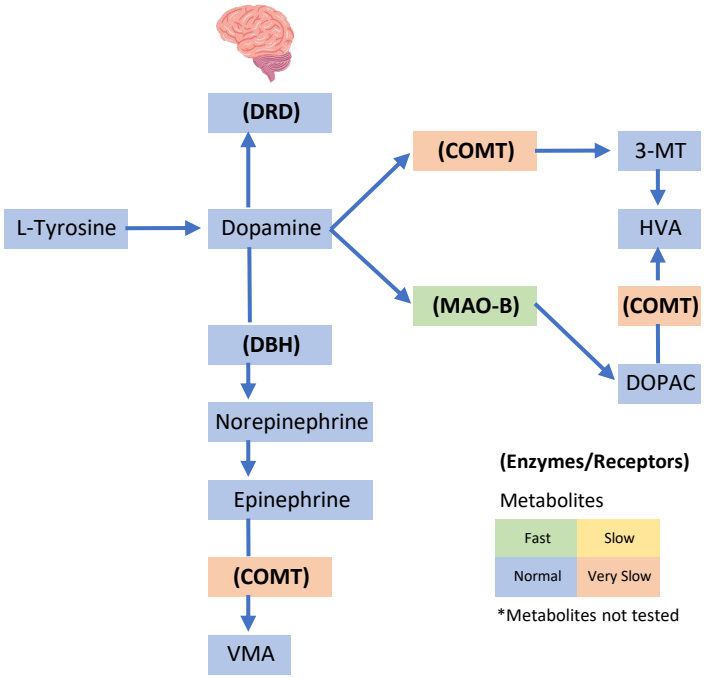
The regulation of dopamine and other catecholamines, such as norepinephrine and epinephrine, is critical for maintaining optimal neurological function and emotional well-being. Several key genes play essential roles in the synthesis, metabolism, and receptor activity of these neurotransmitters. This section focuses on the genetic variations in the COMT, VDR, DBH, and MAO genes, which collectively influence dopamine and catecholamine levels. Understanding these genetic factors can provide insights into individual differences in mood regulation, stress response, cognitive function, and susceptibility to mental health disorders.

COMT (Catechol-O-Methyltransferase)

The COMT gene encodes an enzyme responsible for breaking down dopamine, epinephrine, and norepinephrine. COMT variants affect the enzyme's activity, influencing neurotransmitter levels and impacting mood, cognition, pain tolerance and stress resilience. We use three COMT variants to determine the activity of COMT.

COMT H62H	Heterozygous	Intermediate
COMT L136L	Wild Type	Slightly Slower
COMT V158M	Heterozygous	Intermediate (Main COMT)

Based on multiple variants, we expect a Low COMT Activity.



Slow COMT Activity

Slow COMT activity involves a decreased rate of catecholamine metabolism, often due to genetic variations in rs4633, rs4818, and rs4680. Individuals with slow COMT activity may experience higher levels of dopamine, epinephrine, and norepinephrine, which can enhance mood and cognitive function but may also lead to increased sensitivity to stress and symptoms like anxiety.

Low Dopamine	Low Epinephrine	Low Norepinephrine
Depression Lack of Motivation Fatigue/Brain Fog Focus Issues Urges/Cravings Low libido Movement Issues	Fatigue Depression Migraines Sleep Issues Restless Leg	Fatigue/Brain Fog Lack of Motivation Focus Issues Sleep Issues Low Blood Pressure Depression Headaches
Support:	**Support:**	**Support:**
L-Tyrosine Bacopa	L-Methionine L-Tyrosine	L-Tyrosine Vit. C Copper Balancing

Advanced Neurotransmitter Assessment

Neurotransmitter	Level	Support if Symptomatic
Dopamine:	Normal	No Support Needed
Dopamine Sensitivity:	Normal	N/A
DOPAC:	Normal	No Recommendations
Norepinephrine:	Normal	No Recommendations
Epinephrine	Normal	No recommendations

*These are estimated levels based on genetic tendencies, not actual levels. These results are for educational purposes only.

DBH (Dopamine Beta-Hydroxylase)

The DBH gene is involved in converting dopamine to norepinephrine. Variations in DBH can affect the balance of these neurotransmitters, impacting mood and autonomic functions.

You have normal conversion of dopamine to norepinephrine, which supports typical stress response, mood regulation, and cardiovascular function. There is no increased risk for symptoms associated with reduced DBH activity.

DRD2 (Dopamine Receptor D2)

The DRD2 gene encodes the D2 subtype of the dopamine receptor, which is involved in mediating the effects of dopamine in the brain. Variations in this gene can impact reward pathways, motivation, and the risk of addiction.

You have normal dopamine receptor D2 density, which supports typical dopamine signaling and is not associated with increased risk for symptoms related to reduced DRD2 density.

VDR (Vitamin D Receptor)

The VDR gene, particularly the rs731236 (Taq1) polymorphism, affects the body's response to vitamin D, which in turn influences dopamine production and regulation.

You may have mildly altered vitamin D receptor (VDR) function, which can result in mild effects on dopamine regulation, calcium absorption, and bone health, with a potential increased risk of vitamin D deficiency-related conditions and mood disorders.

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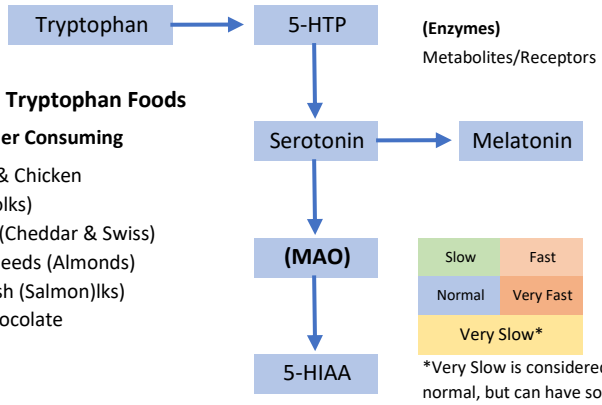
Neurological - Continued

MAO (Catechol-O-Methyltransferase)

Monoamine oxidase (MAO) is a crucial enzyme in the metabolism of neurotransmitters, maintaining the balance of chemical signals in the brain. There are two main types: MAO-A, which primarily breaks down serotonin, norepinephrine, and epinephrine, and MAO-B, which primarily breaks down phenylethylamine and plays a significant role in dopamine metabolism. MAO-A is found in the liver, gastrointestinal tract, and brain, while MAO-B is predominantly in the brain.

MAOA R297R	Heterozygous	Intermediate
MAOA T1410C	Heterozygous	Intermediate
MAOB	Wild Type	Faster. Lower Dopamine & PEA

Based on multiple variants, we expect an Intermediate MAO Activity: This is considered ideal by many.



High Tryptophan Foods

***Consider Consuming**

Turkey & Chicken
Eggs (Yolks)
Cheese (Cheddar & Swiss)
Nuts& Seeds (Almonds)
Fatty Fish (Salmon)lks)
Dark Chocolate

*Very Slow is considered normal, but can have some potential symptoms.

Low Serotonin

Anxiety / Depression
Insomnia
Loss of pleasure
Paranoia
Weight Issues
Inner rage

Low PEA

Brain Fog
Depression
Difficulty Paying Attention
Incomplete Thoughts

Advanced Neurotransmitter Assessment

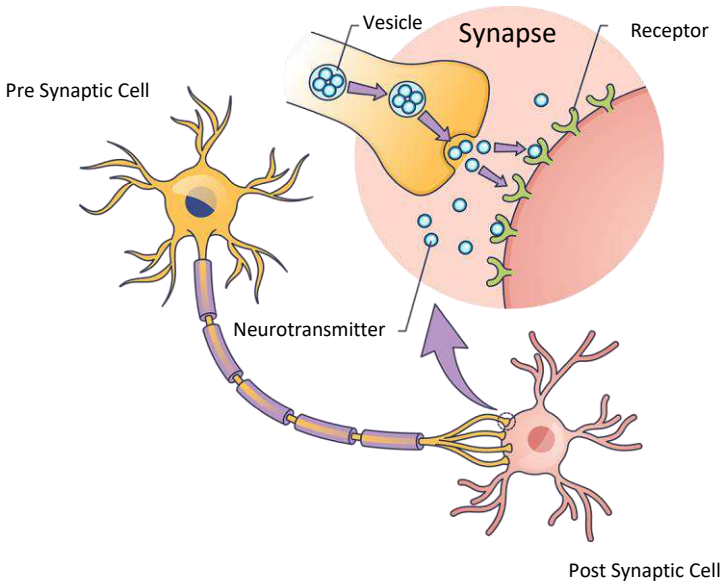
Neurotransmitter	Likely Level	Support if Symptomatic
Serotonin:	Normal	No Support Needed
PEA:	Low	DL-Phenylalanine, B6

*These are estimated levels based on genetic tendencies, not actual levels.
*Please see a physician if severe symptoms are present.

Oxytocin

Oxytocin, often referred to as the "love hormone" or "social bonding hormone," is a peptide hormone and neuropeptide that plays a significant role in social behaviors, emotional regulation, and interpersonal bonding. Oxytocin influences a wide range of social interactions, including trust, empathy, and bonding between individuals, particularly in parent-child relationships and romantic partnerships. It also helps modulate stress responses and emotional well-being.

You likely have a mildly reduced oxytocin receptor function, which may impact your ability to bond socially and regulate emotions. Prioritizing supportive relationships and seeking social support can help improve your emotional and social well-being.



BDNF

Brain-Derived Neurotrophic Factor (BDNF) supports the survival, growth, and differentiation of neurons during development and throughout adulthood. It is essential for neuroplasticity, which allows the brain to adapt and reorganize itself in response to new experiences, learning, and memory formation. Variations in BDNF levels and activity have been linked to various neurological and psychiatric conditions, including depression, anxiety, and neurodegenerative diseases.

You likely have mildly reduced BDNF levels, slightly impacting neuroplasticity. Engage in high-intensity exercise, consume antioxidant-rich foods like berries and leafy greens, and consider lithium orotate supplementation to support brain health.

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Prevention & Optimal Health

Apolipoprotein E (APOE) is a critical protein involved in lipid metabolism, cholesterol transport, and neuronal repair. It plays a vital role in maintaining the health and function of the brain. The APOE gene exists in three major isoforms: APOE2, APOE3, and APOE4, each associated with different risks for neurodegenerative conditions. APOE4, in particular, is linked to an increased risk of developing Alzheimer's disease and other cognitive impairments. Variations in APOE influence the clearance of amyloid-beta plaques, a hallmark of Alzheimer's disease, as well as neuronal repair mechanisms and synaptic plasticity. Understanding the genetic variations in APOE and their impact on brain function can provide crucial insights into personalized approaches for preventing and managing neurodegenerative diseases, enhancing cognitive resilience, and promoting overall brain health.

APOE

ε3/ε3 - Your genotype indicates you have the ε3/ε3 variant, which is the most common genotype and is associated with an average risk for Alzheimer's disease.

Additional Genes

BDNF	Heterozygous	No Additional Information
SOD1	Wild Type	Potentially Protective
MTHFR C677T	Heterozygous	No Additional Information
CYP17A1	Heterozygous	No Additional Information
TNF	Wild Type	No Additional Information
IL6	Wild Type	No Additional Information

E4 Risk Factors

Alzheimer's Disease
Faster progression of MS
Traumatic Brain Injury
Cardiovascular disease
Unable to detoxify heavy metals

E4 Diet Recommendations

Lowered Carbohydrate intake
Limit Saturated Fat Intake
Eliminate Sugar
Increase Omega 3 (Fish) Intake
Limit Seafood that is high in mercury

E4 Friendly Diets

Mediterranean
Ketogenic
Paleo
Carnivore

E4 Lifestyle Recommendations

Avoid Alcohol & Smoking
Intermittent Fasting
Monitor Homocysteine Levels
Consider Regular Sauna Visits

E4 Supplement Recommendations

DHA >2g/day
Quercetin 1-2g/day
Resveratrol 2g/day
Vit. D3, up to 5,000 Iu/day
Vit. K2 MK7 45-180 ug/day
Lithium Orotate 5mg/day
Extra Virgin Olive Oil
Activated B-vitamins

For more research
PubMed: PMC8073598

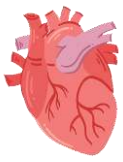
Additional Heart and Circulatory Health

Maintaining cardiovascular health is essential for overall well-being and quality of life. Various genetic factors can influence how our bodies manage cholesterol, blood pressure, and inflammation, all of which play roles in heart and blood vessel function. Understanding these genetic factors can provide valuable insights into personalized approaches for supporting cardiovascular wellness through lifestyle and dietary choices. This section highlights key genetic markers associated with cardiovascular health to help you make informed decisions for maintaining a healthy heart and circulatory system. It is important to discuss these findings with a qualified healthcare practitioner before making any significant changes to your diet, lifestyle, or treatment plan.

ACE	Homozygous	Consider Limiting Your Salt intake.
PAI-1 4G/5G	Heterozygous	No Additional Information
Factor 5	Wild Type	No Additional Information
Prothrombin	Wild Type	No Additional Information

The ACE gene is involved in the regulation of blood pressure and cardiovascular function. The PAI-1 4G/5G polymorphism can influence the body's ability to regulate blood clot breakdown. Factor V and Prothrombin are essential components of the blood coagulation system. While these genetic markers offer useful information about potential predispositions, it is important to remember that they are only part of a broader picture, and individual health outcomes are influenced by a combination of genetic, environmental, and lifestyle factors.

Consider limiting your salt intake, monitoring your blood pressure, eating an anti-inflammatory diet, and supplementing with Lumbrokinase or Nattokinase to support healthy clotting. Discuss this with your physician & dietician.



Regular Physical Activity: At least 2 days of exercise per week
Weight Management: Healthy weight will reduce your cardiovascular burden
Smoking Cessation: Quitting smoking significantly decreases cardiovascular risks
Regular Health Check Ups: Monitor your blood pressure and glucose levels
Discuss Your Options: Maintain a good relationship with a medical professional

Consultation with Healthcare Provider

Before starting any supplementation, it is important to consult with a healthcare provider to ensure safety, especially for individuals on anticoagulant or antiplatelet medications.

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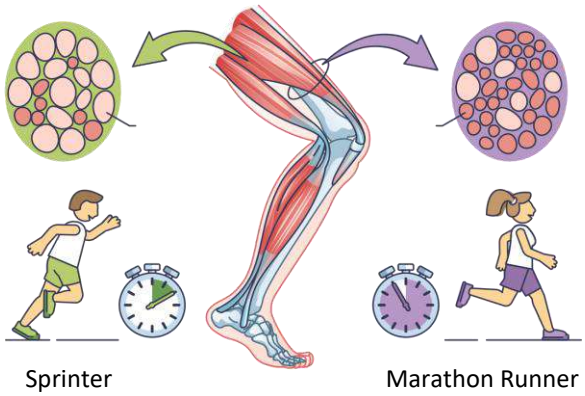
Fitness Performance

Whether you're aiming to build muscle strength or enhance endurance, understanding the key differences between these fitness aspects is crucial. Our comprehensive guide delves into the genetic factors influencing your potential as a sprinter or endurance athlete, highlighting the role of muscle power and fiber composition. We also explore muscle metabolism, the intricate process your body uses to convert food into energy, essential for both high-intensity bursts and sustained activities. By understanding your ventilatory threshold, VO2 max potential, and muscle fiber types, you can tailor your training to maximize performance. Additionally, we cover altitude performance and the risks of acute mountain sickness, providing insights inffto how your body adapts to various physical challenges. Join us as we unlock the secrets to achieving your peak fitness potential.

Fast Vs Slow Twitch Fibers



Sprinter | Marathon Runner

Endurance Potential

Endurance is the ability to sustain activity for extended periods of time. Endurance potential is a product of several factors such as aerobic capacity, fatigue resistance, fuel usage, economy of motion, and other physiological variables.

With normal endurance potential, you balance well between endurance and high-intensity activities. Regular training and conditioning help you maintain and slightly enhance your endurance for moderate aerobic exercises.

Sprint Potential

Sprinting is anaerobic activity characterized by high and quick boost energy which cannot be maintained for extended periods of time. Some athletes are Physiological predisposed to elite sprint potential which has been found to be associated with several gene mutations.

Lower sprint potential indicates a higher proportion of slow-twitch fibers, making explosive, high-speed activities challenging. Focus on improving speed with targeted strength and sprint training.

Peak Muscle Power

Peak muscle power is the maximum output of muscle in a period of time, such as in power lifting or any other activity that requires explosive movements. Several genetic mutations have been associated with increased potential peak muscle power, although actual performance is also dependent on proper training.

Normal Potential Peak Muscle Power. Combine strength and HIIT training for balanced development. Prioritize proper form, recovery days, and post-workout protein to support muscle repair and prevent overtraining.

Fast/Slow Twitch

Skeletal muscle has two types, type I (slow twitch) and type II (fast twitch). Slow twitch muscles use energy slowly and evenly for longer lasting performance, such as endurance exercise. Fast twitch muscles use energy more quickly with more powerful force, but for shorter periods of time.

With predominantly slow-twitch muscles, you excel in endurance activities like long-distance running and cycling. These fibers efficiently use oxygen for prolonged muscle contractions, making them ideal for stamina and prolonged effort activities.

VO2 Max

VO2 Max is the measure of the maximum amount of oxygen your body can utilize during exercise. It can be used to test cardiovascular fitness or aerobic endurance. Several genetic mutations have been found to be associated with increased or decreased VO2 Max.

You have a higher VO2 Max, indicating strong oxygen uptake during intense exercise. This provides a major advantage in endurance sports and high-intensity activities, helping you perform at peak levels with proper training.

VO2 Max - Exercise Response

VO2 Max is the measure of the maximum amount of oxygen your body can utilize during exercise. It can be used to test cardiovascular fitness or aerobic endurance. A mutation in the LEP gene has been found to be associated with an increased potential VO2 Max increase with exercise.

You have a normal potential for VO2 Max peak improvement with exercise. With consistent aerobic and endurance training, you can achieve significant gains in your cardiovascular fitness and overall exercise performance.

Ventilatory Threshold

Ventilatory threshold is the point during physical exertion when the rate of breathing increases at a faster rate then oxygen levels and your body starts to rely more on anaerobic respiration to generate energy. A mutation in the ACTN3 gene is associated with Ventilatory threshold being reached at higher or lower speeds, or levels of exertion.

Your ventilatory threshold and respiratory compensation point occur at higher speeds, allowing sustained intense exercise. Leverage this by incorporating high-intensity interval training (HIIT) to maximize performance.

High Altitude Performance

Altitude performance depends on physical and environmental factors like training, acclimation, and endurance potential. Genetic mutations also play a role, influencing altitude performance, susceptibility to mountain sickness, and the ability to acclimate effectively.

You have a moderate risk for acute mountain sickness. While you may experience some symptoms at high altitudes, proper acclimatization, hydration, and a gradual ascent can help mitigate these risks.

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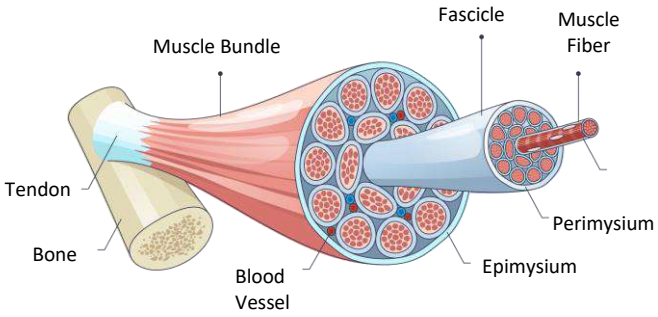
Muscle Injury & Recovery

Understanding muscle health and performance is essential for both athletes and those focused on maintaining overall fitness. This guide explores various aspects of muscle care, including assessing muscle damage through biomarkers like creatine kinase (CK) and myoglobin levels, and managing post-exercise issues such as strength loss and soreness. It provides insights into the prevention and recovery of muscle injuries, with a focus on conditions like hamstring and rotator cuff injuries. The critical topic of exertional rhabdomyolysis is also covered, offering strategies to prevent and manage this serious condition. This information equips you with the knowledge to effectively manage and enhance your muscular system, whether you aim to optimize performance or maintain muscle health.



Muscle injury

Endurance is the ability to sustain activity for extended periods of time. Endurance potential is a product of several factors such as aerobic capacity, fatigue resistance, fuel usage, economy of motion, and other physiological variables.

You have a normal risk of muscle damage or pain after exercise. Follow a balanced fitness regimen, including warm-ups, cool-downs, and recovery practices. Regular stretching and hydration will help maintain muscle health and minimize discomfort.

Hamstring Injury

Hamstring injuries are prevalent in sports requiring sprinting and explosive movements. This section focuses on understanding the anatomy of the hamstrings, common causes of injury, and the best practices for treatment and rehabilitation.

You have an increased risk for hamstring injuries. Focus on strengthening and stretching your hamstrings regularly, and incorporate proper warm-up and cool-down routines to reduce the risk of injury.

Rotator Cuff Injury

Rotator cuff injuries can significantly affect upper body mobility and strength, especially in sports involving overhead motions. In this section, we explore the anatomy of the rotator cuff, typical injury mechanisms, and effective management strategies.

You have an increased risk of rotator cuff tear susceptibility. Focus on strengthening your shoulder muscles, maintaining flexibility, and practicing proper form during activities to reduce the risk of injury.

Muscle Cramping

Muscle cramping can disrupt your workout and daily activities, often occurring without warning. This section delves into the common causes of generalized muscle cramping, including dehydration, electrolyte imbalances, and overexertion.

You have an increased risk of exercise-associated muscle cramping. Maintain a balanced fitness routine, stay hydrated, and incorporate stretching exercises to help prevent cramps and ensure smooth workouts.

Muscle Damage

Exertional rhabdomyolysis is a serious condition resulting from intense physical activity, leading to the breakdown of muscle fibers and release of their contents into the bloodstream. This section provides a comprehensive overview of the causes, symptoms, and risks associated with exertional rhabdomyolysis.

You have a normal risk of exertional rhabdomyolysis. Continue to maintain a balanced exercise routine, stay hydrated, and ensure proper recovery between workouts. Monitor for any unusual muscle pain and adjust your intensity accordingly to stay safe.

Strength Post Exercise

Experiencing strength loss after exercise is common, especially following intense workouts. This section examines the causes of post-exercise strength loss, including muscle fatigue and microtrauma.

You have a decreased risk of strength loss post exercise. Maintain your current training regimen, ensuring proper nutrition and hydration. Continue to allow adequate recovery time to sustain your strength levels and optimize performance.

Soreness post exercise

Post exercise soreness can occur due to overexertion and can vary in severity. A mutation in the SLC30A8 gene has been found to be associated with increased and decreased risk of post exercise soreness.

Your genotype is associated with a decreased risk of soreness post exercise. Maintain your current training regimen, including proper warm-ups and cool-downs, to continue minimizing post-exercise soreness and enhancing recovery.

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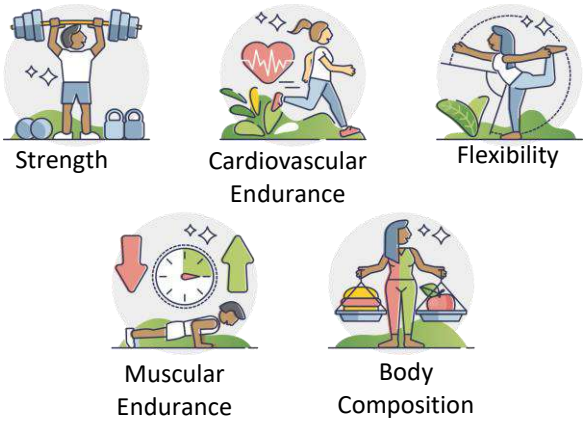
Exercise Response

Understanding your body's response to exercise is crucial for optimizing health and performance. This section explores how genetic factors influence various aspects of physical activity, including weight loss potential, motivation levels, and physiological reactions like blood pressure and blood sugar regulation. Additionally, it examines your body's response to resistance training, preferences for endurance versus resistance exercise, and overall exercise capacity. By analyzing these genetic insights, you can tailor your fitness approach to better align with your unique biological profile, enhancing your ability to achieve your fitness goals.

Health Benefits of Exercise



Weight Loss & Exercise

Endurance is the ability to sustain activity for extended periods of time. Endurance potential is a product of several factors such as aerobic capacity, fatigue resistance, fuel usage, economy of motion, and other physiological variables.

You have a normal potential for weight loss and body composition improvement with exercise. With consistent effort, you can achieve moderate reductions in body fat and improvements in muscle tone.

Motivation to Exercise

Motivation can be driven by various factors, including personal health goals, the desire for physical appearance improvements, stress relief, and overall well-being. Setting realistic, attainable goals, tracking progress, and incorporating a variety of workout routines can help keep you motivated.

You are more likely to be motivated to exercise due to your focus on health and wellness. Regular workouts that help manage weight, boost energy, and reduce disease risk drive your commitment.

Blood Pressure and Exercise

Regular exercise is crucial for managing blood pressure and promoting cardiovascular health. Physical activity helps lower blood pressure, reduces the risk of hypertension, and improves heart function. Certain exercises, such as aerobic activities and resistance training, are particularly beneficial.

Your response to exercise results in a typical decrease in blood pressure. Continue engaging in regular physical activity and maintaining a healthy lifestyle to support your cardiovascular health.

Blood Sugar and Exercise

Exercise regulates blood sugar levels and manages diabetes effectively. Physical activity impacts glucose metabolism, insulin sensitivity, and overall blood sugar control. Beneficial exercises for stable blood sugar levels include aerobic exercises, strength training, and high-intensity interval training (HIIT).

You may experience a significant improvement in blood sugar and insulin response with exercise. Your body responds well to physical activity, greatly enhancing blood sugar control and insulin sensitivity.

Resistance Training

Resistance training leads to significant physiological adaptations, including increased muscle mass, strength gains, and improved metabolic function. Understanding how your body responds to resistance exercises helps optimize your training regimen for maximum strength and muscle-building benefits.

You have an increased benefit from resistance training. Your body responds exceptionally well, allowing for rapid improvements in strength and muscle mass. Consistent exercise and a well-structured program will maximize your gains and overall fitness.

Endurance vs Resistance Training

Endurance and resistance training both improve vascular function and cardiovascular health. Endurance training enhances blood flow, reduces arterial stiffness, and improves heart efficiency, while resistance training strengthens blood vessels and improves overall vascular health. Each type of exercise offers unique benefits for cardiovascular function.

You have improved vascular function from endurance training over resistance training. Aerobic exercises like running or cycling are particularly beneficial for enhancing your cardiovascular health compared to strength training.

Exercise Capacity

Exercise capacity is the maximum amount of physical exertion an individual can sustain. Factors influencing exercise capacity include cardiovascular fitness, muscle strength, and respiratory efficiency. Assessing and improving exercise capacity through targeted training and lifestyle adjustments enhances overall physical

You have an increased exercise capacity. Your body excels in physical activities, allowing you to achieve high levels of fitness and performance. Consistent training and a well-rounded exercise regimen will help you maximize your potential.

Your Genetic Summary

SUMMARY

Pesticides:	You have a normal sensitivity to insecticides. It's still probably a good idea to avoid exposures.
Inflammation:	You are at a regular risk of inflammation, consistent with the general population.
Fish Oil:	You have a mild increased need for omega-3s (fish oils) for neurological health. Consider eating a diet containing fish.

SUMMARY

Sat. Fats (ApoE):	The sum of your genotype scores is associated with an increased sensitivity to saturated fats.
Dietary Histamine:	You have moderate reduction in DAO enzyme activity. You may benefit by consuming a low histamine diet. (%33 reduction)
Cellular Histamine:	We do not anticipate a decrease in HNMT activity.

SUMMARY

GSH & Antioxidants:	You have very mild reduction in peroxide degradation. Consider taking: selenium or Brazil nuts.
SOD:	You likely have a slow SOD and a fast NOS, this can result in an increase in the ROS nitrotyrosine. Consider supplementing Hydroxocobalamin and supplementing SOD/Catalase supplements, or increasing foods high in manganese.
Vitamin A:	Your BCMO1 gene variants suggest a less efficient conversion of beta-carotene to retinol. You may need to increase your intake of retinol-rich foods or consider a retinol supplement.
Vitamin D:	Vitamin D Receptor Sensitivity: Normal. Active Vitamin D Levels : Reduced. Vitmin D Transport: Reduced.

SUMMARY

Vitamin E:	We anticipate that you may have a slightly elevated need for Vitamin E. In addition to maintaining a balanced diet and healthy lifestyle, you might benefit from taking a multivitamin to ensure adequate Vitamin E intake.
Iron:	You have a normal risk of iron sensitivity. Monitor your yearly labs for low iron.
Phosphatidylcholine:	Given your genetic predisposition, you may benefit from phosphatidylcholine supplementation and a diet high in choline-rich foods.

SUMMARY

Methylfolate:	You are compound heterozygous for C677T and A1298C variants. This combination results in a 50-60% reduction in MTHFR enzyme activity. You may benefit from the recommendations on this page.
Methyl Sensitivity:	You are likely sensitive to methyl donating nutrients. Use caution and be aware of symptoms like anger, aggression, anxiety, and insomnia with their usage. Creatine can be a good support for methylation in complicated cases.
Methyl B12:	You have a significant increased need for methylcobalamin.But, you are likely to react negatively to supplemental methylcobalamin. Start with an extremely small dose or opt for hydroxocobalamin which can convert into methylcobalamin.

SUMMARY

COMT:	Based on multiple variants, we expect a Low COMT Activity.
MAO:	Based on multiple variants, we expect an Intermediate MAO Activity: This is considered ideal by many.
Bad Estrogen:	You likely have high CYP1B1 activity, leading to increased 4-OHE levels, a very reactive estrogen metabolite. This may impact hormone balance and cellular health; consider cruciferous vegetables and supplements like DIM & Ca-D-Glucarate.
Probiotics:	Based on your genetic results, you might benefit from probiotic strains like: Bifidobacterium infantis, Bifidobacterium longum, and Lactobacillus plantarum.
Secreter Status:	You are an FUT2 secretor, which means you secrete certain blood group antigens into bodily fluids. This can influence your gut microbiota and potentially offer some protection against infections.

MaxFunction SNP Report

Gene	RS#	Result	Minor	Associations
ACE	rs4343	Homozygous (GG)	G-42%	Hypertension, Heart Disease, Migraine risks, Sever Covid. (Proxy for ACE DEL)
AHCY-01	rs819147	Wild Type (TT)	C-32%	No variant found. No predicted impact on Methylation.
APOE	rs429358	Wild Type (TT)	C-7%	ε3/ε3 - Your genotype indicates you have the ε3/ε3 variant, which is the most common genotype and is associated with an average risk for Alzheimer's disease.
APOE	rs7412	Wild Type (CC)	T-8%	
BCMO1	rs12934922	Homozygous (TT)	T-23%	Decreased Vitamin A conversion into retinol. Test retinol levels.
BCMO1	rs7501331	Wild Type (CC)	T-22%	No variant found. No predicted impact on Vitamin A conversion
BDNF	rs6265	Heterozygous (CT)	T-19%	Mild association with decreased BDNF secretion.
BHMT c.742G>A	rs3733890	Heterozygous (GA)	A-29%	Conflicting research. Most likely benign.
CBS	rs4920037	Wild Type (GG)	A-13%	No variant found. No predicted impact on Sulfation.
CBS A360A	rs1801181	Homozygous (AA)	A-30%	Mild upregulated CBS enzyme activity and elevated ammonia.
CBS C699T	rs234706	Wild Type (GG)	A-20%	No variant found. No predicted impact on Sulfation.
CD320 (TCblR)	rs2336573	Wild Type (CC)	T-5%	No variant found. Normal cellular B12 uptake.
CLOCK	rs1801260	Heterozygous (GA)	G-27%	No reportable associations.
COMT H62H	rs4633	Heterozygous (CT)	T-37%	Intermediate COMT activity.
COMT L136L	rs4818	Wild Type (CC)	G-30%	Associated with reduced activity, increased dopamine and pain sensation.
COMT V158M	rs4680	Heterozygous (GA)	A-37%	Intermediate COMT activity. Ideal COMT status. Possible Estrogen issues. (Val.Met)
CUBN	rs1801222	Heterozygous (AG)	A-31%	Lowered B12 intestinal absorption. Lowered Serum B12.
CYP17A1	rs743572	Heterozygous (GA)	G-39%	Mild increase in estrogen and androgen production
CYP19A1	Rs10046	Homozygous (AA)	C-31%	(Aromatase) Increased Estrogen. Evaluate Insulin. Increased Migraine Headaches
CYP19A1	rs4646	Homozygous (CC)	C-69%	(Aromatase) Increased Estrogen. Evaluate Insulin. Increased Migraine Headaches
CYP1A1	rs1048943	Wild Type (TT)	C-8%	No variant found. Considered the Slower form of CYP1A1
CYP1A2	rs762551	Wild Type (AA)	C-32%	Faster caffeine metabolism
CYP1B1 A119S	rs1056827	Heterozygous (CA)	A-30%	Mild association with elevated 4-OH estradiol.
CYP1B1 L432V	rs1056836	Homozygous (GG)	C-42%	Elevated 4-OHE1. Consider Dutch hormone testing. Slow COMT compounds risk. (Val)
CYP27B1	rs10877012	Heterozygous (GT)	T-29%	Mild decreased in 1,25(OH)2D3. (Active Vitamin D)
CYP2C19*17	rs12248560	Heterozygous (CT)	T-22%	Increased enzymatic activity. Possible pharmaceutical interactions. Consult your physician.
CYP2C19*2	rs4244285	Wild Type (GG)	A-15%	Normal Metabolizer
CYP2D6 S486T	rs1135840	Heterozygous (GC)	C-43%	Possible mild increased activity. Potential pharmaceutical interactions. Discuss with your physician.
CYP2D6 T2850C	rs16947	Wild Type (GG)	A-32%	Normal Metabolizer
CYP2D6*10	rs1065852	Heterozygous (GA)	A-21%	Associated with decreased enzyme function.
CYP2E1	rs3813867	Wild Type (GG)	C-0.1%	Normal risk of colorectal cancer with red meat consumption
CYP2E1 *6	rs6413432	Wild Type (TT)	A-16%	Normal Metabolizer
CYP2R1	rs10741657	Homozygous (GG)	A-37%	Risk of vitamin D deficiency. Slower cholecalciferol (D3) to calcidiol (25-oh Vit D) conversion.
CYP3A4*1B	rs2740574	Wild Type (TT)	C-23%	Normal Metabolizer
CYP3A5	rs776746	Wild Type (CC)	T-11%	CYP3A4 non expressor/decreased funciton. Common among Caucasians.
DAO(AOC1)	rs1049793	Heterozygous (CG)	G-32%	Associated with mild decrease in DAO activity.
DAO(AOC1)	rs10156191	Heterozygous (CT)	T-31%	Most likely no influence on DAO activity or Histamine intolerance.
DAO(AOC1)	rs1049742	Wild Type (CC)	T-7%	No variant found.
DAO(AOC1)	rs2052129	Heterozygous (GT)	G-24%	Mild reduction in DAO production.
DAOA/DAAO	rs2391191	Heterozygous (GA)	A-37%	Research is inconclusive.
DBH	rs1611115	Wild Type (CC)	T-21%	No variant found.
DHFR	rs1643649	Wild Type (TT)	C-23%	No variant found.

MaxFunction SNP Report

Gene	RS#	Result	Minor	Associations
DIO1	rs2235544	Heterozygous (CA)	A-50%	Mild decrease in T4 to T3 conversion. Might respond better to T3/T4 combined thyroid medication.
DRD2	rs1800497	Wild Type (GG)	A-26%	No variant found.
EPHX1	rs1051740	Wild Type (TT)	C-30%	No variant found.
Factor 5	rs6025	Wild Type (CC)	T-1%	No variant found.
FADS1 (D5D)	rs174537	Heterozygous (GT)	T-30%	mild reduction in arachadonic acid, LDL cholesterol & cardiac risks.
FADS2 (D6D)	rs1535	Heterozygous (AG)	G-32%	Mild association with decreased DHA production. Use fish oil high in DHA.
FOLH1	rs202676	Heterozygous (GA)	G-24%	Mild decreased in folate intestinal absorption.
FOLR1	rs2071010	Wild Type (GG)	A-7%	No variant found.
FUT2 W143X	rs601338	Heterozygous (GA)	A-32%	Norovirus susceptibility.
FUT2	rs602662	Heterozygous (GA)	A-48%	Norovirus susceptibility.
FUT2	rs492602	Heterozygous (AG)	G-45%	Norovirus susceptibility.
G6PD	rs1050829	Wild Type (TT)	C-9%	No variant found.
GCLM	rs41303970	Wild Type (GG)	A-18%	No variant found.
GPX1	rs1050450	Heterozygous (GA)	A-22%	Mild decrease in glutathione.
GPX4	rs713041	Heterozygous (TC)	T-40%	Mild increase in oxidative stress.
GSTM1	rs366631	Wild Type (AA)	G-30%	GSTM1 Deletion. Very Common in Caucasians. Increased risks from toxic exposures.
GSTP1	rs1695	Wild Type (AA)	G-35%	No variant found. (Primary)
GSTP1	rs1138272	Wild Type (CC)	T-3%	No variant found. (Secondary)
HFE (C282Y)	rs1800562	Wild Type (GG)	A-1%	Most influential HFE gene. No variant found.
HFE (H63D)	rs1799945	Wild Type (CC)	G-7%	Seccond most influential HFE gene. No variant found.
HFE (S65C)	rs1800730	Wild Type (AA)	T-1%	Third most influential HFE gene. No variant found.
HNMT	rs11558538	Wild Type (CC)	T-6%	No variant found.
IL-17	rs2275913	Wild Type (GG)	A-25%	No variant found.
IL-1-β	rs16944	Heterozygous (GA)	A-36%	Research is inconclusive for this genotype.
IL6	rs1800795	Wild Type (GG)	C-36%	Lower IL6 levles.
IL-6R	rs2228145	Wild Type (AA)	C-39%	No variant found.
IL-8	rs4073	Homozygous (AA)	A-55%	Higher IL8 levels. Higher reaction to infections. (use CoQ10,NAC, Aloe Vera)
MAOA R297R	rs6323	Heterozygous (GT)	G-38%	Intermediate activity.
MAOA T1410C	rs1137070	Heterozygous (CT)	T-45%	Intermediate activity.
MAOB	rs1799836	Wild Type (TT)	C-46%	Associated with higher activity and lower Dopamine.
MAT1A	rs3851059	Wild Type (GG)	A-30%	No variant found.
MMACHC	rs12272669	Wild Type (GG)	A-10%	No variant found. Normal cellular utilization of B12.
MTHFD1	rs2236225	Heterozygous (AG)	A-34%	Mild 5,10 methylenetetrahydrofolate deficiency.
MTHFR C677T	rs1801133	Heterozygous (CT)	T-25%	Mild Methyl-Folate deficiency and Homocysteine elevation.
MTHFR A1298C	rs1801131	Heterozygous (CA)	C-30%	Very Mild reduction in MTHFR activity.
MTHFR G1793A	rs2274976	Wild Type (CC)	T-5%	No variant found.
MTHFS	rs6495446	Wild Type (CC)	T-30%	No variant found.
MTR	rs1805087	Heterozygous (AG)	G-22%	Considered to be a slight upregulation.
MTRR A66G	rs1801394	Heterozygous (GA)	G-36%	Slight B12 deficiency. Methyl-B12 might be advised.
MTRR	rs1532268	Homozygous (TT)	T-27%	Methylation risk. Methyl-B12 might benefit. Follow B12 Page and support Oxidative Stress.
NAT2	rs1801280	Heterozygous (CT)	C-37%	Mild decreased acetylation (Phase 2 liver detoxification)

MaxGen LABS

TheWorks

Client Name: John Doe | DOB: 1/1/2023 | Sample ID: Sample Report | Sample Received: 1/1/2024

Practitioner: Chad Yarbrough, DC | Sex: Male | MGPTID#: C311 | Report Date: 3/4/2025

MaxFunction SNP Report

Gene	RS#	Result	Minor	Associations
NOS3	rs1799983	Wild Type (GG)	T-18%	No variant found.
NOS3	rs2070744	Wild Type (TT)	C-23%	Possible elevated Nitric Oxide. Typical of elite endourance athletes.
NQO1	rs1800566	Heterozygous (GA)	A-29%	Mild increase in oxidative stress & toxin sensitivity. Consider Lycopene.
OXTR	rs53576	Heterozygous (AG)	A-32%	Mild lack of empathy.
PAI-1 4G/5G	rs1799889	Heterozygous (GA)	A-36%	Potentially, mild increased cardiovascular risks.
PEMT	rs12325817	Wild Type (CC)	G-16%	No varirant found.
PEMT	rs7946	Homozygous (TT)	C-31%	Phosphatidylcholine deficiency. Consider supplementation. (Secondary PEMT)
PON1 Q192R	rs662	Wild Type (TT)	T-46%	No varirant found.
Prothrombin (F2)	rs1799963	Wild Type (GG)	A-0%	No varirant found.
SCN1a	rs6432860	Wild Type (GG)	A-21%	No varirant found.
SHBG	rs1799941	Homozygous (AA)	A-24%	Increase in SHBG levels. Potentially lowered free hormone levels. (Estrogen, Testosterone, DHT)
SHMT1	rs1979277	Wild Type (GG)	A-23%	No varirant found.
SLC19A1 (RFC1)	rs1051266	Wild Type (CC)	C-49%	No varirant found.
SOD1	rs2070424	Wild Type (AA)	G-25%	Possible lowered SOD1 activity.
SOD1	rs1041740	Wild Type (CC)	T-24%	Possible increase in SOD1 activity.
SOD2	rs4880	Homozygous (GG)	G-41%	Decreased antioxidant capacity. Consider Mn & SOD supplementation.
SRD5A1	rs1691053	Wild Type (TT)	G-16%	No varirant found.
SULT1A1	rs1042028	Wild Type (CC)	T-22%	Normal Activity
SUOX(S370S)	rs773115	Wild Type (CC)	G-25%	No varirant found. (Sulfite Oxidase SNP)
TCN2 C776G	rs1801198	Heterozygous (CG)	G-42%	Possible decreased B12 levels.
TNF	rs1800629	Wild Type (GG)	A-9%	No variant found. (Inflammation SNP)
TNF alpha C857T	rs1799724	Wild Type (CC)	T-10%	No variant found. (Inflammation SNP)
UGT2B17 DEL	rs10025771	Heterozygous (TC)	C-21%	Possible decrease in urinary testosterone markers.
VDR TAQ	rs731236	Heterozygous (AG)	G-39%	Protection from certain conditions. Increased VDR.
VDR-BSM	rs1544410	Heterozygous (TC)	T-30%	Protection from certain conditions. Increased VDR.
VDR-FOK	rs2228570	Wild Type (GG)	A-33%	More active Vit D receptor. Lower Vitamin D related risks.

MaxFood SNP Report

Gene	RS#	Result	Minor	Associations
Vitamin Risks				
BCMO1	rs12934922	Homozygous (TT)	TT	Increased Risk For Lower Vitamin A Levels
BCMO1	rs7501331	Wild Type (CC)	TT	Normal Risk For Low Vitamin A Levels
NBPF3	rs4654748	Heterozygous (CT)	TT	Slight Increased Risk For Low Vitamin B6 Levels
MTHFR A1298C	rs1801131	Heterozygous (CA)	CC	Moderate Potential Risk For Decreased Folate Levels
MTHFR C677T	rs1801133	Heterozygous (CT)	TT	Moderate Potential Risk For Decreased Folate Levels
FUT2	rs492602	Heterozygous (AG)	GG	False Elevation Of B12 Levels
FUT2	rs602662	Heterozygous (GA)	AA	False Elevation Of B12 Levels
SLC23A1	rs33972313	Wild Type (CC)	TT	Normal Potential Vitamin C Levels
Intragenic	rs12272004	Wild Type (CC)	AA	Lower Vitamin E
CYP2R1	rs10741657	Homozygous (GG)	GG	Increased Risk Of Vitamin D Deficiency
GC	rs2282679	Wild Type (TT)	GG	Normal Risk Of Vitamin D Deficiency
Food Intolerances				
HLA-DQ2.5	rs2187668	Wild Type (CC)	TT	Normal Potential Gluten Tolerance And Celiac Disease
IL21	rs6822844	Heterozygous (GT)	TT	Mild Decreased Risk For Gluten Intolerance And Celiac Disease
IL21	rs13119723	Heterozygous (GA)	GG	Mild Increased Risk For Gluten Intolerance And Celiac Disease
MYO9B	rs2305764	Homozygous (AA)	AA	Increased Risk For Gluten Intolerance And Celiac Disease
FUT2 W143X	rs601338	Heterozygous (GA)	AA	Mild Increased Risk Of Celiac Disease
CCR3	rs6441961	Wild Type (CC)	TT	Normal Risk Of Celiac Disease
MCM6	rs4988235	Heterozygous (GA)	GG	Less Likely To Be Lactose Intolerant.
APOA2	rs5082	Heterozygous (AG)	GG	Normal Risk Of Increased Bmi With High Fat Dairy Diet
HLA-DQ	rs9275596	Heterozygous (CT)	CC	Increased Risk Of Peanut Allergy
HLA-DR	rs7192	Heterozygous (GT)	TT	Increased Risk Of Peanut Allergy
CYP1A2	rs762551	Wild Type (AA)	CC	Faster Metabolizer Of Caffeine
Diet				
PPM1K	rs1440581	Homozygous (CC)	CC	Decreased Benefit From Energy Restricted High Fat Diet
KCTD10	rs10850219	Heterozygous (CG)	CC	Normal Risk Of Reduced Hdl With High Carb Diet
ADIPOQ 11391 G	rs17300539	Wild Type (GG)	AA	With Increased Monounsaturated Fat Diet, Normal Bmi And Obesity Risk
MC4R	rs17782313	Wild Type (TT)	CC	Normal Cardio Metabolic Risks Seen With Low Adherence To Dash And Mediterranean Diet
FABP2	rs1799883	Homozygous (TT)	TT	Increased Sensitivity To Saturated Fats
LIPC	rs1800588	Heterozygous (TC)	TT	Increased Benefit Of High Carb Diet (Bmi And Waist Circumference Decrease)
PPARG	rs1801282	Heterozygous (CG)	GG	Increase Of Monounsaturated Fats Related To Decrease In Bmi
ITGB2	rs235326	Homozygous (GG)	GG	Increased Risk Of Obesity On Western Diet
IRS1	rs2943641	Heterozygous (CT)	TT	Normal Benefit From High Carb/Low Fat Diet (Weight Loss/Insulin Resistance)
CYP2E1	rs3813867	Wild Type (GG)	CC	Normal Risk Of Colorectal Cancer With Red Meat Consumption
APOA2	rs5082	Heterozygous (AG)	GG	Moderately Increased Risk Of Obesity When Consuming High Saturated Fat Diet
TCF7L2	rs7903146	Heterozygous (CT)	TT	Increased Benefit And Decreased Risk Of Gestational Diabetew With Mediterranean Diet
FTO	rs8050136	Heterozygous (CA)	AA	Moderately Increased Benefit From Mediterranean Diet (Lowering Risk Of Obesity)
FTO	rs9939609	Heterozygous (AT)	AA	Moderately Decreased Weight Gain On Md
FTO	rs9939609	Heterozygous (AT)	AA	Increased Weight Gain After Switch To Gluten Free Diet Among Celiac Disease Patients

MaxGen LABS

TheWorks

Client Name: John Doe | DOB: 1/1/2023 | Sample ID: Sample Report | Sample Received: 1/1/2024

Practitioner: Chad Yarbrough, DC | Sex: Male | MGPTID#: C311 | Report Date: 3/4/2025

MaxFood SNP Report

Gene	RS#	Result	Minor	Associations
Eating Habits				
FTO	rs1558902	Heterozygous (AT)	AA	Increased Risk For Binge Eating
CD36	rs1761667	Homozygous (AA)	AA	Increased Perception Of Fatty Flavors
MC4R	rs17782313	Wild Type (TT)	CC	Normal Feeling Of Fullness After Meals. Normal Risk Of Binge & Emotional Eating.
DRD2	rs1800497	Wild Type (GG)	AA	Protective Against Anorexia Nerviosa.
TAS2R38	rs713598	Wild Type (CC)	GG	More Able To Taste Bitter Flavors In Healthy Foods Such As Broccoli And Cabbage
FTO	rs9939609	Heterozygous (AT)	AA	Mild Increased Risk Of Anorexia, Bulimia, Decreased Feeling Of Fullness After Meals, And Higher Serum Levels Of Leptin. Increased Risk For Emotional Overeating And Poorer Eating Behaviors.
Disease Associations				
ADRB2	rs1042714	Wild Type (CC)	GG	No Risk Associations
IL21	rs13119723	Heterozygous (GA)	GG	Decreased Association With Uc & Primary Sclerosing Cholangitis
FADS1 (D5D)	rs174537	Heterozygous (GT)	TT	No Risk Associations
PPARG	rs1801282	Heterozygous (CG)	GG	No Risk Associations
MYO9B	rs2305764	Homozygous (AA)	AA	Associated With Ibd
ADRB3	rs4994	Wild Type (AA)	GG	No Risk Associations
FUT2 W143X	rs601338	Heterozygous (GA)	AA	Mild Association With Of Crohns Disease, Ibd, Uc, Primary Sclerosing Cholangitis, And Dental Caries
FUT2	rs602662	Heterozygous (GA)	AA	No Risk Associations
IL21	rs6822844	Heterozygous (GT)	TT	Associated With Decreased Risk Of Crohns Disease, Uc, And Primary Sclerosing Cholangitis
TCF7L2	rs7903146	Heterozygous (CT)	TT	Associated With A Decreased Risk Of Non Alcoholic Fatty Liver Disease
ADRB3	rs4994	Wild Type (AA)	GG	No Risk Associations
Obesity				
ADRB2	rs1042714	Wild Type (CC)	GG	No Risk Associations
FTO	rs1558902	Heterozygous (AT)	AA	Mild Association With Obesity
ADIPOQ 11391 G,	rs17300539	Wild Type (GG)	AA	No Risk Associations
MC4R	rs17782313	Wild Type (TT)	CC	No Risk Associations
DRD2	rs1800497	Wild Type (GG)	AA	No Risk Associations
MCM6	rs4988235	Heterozygous (GA)	GG	No Risk Associations
ADRB3	rs4994	Wild Type (AA)	GG	No Risk Associations
FTO	rs8050136	Heterozygous (CA)	AA	No Risk Associations
PLIN	rs894160	Wild Type (CC)	TT	No Risk Associations
FTO	rs9939609	Heterozygous (AT)	AA	Mild Association With Obesity
PPARG	rs1801282	Heterozygous (CG)	GG	Normal Risk Of Obesity With Increased Fat Intake

MaxFood SNP Report

Gene	RS#	Result	Minor	Associations
Diabetes & Blood Sugar				
PPM1K	rs1440581	Homozygous (CC)	CC	Increased Risk Of T2D
ADIPOQ 11391 G	rs17300539	Wild Type (GG)	AA	No Risk Associations
FADS1 (D5D)	rs174537	Heterozygous (GT)	TT	No Risk Associations
MC4R	rs17782313	Wild Type (TT)	CC	No Risk Associations
FABP2	rs1799883	Homozygous (TT)	TT	Increased Risk Of T2D
LIPC	rs1800588	Heterozygous (TC)	TT	Increased Risk Of T2D
PPARG	rs1801282	Heterozygous (CG)	GG	Increased Risk Of T2D
IRS1	rs2943641	Heterozygous (CT)	TT	Decreased Risk Of T2D
MCM6	rs4988235	Heterozygous (GA)	GG	Lower Risk Of T2D And Better Glucose Metabolism In Menopausal Obese Women
ADRB3	rs4994	Wild Type (AA)	GG	No Risk Associations
TCF7L2	rs7903146	Heterozygous (CT)	TT	Increased Risk Of T2D
FTO	rs8050136	Heterozygous (CA)	AA	Increased Risk Of Type 2 Diabetes
PLIN	rs894160	Wild Type (CC)	TT	No Risk Associations
FTO	rs9939609	Heterozygous (AT)	AA	Increased Risk Of Type 2 Diabetes
Obesity				
ADRB2	rs1042714	Wild Type (CC)	GG	No Risk Associations
FTO	rs1558902	Heterozygous (AT)	AA	Mild Association With Obesity
ADIPOQ 11391 G	rs17300539	Wild Type (GG)	AA	No Risk Associations
MC4R	rs17782313	Wild Type (TT)	CC	No Risk Associations
DRD2	rs1800497	Wild Type (GG)	AA	No Risk Associations
MCM6	rs4988235	Heterozygous (GA)	GG	No Risk Associations
ADRB3	rs4994	Wild Type (AA)	GG	No Risk Associations
FTO	rs8050136	Heterozygous (CA)	AA	No Risk Associations
PLIN	rs894160	Wild Type (CC)	TT	No Risk Associations
FTO	rs9939609	Heterozygous (AT)	AA	Mild Association With Obesity
PPARG	rs1801282	Heterozygous (CG)	GG	Normal Risk Of Obesity With Increased Fat Intake
PPM1K	rs1440581	Homozygous (CC)	CC	Higher Reduction Of Insulin After High Fat Diet
Lipid Blood Labs				
IRS1	rs2943641	Heterozygous (CT)	TT	Decreased Hdl-C
LIPC	rs1800588	Heterozygous (TC)	TT	Increased Hdl-C
FTO	rs8050136	Heterozygous (CA)	AA	Increased Risk Of Cd Without Regular Exercise
LIPC	rs1800588	Heterozygous (TC)	TT	Lower Hdl-C With High Fat Intake
PPARG	rs1801282	Heterozygous (CG)	GG	Normal Risk Of Obesity With Increased Fat Intake
LIPC	rs1800588	Heterozygous (TC)	TT	Increased Ldl Triglycerides
APOA2	rs5082	Heterozygous (AG)	GG	Lower Postprandial Response (Circulating Triglycerides) After Eating A Fatty Meal
FABP2	rs1799883	Homozygous (TT)	TT	Increased Postprandial Response (Circulating Triglycerides) After Eating A Fatty Meal
IRS1	rs2943641	Heterozygous (CT)	TT	Increased Serum Triglycerides
MC4R	rs17782313	Wild Type (TT)	CC	Normal Risk Of Hypertriglyceridemia
LIPC	rs1800588	Heterozygous (TC)	TT	Normal Risk Of Hypertriglyceridemia

MaxFitness SNP Report

Gene	RS#	Result	Minor	Associations
Muscle Performance				
ADRB3	rs4994	Wild Type (AA)	A	No genetic cause for elite endurance athletic ability.
NRF2	rs7181866	Wild Type (AA)	G	No genetic cause for elite endurance athletic ability.
PPARGC1A	rs8192678	Wild Type (CC)	T	Genetic cause for elite endurance athletic ability.
ADRB2	rs1042713	Heterozygous (AG)	A	Genetic cause for elite endurance athletic ability.
GABPB1 (NRF2)	rs12594956	Heterozygous (CA)	A	Genetic cause for endurance athletic ability.
GABPB1 (NRF2)	rs8031031	Wild Type (CC)	T	No genetic cause for endurance athletic ability.
LIPC	rs1800588	Heterozygous (TC)	T	No genetic cause for enhanced benefit from endurance training.
LPL	rs328	Wild Type (CC)	G	Genetic cause for enhanced benefit from endurance training.
PPARD	rs2016520	Heterozygous (CT)	T	No genetic cause for enhanced benefit from endurance training.
ACTN3	rs1815739	Homozygous (TT)	T	Potential for impaired muscle performance. Likely endurance athlete.
AMPD1	rs17602729	Wild Type (GG)	A	No genetic cause for muscle cramping post exercise.
SLC30A8	rs13266634	Homozygous (TT)	T	Less likely to experience post exercise strength loss and soreness.
MSTN	rs1805086	Wild Type (TT)	C	No genetic cause for lower peak muscle power.
VO2Max				
GABPB1 (NRF2)	rs12594956	Heterozygous (CA)	A	Genetic cause for higher VO2 Max.
GABPB1 (NRF2)	rs8031031	Wild Type (CC)	T	No genetic cause for higher VO2 Max.
PPARGC1A	rs8192678	Wild Type (CC)	T	Genetic cause for lower baseline VO2 Max.
NRF2	rs7181866	Wild Type (AA)	G	No genetic cause for higher VO2 Max.
Weight loss				
LPL	rs328	Wild Type (CC)	G	No genetic cause for greater fat loss in response to exercise.
FTO	rs8050136	Heterozygous (CA)	A	Genetic cause for less fat loss in response to exercise.
INSIG2	rs7566605	Homozygous (GG)	G	Genetic cause for less weight loss with exercise.
LEP	rs7799039	Homozygous (AA)	A	Genetic cause for greater fat loss and lower BMI with exercise.
FTO	rs1121980	Heterozygous (GA)	A	Genetic cause for obesity with inactivity. Exercise at least 30 minutes daily.
Resistance Training				
INSIG2	rs7566605	Homozygous (GG)	G	Genetic cause for less benefits with resistance training.
IL15	rs1057972	Heterozygous (TA)	T	Genetic cause for more strength building with resistance training.
IL15RA	rs2296135	Homozygous (CC)	C	Genetic cause for more strength building with resistance training.
Cardiovascular and Injury Risks				
PPARD	rs2016520	Heterozygous (CT)	T	Genetic cause for increased HDL with exercise.
NOS3	rs2070744	Wild Type (TT)	T	Genetic cause for regulated blood pressure with exercise.
EDN1	rs5370	Wild Type (GG)	T	No genetic cause for increased blood pressure with exercise if out of shape.
LIPC	rs1800588	Heterozygous (TC)	T	Genetic cause for insulin sensitivty in response to exercise.
CCL2	rs1024611	Wild Type (AA)	G	No genetic cause for exercise induced ischemia.
ADRB2	rs1042714	Wild Type (CC)	C	Genetic cause for exercise induced idiopathic venous thrombosis.
LEPR	rs1137101	Homozygous (GG)	G	Genetic cause for exercise induced ischemic heart disease.
GDF5	rs143383	Heterozygous (AG)	A	Genetic cause for exercise induced osteoarthritis.
MMP3	rs679620	Heterozygous (CT)	C	No genetic cause for exercise induced Achilles Tendinopathy.

Client Name: John Doe | DOB: 1/1/2023 | Sample ID: Sample Report | Sample Received: 1/1/2024

Practitioner: Chad Yarbrough, DC | Sex: Male | MGPTID#: C311 | Report Date: 3/4/2025

MaxFitness additional SNP Report

BDKRB2	rs1799722	Heterozygous (TC)	T	Not Available
ACE	rs1799752	Wild Type (AA)	del	Not Available
CNR2	rs2501431	Wild Type (GG)	A	Not Available
COL5A1	rs12722	Homozygous (TT)	T	Not Available
HIF1A	rs11549465	Wild Type (CC)	T	Not Available
IGF2	rs680	Heterozygous (TC)	A	Not Available
IGF2BP2	rs4402960	Homozygous (TT)	T	Not Available
LPL	rs320	Wild Type (TT)	G	Not Available
MMP3	rs650108	Wild Type (GG)	A	Not Available
MPP7	rs1937810	Wild Type (TT)	C	Not Available
MSTN : Intron Vari	rs11333758	Wild Type (TTT)	TT	Not Available
NFIB	rs13286037	Wild Type (TT)	A	Not Available
PPARD	rs2267668	Homozygous (AA)	A	Not Available
EDN1*	rs2071942	Wild Type (GG)	A	Not Available