Client Name:	John Smith	Referring Account:	Chad Yarbrough, DC
Client DOB:	1/1/1900	Sample Date:	11/2/2018
Vial Number:	Sample Report	Report Date:	8/7/2019
Client Sex:	Male		

Consult with a licensed healthcare professional before making changes based upon any information contained within this report. These recommendations and explanations are based upon clinical observation by MaxGen Labs and current medical research. These results are for educational purposes only and 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 any damages resulting from its use.

DNA

DNA can be described as your own personal cookbook. Full of recipes that create you as a human being, each page contains specific details about every cellular process in your body.

Proteins

Proteins are created by a series of amino acids that all code for specific functions in cells, tissues, and organs.

Genes

Genes should be considered the recipes of your cookbook. Each recipe is designed to produce a fully functional product. In this case, your product is a protein. You inherit your genes from your parents.
Your recipes need the appropriate ingredients. In this case, ingredients are called alleles.

Variations

Variations (or single nucleotide polymorphism – SNP) in allele pairing create regulatory issues within the body. Variations can be considered slight changes to your ingredients in the recipe. When you inherit genes from your parents, your alleles may join in a specific pattern. We call these patterns wild type, heterozygous, and homozygous. Wild type simply means that the pairing is most commonly found in nature. Heterozygous means you have one variation from a parent (different alleles). Homozygous means you have two variations (the same allele) from both parents.

Alleles

Alleles are the nitrogenous bases: adenine (A), thymine (T), cytosine (C), and guanine (G). When sequenced together correctly, they create the final product: proteins. Alleles also determine the visual expression of your genes. For example: curly hair, green eyes, etc. This is known as your phenotype.

Epigenetics

Epigenetics is the study of how the environment influences genetic expression. While we may have variations in our genetic code, our environment controls whether our genes are switched on or off. Our test does not account for environmental influences. We report genetic variations only. Work with a trained provider if you need help understanding the epigenetic influences.

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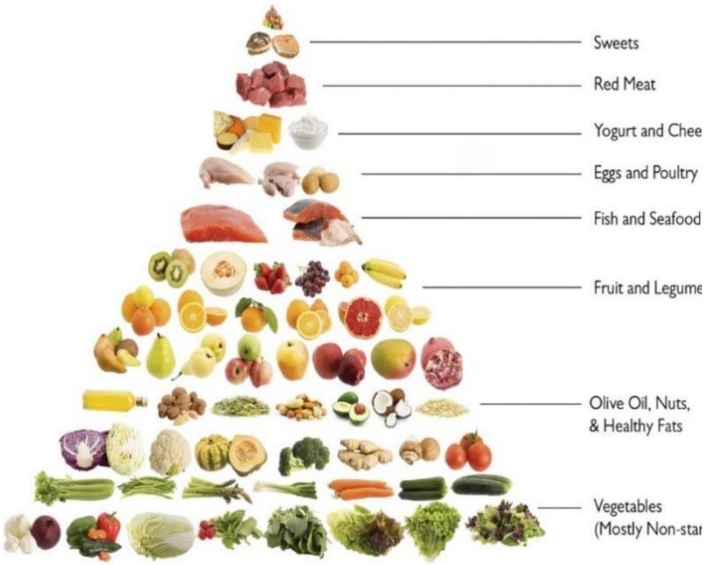
Diet & Genetics

Your genes control how your body responds to fats and carbohydrates, your metabolism, your emotional response to food, and habits that control weight management. Each page of this report will contain information that can help you create a long-term eating plan, one that balances not only the types of food you consume but also when you eat and what you can do to supplement your diet. The information contained in this report should be used as an addition to a wellness plan for longevity and health.



The most well researched diet is the Mediterranean Diet. It is made of low-inflammatory foods that contain a wide variety of nutrients. It is full of vegetables, fruits, lean meats, and healthy fats.
The majority of people should consume a healthy amount of fats, specifically from sources like nuts, avocados, and olives. While most people will do well eating this way, certain genes suggest whether or not you can tolerate extra fats and carbohydrates. In this report, we will discuss the variations of tolerance to fats and carbs and how the Mediterranean Diet can be altered to accommodate.

Genetics play a major role in the development of disease; however, dietary and lifestyle factors can greatly enhance or reduce your risk of chronic health conditions. Along with your susceptibility factors, we will discuss what you can do to reduce your chance of developing these chronic diseases. Specifically, this report will dive into the concerns of weight management, diabetes, autoimmunity, and cardiovascular disease.

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Carbohydrates & Your Genetics

In addition to a standard Mediterranean Diet, there are several things that can be done to maintain a healthy weight and long-term wellness. Carbohydrates (sugars) are needed for energy production, and the source of those sugars is important. Carbohydrates come in the form of vegetables, fruit, legumes, and grains. When we talk about healthy carbohydrates, we mean this. They also come in the form of refined and processed sources. Pastas, cookies, cakes, and candies fall into this category. These are not considered healthy options. Refined carbs increase your chances of chronic disease.

Carbohydrate Sensitivity	Weight Loss	Diabetes & Blood Sugar
You are not genetically sensitive to refined carbs. While they should be limited long term, you can occasionally consume them as a treat. They still may contribute to inflammation.	You may have a lower BMI on a high complex carb diet. Consume at least 9 servings of vegetables a day. Refined carbs will increase BMI. Consider a gluten-free Mediterranean Diet. This gene determines the best diet for you if weight loss is a goal.	You have an average risk for diabetes and insulin resistance.

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Fats & Your Genetics

Contrary to popular belief, fats are actually a necessary part of a healthy diet. Sources of good, healthy fats include eggs, fish, nuts, seeds, avocados, and olives. Your genes determine if you will have a sensitivity to the various kinds of fats. Some people have introduced a high fat, low carb diet (Ketogenic) into their lifestyle with remarkable success. Others have not. Below, we discuss the various types of fat and whether or not you can successfully incorporate them into your diet.

Monounsaturated Fat

These fats are considered to be heart healthy, lowering so called bad cholesterol and anti-inflammatory. Examples: Olive Oils, Nuts, Avocados

You can consume monounsaturated fats; however, you would not benefit from consuming excessive amounts.

Polyunsaturated Fat

These fats are considered to be heart-healthy, but some are higher producers of inflammation. Healthy examples include:
Wild-caught Salmon & Sunflower Seeds

You would benefit from the consumption of polyunsaturated fats. Choose healthy, organic options like fatty fish and seeds. Avoid refined vegetable oils like canola, soy, or safflower.

Saturated Fat

Given a bad reputation over the years, saturated fats are actually required for proper hormone production. Some people are genetically sensitive to them and should lower consumption. Examples: Animal Fats, Coconut Oil, Butter

You are not sensitive to saturated fats. They may still be inflammatory if consumed in large quantities. Avoid them if you are ApoE2 or ApoE4.

Cholesterol & Your Genetics

Cholesterol is a necessary fat that is needed for proper brain and hormone health. While it is suggested that so-called bad cholesterol and triglycerides will lead to heart disease, it is important to keep dietary cholesterol in perspective. Eating fat according to your genes can help.

You have an increased risk of elevated LDL and Total Cholesterol levels
You do not have an increased risk of elevated triglyceride levels.
You do not have an increased risk of lower HDL levels.
Consumption of animal products will not lower your HDL.

Ketogenic Diet Results

Based on your genetic profile, you could consume more fats than the average person. Consider healthy fats, such as avocado, olive oil, nuts, seeds, and fatty fish.

Research suggests higher fat may be good for MS, seizures, and male infertility. Do not follow a keto diet if you have ApoE2 of ApoE4. Long term use of the Ketogenic diet leads to gut dysbiosis.

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Gluten, Dairy & Your Genetics

The next piece of the puzzle when it comes to dietary needs is knowing whether or not you have a food intolerance. While you do not require a genetic mutation to acquire one, if you are genetically susceptible, you should be advised to avoid potential food triggers. In this test, we look at the two most common culprits of autoimmunity: gluten and lactose.

Dairy - Lactose

Lactose is a sugar found in dairy products. While many people are already aware of lactose intolerance due to digestive issues, others may not notice any symptoms.

You tested positive for lactose intolerance.

.

Gluten

Gluten is the protein found in wheat, barley, and rye. Known for its sticky nature, gluten can be added to foods unexpectedly. If you are gluten-intolerant, you must work diligently to avoid any hidden sources, such as soups, sauces, and lunch meats. A gluten intolerance is not synonymous with Celiac Disease; although, for the purposes of this test, we strongly encourage you to be tested if you have the genetic potential. Gluten intolerance and/or Celiac Disease can lead to a number of physical symptoms: GI dysfunction, skin conditions, mood disorders, hormone issues, and autoimmunity.

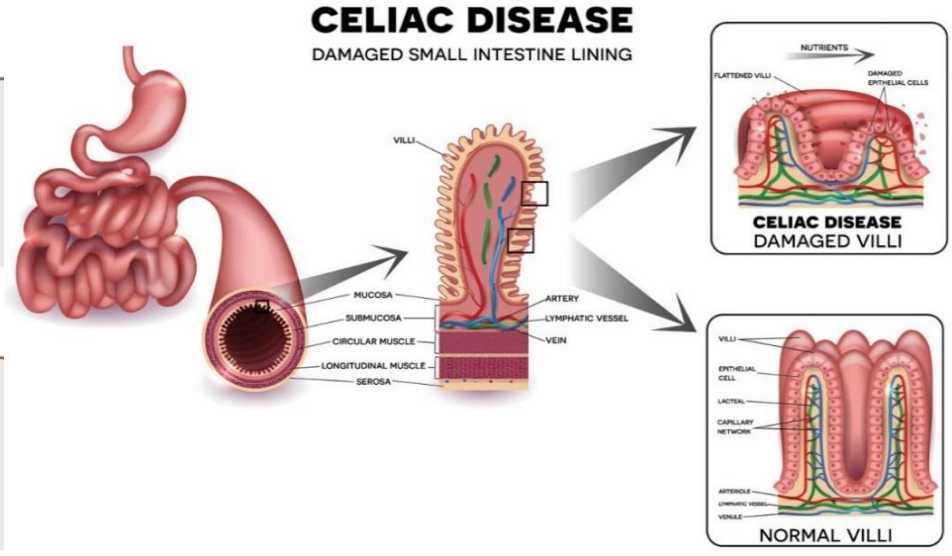
You tested positive for potential gluten intolerance. If you have symptoms, consult with a healthcare provider to consider further testing and possible interventions. You could also take the proactive approach and avoid gluten all together.

GI Disease Results

You may have an increased risk for developing autoimmune gastrointestinal diseases with the consumption of gluten.

Peanut Results

You have an increased risk for developing a peanut allergy. Consider avoiding peanut products.



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Weight Loss, Eating Habits & Your Genetics

Your attitude around food can often determine your physical reaction to it. Whether you are an emotional eater, prefer snacking, or are more of a picky eater can all be seen in your genetic code. These small behaviors can have a drastic impact on your weight and well-being.

Energy Consumption

You are prone to eating more calories than needed for daily energy expenditure. Consult with a healthcare practitioner to discuss your resting metabolic rate.

Caloric Output

You have a lower resting metabolism.

Exercise & Weightloss

You are less likely to lose weight in response to exercise. You still need to move on a regular basis. The MaxFitness Panel can help you determine proper exercise protocols for your genetic type.

Caloric Restriction

You may be able to use calorie restriction for weight loss. Consider consuming 10% less calories than your resting metabolic rate. Work with a practitioner to determine the best calculation.

Emotional Eating

You are genetically prone to addictive or emotional eating. Make sure you have a healthy psychological relationship with food.

Intermittent

You do not have genetic issues with eating late at night and weight management. Intermittent fasting may not work for weight loss.

Bitter Foods

You are able to taste bitter foods. This may make you less likely to eat green vegetables due to taste. Be sure to consume at least 9 servings per day.

Feeling Full

You should eat normal portions to feel full.

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Vitamins & Your Genetics

Your ability to metabolize vitamins plays a critical role in your health. While we like to think we can get all the vitamins we need from our food supply, due to modern agricultural practices this is becoming less likely. Vitamins are necessary for cellular health, which is the root of all bodily functions. If you want to avoid chronic lifestyle-related diseases, such as heart disease and diabetes, proper micronutrient levels must be monitored. If you have any potential for vitamin deficiencies, it is wise to consult with a practitioner about supplementation. Do not simply go to the health food store to buy generic multivitamins. Each genetic variant requires specific forms of micronutrients.

Vitamin E

This vitamin is a powerful antioxidant that protects cells from damage. Eating foods rich in vitamin E is recommended, including sunflower seeds, hazelnuts, and almonds. You could take a supplement for vitamin E, but most companies use soy or wheat germ as their source. Talk with your healthcare provider about getting a good quality brand.

You do not have a genetic variant that causes low Vitamin E levels.

Vitamin C

This vitamin is critical for proper immune response and tissue repair. Deficiencies in vitamin C can lead to problems with connective tissues (such as bone, collagen, and muscles). Foods high in vitamin C are citrus fruits. Many opportunistic infections (yeast, bacterial, viral) use vitamin C as a source of energy. This can lead to an increase in oxalic acid, which may cause significant symptoms.

You do not have a genetic variant that causes low Vitamin C levels.

B6 (Pyridoxine)

This vitamin is involved in several neurological functions, including the production of serotonin, noradrenaline, and protecting nerve cells. Foods that are rich in B6 include legumes, leafy green vegetables, eggs, and fish. You can also take a specific B6 supplement (use P-5-P).

You have a genetic marker associated with potential risk for lower Vitamin B6 levels. Taking a daily supplement or increasing B6 containing foods should be considered.

B2 (Riboflavin)

This vitamin is critical for nerve health, heart health, and healthy skin, hair, and nails. This vitamin works closely with all other B vitamins, helping to convert food sources into cellular energy (ATP). You could take riboflavin as a part of a healthy B complex.

You may have a need for additional B2, in the Riboflavin-5-Phosphate form. Consider testing and supplementation.

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Vitamin D & Your Genetics

Vitamin D is a fat-soluble vitamin that must be converted in the liver and kidneys. Limited foods supply Vitamin D, so substantial exposure to sunlight or specific supplementation can be used when a deficiency is present. Vitamin D is crucial for calcium concentrations, bone growth, immune function, and the reduction of inflammation.

For daily use, both D2 and D3 forms of Vitamin D are beneficial, but D3 (cholecalciferol) should be used for therapeutic dosing during a deficiency. Supplements between 5,000 IU and 10,000 IU are ideal for daily therapeutic dosing. Daily intake should be between 1,000 – 2,000 IU of Vitamin D or cod liver oil for general wellness.
Ideally, Vitamin D should be absorbed from natural sunlight exposure. Between the hours of 10am – 3pm, UV rays should hit the face, neck, arms, and shoulders for 10-30 minutes at least twice a week (avoid skin burns).

The three VDR SNPs in this test are from a physician poll of the most common SNPs needed in clinical practice. For blood work, practitioners tend to look at 25(OH) D by itself, while other practitioners also look at 1,25(OH)2D. The 1,25-dihydroxyvitamin D is formed from 25(OH)D in the kidneys under the influence of Parathyroid Hormone and specific enzymes; whereas, 25(OH)D is converted in the liver.

Vitamin D Foods

Cod Liver Oil
Swordfish
Salmon
Beef Liver
Egg Yolks
Cheese

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
1,25 dihydroxyvitamin D

Health Conditions

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

VDR-BSM

You have a homozygous variation in VDR-BSM. You have a higher chance of developing bone mineral disorders. Consider increasing consumption of foods high in Vitamin D.

VDR-TAQ

You have a heterozygous variation in VDR-TAQ. Consider watching your Vitamin D levels and consuming foods high in Vitamin D.

VDR-FOK

You have a heterozygous variation in VDR-FOK. Consider watching your Vitamin D levels and consuming foods high in Vitamin D.

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B12 & Your Genetics

Do you get enough vitamin B12? Do you take the right form of B12? Since your body does not produce B12, it is important to make sure you get adequate amounts of it in the correct form. B12 is important for a number of processes in the body, especially the production of neurotransmitters, energy, and blood cells. People often feel better switching to the correct form of B12 based on genetics and/or increasing their consumption. Consider micronutrient testing on a yearly basis.

B12 Blood Levels

Many genes are associated with decreased serum B12 levels. Increasing supplementation or using dermal or injectable B12 can help bypass a possible genetic issue.

You may have low levels of Vitamin B12. Consider supplementation and monitoring labs with a trained practitioner.

Methy-B12 Need

Produced by the enzyme MTRR, Methylcobalamin is the main form of B12 used for detoxification and neurotransmitter production. It is more bioactive than other forms like cyanocobalamin.

You have one heterozygous variation on the MTRR enzyme. There may be a slight need for Methyl-B12.

Adenosyl-B12 Need

Adenosylcobalamin is mainly used to produce energy within the mitochondria. Many people report increased energy with Adeno-B12 supplementation.

There are no genetic indications that you need Adeno-B12 supplementation. Adeno-B12 could be used in cases of fatigue.

Methyl-B12-Sensitivity

Some people report sensitivities to methylated B12, including increased aggression and hyperactivity. We can occasionally predict these sensitivities by looking at other variations.

You have two of the five genetic markers for Methyl-B12 sensitivity. There is a small chance of being sensitive to Methyl-B12.

Low B12 Symptoms

Fatigue
Poor Balance
Memory loss
Neuropathy
Tingling feet
Depression
Anxiety
Pale Skin
Smooth Tongue
Constipation
Diarrhea
Heart Palpitations

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Folate & Your Genetics

Folate, or B9, is a vitamin required for numerous processes in the body. DNA replication, neurotransmitter production and degradation, detoxification, and prevention of cardiovascular disease are just a few. It is found naturally in uncooked leafy green vegetables.

Folate - MTHFR

The MTHFR enzyme processes folates into methyl-folate, crucial for methylation, DNA synthesis, and numerous other processes in the body. Low levels of methylfolate have been associated with numerous symptoms and diseases. There are two main variants: C667T and A1298C.

Since MTHFR creates methylfolate, you can supplement with oral methylfolate. This can speed up the methylation cycle, returning detoxification and neurotransmitter production back to normal. This testing and approach has become common in fertility and psychiatric practices.

It is important to start slow and titrate up when using methyl folate. 400mcg is a common starting point for adults. Some research points to benefits from 400mcg to 15mg; however, many people do very well on doses under 2mg. Please see a practitioner for help with dosages.

MTHFR Symptoms

Depression
Anxiety
ADD/ADHD
Miscarriage
Cardiovascular Disease
Blood Clots
Bipolar
Schizophrenia
Cancer
Midline defects
And More

Your MTHFR Results

You have one copy of the MTHFR C677T variation. This can result in up to a 40% decrease in conversion of dietary folate into Methyl-Folate. Consider homocysteine or methylation testing.

Avoiding synthetic folic acid and possibly supplementing with methyl-folate could potentially improve symptoms. Please discuss supplementation with a trained practitioner.

Methylfolate Sensitivity

Some people can be sensitive to methylfolate. In this case, different forms of vitamin B9 may be used. Consider folinic acid, and working with a practitioner.

You have two of the five genetic markers for methyl-folate sensitivity. Folinic acid is a safer form and can be used in cases of methyl-folate sensitivity.

Follow Up Testing

You have potentially low levels of methyl folate. Homocysteine, RBC Folate, and SAM/SAH ratio tests should be ordered by your doctor to confirm.

You have a heterozygous variation on two of the folate receptor genes. This can lead to low levels of folate inside the cell.

An RBC-Folate test can indicate low levels of folate inside your cells.

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Vitamin A & Your Genetics Expanded

Vitamin A is essential for proper vision, growth, immune function, and gut health. There are two types of vitamin A: retinoids and carotenoids. Carotenoids are found in orange plants, such as carrots, and are precursors to retinoids (the bioavailable form). Retinol is the active form that is required for health.

Vitamin A - BCMO1

When most people think about increasing their vitamin A levels, they typically reach for a carrot or orange-colored vegetable. However, this is a carotenoid, not a retinoid or retinol. Our bodies have to convert carotenoids into retinoids by an enzyme called BCMO1. Some people have issues in BCMO1 that slow down their ability to form retinol from beta carotene. Your test checked for five different variations that might slow down retinal formation within your body. Consider working with a provider to monitor your blood retinol levels.

Low Vitamin A Symptoms

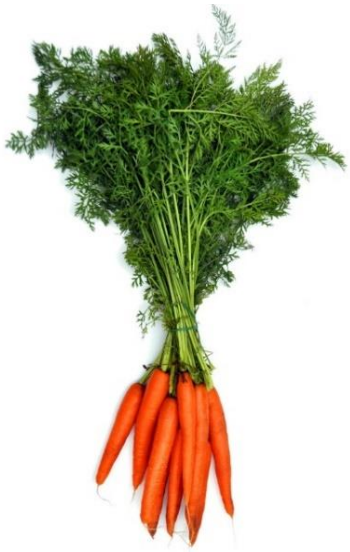
- Vision issues
- Infertility
- Mood disorders
- Skin problems
- Thyroid dysfunction
- Growth delays
- Infections

Dietary Sources Of Retinoids

- Free range eggs
- Organic heavy cream
- Shrimp
- Cod-liver oil
- Grass fed butter
- Grass fed beef liver
- Grass fed beef
- Wild caught fatty fish

High Vitamin A Symptoms

- Hair loss
- Liver damage
- Mental confusion



Your Results

You have one of the five markers associated with having difficulty producing the active form of Vitamin A. Retinal Palmitate might be beneficial.

Vitamin A Caution

Vitamin A is a fat soluble vitamin and there are studies that show excessive intake can lead to toxic levels. High levels of retinol might contribute to increased levels of heart disease and cancer. Please discuss supplementation with a trained provider and monitor blood retinol levels.

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Inflammation & Your Genetics

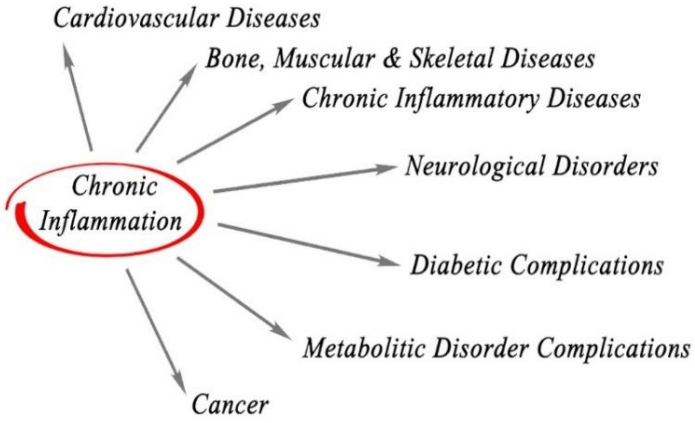
Inflammation is a natural part of our immune system that is used to protect us; however, it can become overactive. This increase in inflammation can cause many problems, such as cardiovascular, neurological, and autoimmune diseases. The Standard American Diet (SAD) is full of inflammatory foods and chemicals that add to this disease process. Your genes make you more susceptible to inflammation. Maintaining low levels of inflammation is the key to health.

Anti-Inflammatory Foods

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

Pro-Inflammatory Foods

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



Other Causes of Inflammation

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

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

Generalized Inflammation

You do not have the genetic marker for increased levels of inflammation. There may still be inflammation present.

Arachidonic Acid

You should have normal levels of the pro-inflammatory fatty acid, arachidonic acid. There may still be inflammation present.

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Detoxification & Your Genetics

Every day, we are exposed to hundreds of toxic chemicals in our environment. Our bodies also make toxic metabolic waste that has to be filtered hourly. Many of these pathways can be slowed down by different genetic variations. This section will break down some of your variations.

Insecticide Sensitivity

Organophosphate insecticides are one of the most toxic substances on the planet. They can cause diarrhea, PDD, autism, depression, aggression, and other emotional conditions. Children exposed to these have twice the risk of autism and PDD. Children tend to be more susceptible to insecticides.

You do not have an increased sensitivity to organochloride insecticides. Insecticides should still be avoided.

Acetaminophen

Due to the prevalence of acetaminophen use, knowing your genetic potential for toxic side effects is crucial. It has been associated with liver conditions, asthma, autism, GI issues, acidosis, blood cancers, and immune system depression. These are due to lowered glutathione levels.

You have a mild increased risk of toxic responses to acetaminophen. Consider natural alternatives.

Glutathione

Glutathione is our master antioxidant and detoxifying molecule. Oxidative stress and toxic exposures can cause low levels of glutathione. Those with genetic predisposition to low levels may be more susceptible to the effects of environmental toxins.

You may have a slight risk for reduced glutathione production.

In women, excessive levels of estrogen can lead to many conditions, including anxiety and even cancer. There are certain genetic situations that might limit someone's ability to remove estrogen from the body, which will increase estrogen levels.

Estrogen Levels

You have two of the four genetic markers associated with conditions in estrogen metabolism. Estrogen and progesterone levels should be monitored.

4-OH Estradiol

You have an average risk of having elevations of a highly reactive form of estrogen.

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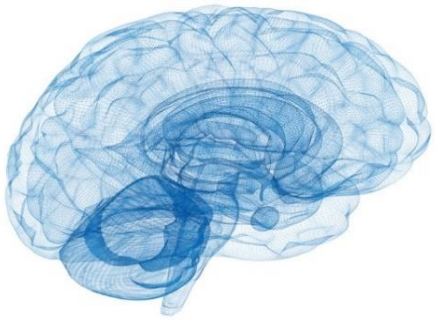
APoE & Your Genetics

Apolipoprotein E (APOE) is a gene that codes for a transport lipoprotein that carries fats and cholesterol throughout the body. There are several E types, namely E2, E3, and E4. Both E1 and E5 exist; however, they are extremely rare. Most of the population carries the E3 status, and it is considered neutral for disease risk. Everyone has two E types (example: E2/E2, E3/E4, E4/E4, E3/E4 etc.), where one type is inherited from each parent. APOE status plays a role in cardiovascular disease and Alzheimer's risk. Exercise, especially lifting, climbing, and movement-based exercises are beneficial for all types.

Determining APOE Status

APOE status is technically defined by these two SNPs, rs429358 and rs7412.

e1 = rs429358(C or +) & rs7412 (T or +)
e2 = rs429358(T or -) & rs7412(T or +)
e3 = rs429358(T or -) & rs7412(C or -)
e4 = rs429358(C or +) & rs7412(C or -)



E4 Risk Factors

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

E2 Risk Factors & Benefits

Hyperlipoproteinemia Type III
Elevated Triglycerides & LDL
Insulin & Glucose Concerns
Less risk for Alzheimer's
Vertebral Fractures
Neuro-protective
Vascular disease & Psoriasis

E4 Diet Recommendations

Intermittent Fasting
Mediterranean, low fat, or Paleo Diets
Avoid alcohol and saturated fat
Limit Seafood that is high in mercury
Limit cholesterol intake
Consider Iodine supplementation
Consider regular sauna visits

E2 Diet Recommendations

Mediterranean Diet
Low Glycemic Diet
Intermittent Fasting
Avoid Refined Carbs
Paleo Diet
Low Fat

Your APOE Status

Your results: E3/E3 This combination is what is found most often in the general population.

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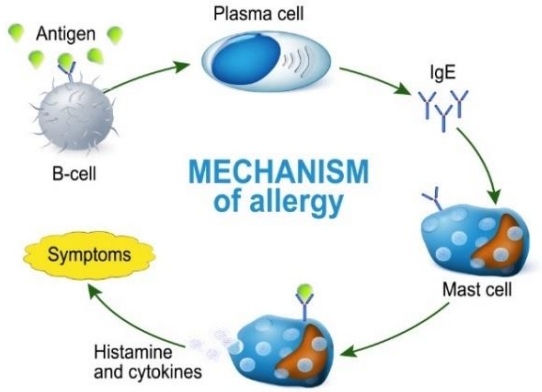
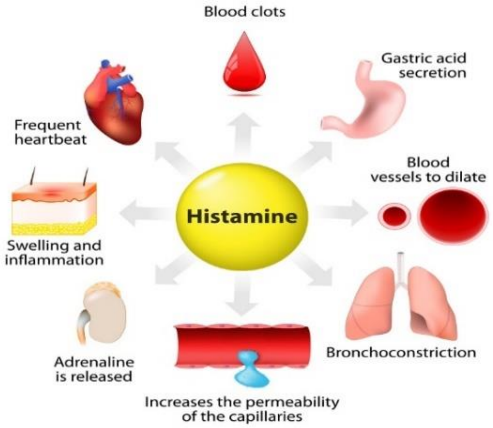
Histamine & Your Genetics

Histamine is commonly known as an immune system chemical that is released during mast cell degranulation or when exposed to allergens. However, it is also a neurotransmitter in the brain and plays a role in digesting food in the stomach. In humans, histamine is broken down by two main pathways, Histamine N-Methyltransferase (HNMT) and Diamine Oxidase (DAO/AOC1). Excessive histamine can cause numerous issues in the body, and there are some genetic predispositions that enhance these issues.





High Histamine Foods

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

High Histamine Symptoms

Headaches/Migraines
Nasal Congestion
Fatigue/Adrenal Fatigue
Irregular Menstrual Cycles
Digestive Issues
Blood Pressure Issues
Anxiety

DAO (AOC1)

The DAO Enzymes is responsible for breaking down dietary histamine and histamine outside of your cells. It requires adequate levels of copper and can be inactivated by certain drugs and

You have two heterozygous variants in the DAO(AOC1) gene. This may have little impact on the DAO enzyme activity.

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.

No variant detected.

Client Name: John Smith
Client DOB: 1/1/1900
Vial Number: Sample Report
Client Sex: Male

Referring Account: Chad Yarbrough, DC
Sample Received: 11/2/2018
Report Date: 8/7/2019

MAO & Your Genetics

Monoamine oxidase (MAO) has two types, A and B, and plays a role in the oxidation of neurotransmitters. MAOA is chiefly responsible for the oxidation of serotonin and norepinephrine, while MAOB oxidizes phenylethylamine. Both oxidize dopamine. Each genetic variation of MAO creates different outcomes of the enzyme. MAO is also found on the X chromosome, so males who inherit the variation are technically hemizygous. Our algorithm, however, reports it as homozygous since we do not know the sex of each person performing this test. If your results suggest you have decreased MAO activity, it is suggested that you avoid cheese and other fermented/aged foods that are high in tyramine.

MAO-A (RS6323)	MAO-A (RS72554632)	MAO-B
You have the slower form of the MAO-A Enzyme.	No variants detected.	Possible decrease in MAO activity. Possible elevated dopamine levels. Possible elevation in histamine. Consider Low Tyramine Diet.

Fast MAO

A fast MAO enzyme will significantly decrease neurotransmitter levels and create symptoms of deficiency. Depression, anxiety, and low mood are commonsymptoms. Your practitioner may want to try nutraceuticals like St. Johns Wort, 5-HTP, tyrosine, resveratrol, B vitamins, sun and light exposure to help support a healthy mood.

Slow MAO

A slow MAO enzyme will allow for greater levels of neurotransmitters and cause symptoms of excess. Increased aggression and lack of empathy are common. In general, it is recommended to avoid caffeine, smoking, and stress when possible. Utilizing meditation, trying a low tyramine diet, and insuring proper B2, zinc and hormone levels are all possible options to support a healthy mood.

Low Serotonin

Anxiety / Depression
Insomnia
Loss of pleasure
Paranoia, Inner rage
Weight Issues
Support:
5-HTP & St. John's Wort

Low Dopamine

Depression / Hopelessness
Lack of Motivation
Brain Fog/ Fatigue
Weight Issues
Low Libido
GI Issues
Support: Tyrosine, Bacopa

High Serotonin

Headaches
Diarrhea
Muscle Twitching
Confusion
Seizures
High Blood Pressure
Support:
B2, B5

High Dopamine

Excessive Energy
ADD/ADHD
Anxiety
Agitation
Insomnia
Addiction
Support:
B2, Methylation &Vit. C

Low Norepinephrine

Brain Fog, Depression
Low Blood Pressure
Adrenal Fatigue
Support: Vit. C, Copper Balancing, Tyrosine

Low PEA

Brain Fog, Depression
Difficulty Paying Attention
Incomplete Thoughts
Support: B6, DL-phenylalanine

High Norepinephrine

Anxiety, Sweating
Heart Palpitations
Constipation
Support: Methylation & B2

High PEA

Mind Racing
Insomnia, Anxiety
Schizophrenia
Support: Methylation & L-Threonine

Client Name: John Smith
Client DOB: 1/1/1900
Vial Number: Sample Report
Client Sex: Male

Referring Account: Chad Yarbrough, DC
Sample Received: 11/2/2018
Report Date: 8/7/2019

COMT & Your Genetics

Catechol-O-methyltransferase (COMT) is a gene that creates an enzyme that breaks down dopamine, norepinephrine, epinephrine, and estrogen. These chemicals play a major role in mood, stress response, and productivity. Estrogen needs to be balanced and reduced appropriately to avoid issues. COMT does require the methylation cycle, with SAMe and magnesium being required in adequate amounts. It has been observed that individuals with slower COMT tend to be sensitive to methyl donors. In these cases, non-methylated vitamins like Folinic Acid and Hydroxocobalamin might be better options. People who are sensitive to these tend to have mood swings and anger issues. It has also been observed that carriers of the VDR-TAQ variation have additional risks.

COMT V158M	COMT H62H	VDR-TAQ
Slow COMT (Worrier). Possible increase in Dopamine, Anxiety, & Estrogen issues. AA Allele (++)	Possible slow COMT. Mercury sensitive. Estrogen issues.	You have a heterozygous variation. No real influence.

Fast COMT

Fast versions of the COMT enzyme are associated with decreased levels of neurotransmitters like dopamine. People with this have been shown to have higher pain thresholds, are capable of operating under adverse stress (The Warrior Gene), and have lower levels of anxiety.

Low Dopamine

Depression	Constipation	**Support**:
Lack of Motivation	GERD	Tyrosine
Fatigue	Muscle Cramps	Bacopa
Focus Issues		

Low Epinephrine

Depression	Migraines	**Support**:
Restless Leg	Sleep Disorders	Methionine
		Tyrosine

Low Norepinephrine

Focus Issues	Brain Fog	**Support**:
Low Blood Pressure	Depression	Tyrosine
		Vit. C
		Copper Balancing

Slow COMT

Slower versions of the COMT enzyme are associated with increased levels of neurotransmitters like dopamine. This has been shown to lower pain thresholds, increase a person's sensitivity to stress, and increase anxiety (The Worrier Gene). However, these individuals typically have an advantage at memory and attention based tasks.

High Dopamine

ADD/ADHD	Insomnia	**Support**:
Anxiety	Addiction	Riboflavin
Mania	Excessive Energy	Vit. C
		Methylation

High Epinephrine

Anxiety	Weight Loss	**Support**:
Sweating	Constipation	Adaptogens
Heart Palpitations		Phosphatidylserine

High Norepinephrine

Anxiety	Sweating	**Support:**
Heart Palpitations	Constipation	Methylation
		Riboflavin

Client Name: John Smith
Client DOB: 1/1/1900
Vial Number: Sample Report
Client Sex: Male

Referring Account: Chad Yarbrough, DC
Sample Date: 11/2/2018
Report Date: 8/7/2019

Strength vs Endurance

The type of exercise that is best for you is largely dependent on gene expression. Certain genes determine muscle fiber types, which drive one to excel in long distance running or another in sprinting. Other genes determine whether you could become an elite endurance athlete. While research has been done on a variety of men (and few women), ones who are trained Olympians and others who are trying to get in shape, please keep in mind that you do have the ability to exercise and participate in sport regardless of genetic potential. Genetic testing does, however, help guide you on proper function for your body, and it allows you to modify your exercise routine to maximize gains.

Understanding the make up of your muscle fibers can help determine what form of exercise is best for you. Broadly put, muscle fibers are broken into two categories: fast twitch and slow twitch. While these categories can be further expanded, for the purposes of this report we will discuss the bigger picture. Fast twitch muscle fibers are important for short bursts, high energy, high strength actions. Exercises such as sprinting or heavy weight lifting require speed and brut force that are controlled by fast twitch fibers. On the other hand, slow twitch muscle fibers are important for endurance sports such as long distance running and swimming. They require greater amounts of oxygen and blood flow over longer periods of time. Most of the population has a mixture of these two fibers and could be served well by combining exercises; however, knowing your muscle fiber type can help you define the appropriate training both for pleasure or performance.

The gene ACTN3 is commonly known as the “gene for speed.” The wild type is found in a large population of elite athletes who focus on sprinting and fast action sports. Variants within this gene appear to reduce the fast twitch action of muscle fibers into a slow twitch action, creating an ideal setting for endurance sport. With the ADRB3 gene, one may have a greater chance of training to become an elite endurance athlete. The MSTN gene may play a role in whether one can perform instant muscle contractions that require peak muscle power (example: vertical box jumping) which would be required in HIIT training (High Intensity Interval Training).

Endurance Examples: long distance running, swimming, biking, dance, basketball, tennis, and soccer.
Strength Examples: low rep weight lifting, sprinting, sit ups, pull ups, climbing stairs, and box jumping.

Strength Vs Endurance	Elite Endurance Athlete	HIIT Training Safety
Your muscles are built for strength training and speed.	You have average endurance training abilities.	You may have peak muscle power during instant movements. Consider adding strength training or HIIT exercises to your daily routine.

Client Name: John Smith
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Aerobic Capacity

VO2Max is maximum oxygen uptake, which suggests how much oxygen is used by the body during intense, prolonged periods of exercise. It is a common measurement used during endurance training. People who have higher VO2Max can typically succeed at endurance sports. In the fitness world, the ability to maximize cardiorespiratory function can play a critical role in whether one becomes an endurance athlete. One gene appears to aid in the ability to train, while the other determines sustainability.

The PPARGC1A gene has been studied in European men, and research suggests that variants of this gene may allow for normal oxygen use while training. People who do not have a variant here may be at a disadvantage during training, as it lowers aerobic capacity.

The GABPB1 (NRF2) gene has been studied for its aerobic sustainability and antioxidant function. This gene appears to determine longevity in endurance sport once a person is already fully trained. Variants of this gene add greater aerobic capacity for endurance athletes.

VO2Max Potential (PPARGC1A)

You have normal potential for VO2Max during training. This may help you maintain oxygen uptake during training periods.

VO2Max Potential (GABPB1)

You have greater potential for higher VO2Max once you are trained for endurance sports. This may help you sustain oxygen uptake during endurance sports.

Client Name: John Smith
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Client Sex: Male

Referring Account: Chad Yarbrough, DC
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Weight Loss & Exercise

Exercise plays a critical role in maintaining an ideal physique; however, losing weight and having the right fat to muscle ratio may not be dependent on exercise alone. Several genes determine how one will respond to exercise. This information can help you determine how much emphasis to place on exercise routines as it relates to weight and fat mass loss.

If you are a person who is less likely to lose weight or fat mass in response to exercise, it is important to note that you still need to be physically active for overall wellness. If weight loss is a goal, you may need to focus more on the quality of food you consume instead of spending hours in a gym. Choose an exercise routine that is fun and plays to your strengths.

If you are a person who would respond well to exercise and need to lose weight, keep in mind that you can modify your movements based on muscle fiber genetics to gain the most benefit from your exercise routine. Choose a routine that is fun and sustainable.

Children who are obese may also be at a disadvantage based on the INSIG2 gene. Early intervention with exercise programs will help some but not others. It is important for all children to be physically active regardless of this genetic variant.

Weight Loss With Exercise	Weight Gain With Inactivity	Early Childhood Intervention	Body Mass Reduction
You are less likely to lose weight in response to exercise. You still need to move on a regular basis. The MaxFitness Panel can help you determine proper exercise protocols for your genetic type.	You have an average chance of obesity if you are inactive.	Early childhood intervention may allow you to lose weight with exercise.	You can lower body mass with exercise.

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Client Sex: Male

Referring Account: Chad Yarbrough, DC
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Resistance Training

Resistance training is a type of exercise that applies a force against your movement. When your muscles are contracting against an external force, you may have a greater ability to build bulk within the muscle belly, increase bone strength, and increase endurance. Subcutaneous fat loss may occur more readily with resistance training as compared to other forms of exercise. Women respond exceptionally well to resistance training, especially as it pertains to bone health. Consider using resistance training as a part of any exercise routine for general wellness and longevity.

Examples of resistance training include:
Lifting free weights
Using a resistance band
Using your body weight for pull ups or push ups
Running in water
Pulling heavy items
Using medicine balls or kettle bells

Fat Loss	Bone Strength	Muscle Gains
You may be able to lose subcutaneous fat with resistance training.	You have a greater chance of building bone strength with resistance training.	You should be able to gain more muscle mass with resistance training.

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Client Sex: Male

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Cardiovascular Response to Exercise

There are variety of risks and benefits with any form of exercise. While every person needs to be physically active and get adequate amounts of exercise daily, some may need to know common risk factors that could occur with specific types of exercise routines. If you are an elite athlete or simply want to get fit, certain precautions should be taken into consideration. While these genetic factors are not diagnostic or absolutes, there are specific nutritional protocols that can reduce your risk of an incident while exercising. Please consult with a physician if any of these risks are of concern.

Insulin Response

You have an average response for insulin sensitivity when exercising. Monitor blood glucose, HbA1C, and HOMA-IR levels with your doctor.

Cholesterol Response

You may be able to raise healthy HDL levels with exercise. Increase resistance training.

Blood Pressure Response

Exercise should help regulate your blood pressure. Consider hydroxocobalamin if Vitamin B12 is needed.

You have an average risk of high blood pressure while exercising if you are unfit.

Cardiovascular Health

You have an increased risk of exercise induced ischemia. Consider yearly cardiometabolic testing and micronutrient testing.

You have an average risk of exercise induced idiopathic venous thrombosis. Consider yearly cardiometabolic testing and micronutrient testing.

You have a moderate risk of ischemic heart disease. Consider yearly cardiometabolic testing and micronutrient testing.

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Injuries to muscles, tendons, ligaments, and joints are common during exercise. Your genetics simply describe your propensity for these specific concerns, but injury can be exacerbated by a number of factors. To reduce your chances of injury, drink plenty of water, use proper form, and warm up appropriately. If you are already injured, consider changing your exercise routine so that you will not produce further damage.

Muscle Weakness & Soreness

You may have muscle soreness and strength loss after a workout. Consider using branch chain amino acids and magnesium glycinate immediately after a workout. Drink at least half your body weight in ounces of water daily.

Muscle Cramping

You have an average risk of muscle cramping after exercising.

Osteoarthritis

You have a moderate risk of osteoarthritis as a response to exercise. Consider adding resistance training as a daily routine to build strength. You can also consider using collagen peptides as a nutrient.

Joint & Tendon Health Knee Pathology

You have an average risk of knee osteoarthritis. Consider adding resistance training as a daily routine to build strength. You can also consider using collagen peptides as a nutrient.

Achilles Tendinopathy

You are not at a greater risk for developing Achilles tendinopathy.

MaxGen LABS

TheWorks

Client Name: John Smith
Client DOB: 1/1/1900
Vial Number: Sample Report
Client Sex: Male

Referring Account: Chad Yarbrough, DC
Sample Received: 11/2/2018
Report Date: 8/7/2019

Your Genetic Summary

B12 Levels	• You may have low levels of Vitamin B12. Consider supplementation and monitoring labs with a trained practitioner.
Methyl-B12	• You have one heterozygous variation on the MTRR enzyme. There may be a slight need for Methyl-B12.
B12 Sensitivity	• You have two of the five genetic markers for Methyl-B12 sensitivity. There is a small chance of being sensitive to Methyl-B12.
Adeno-B12	• There are no genetic indications that you need Adeno-B12 supplementation. Adeno-B12 could be used in cases of fatigue.
Vitamin A	• You have one of the five markers associated with having difficulty producing the active form of Vitamin A. Retinal Palmitate might be beneficial.
Vitamin D	• You have one of three genetic markers for low Vitamin D. Consider testing both 25-OH Vitamin D and 1,25-OH Vitamin D.
Folate/MTHFR	• You have one copy of the MTHFR C677T variation. This can result in up to a 40% decrease in conversion of dietary folate into Methyl-Folate. Consider homocysteine or methylation testing.
Folate Sensitivity	• You have two of the five genetic markers for methyl-folate sensitivity. Folinic acid is a safer form and can be used in cases of methyl-folate sensitivity.
Dietary Histamine	• You have two heterozygous variant in the DAO(AOC1) gene. This may have little impact on the DAO enzyme activity.
Cellular Histamine	• No variant detected.
DHA Fish Oil	• You have an average risk for low levels of the beneficial Omega 3 fatty acid, DHA.
Phos-Choline	• You have an average risk for low levels of the beneficial lipid, Phosphatidylcholine.
Arachidonic Acid	• You should have normal levels of the pro-inflammatory fatty acid, arachidonic acid. There may still be inflammation present.
Inflammation	• You do not have the genetic marker for increased levels of inflammation. There may still be inflammation present.
Estrogen levels	• You have two of the four genetic markers associated with conditions in estrogen metabolism. Estrogen and progesterone levels should be monitored.
Bad Estrogen	• You have an average risk of having elevations of a highly reactive form of estrogen.
Pesticides	• You do not have an increased sensitivity to organochloride insecticides. Insecticides should still be avoided.
Glutathione	• You may have a slight risk for reduced glutathione production.
Probiotic	• There are no probiotic recommendations based on some of your results. See the box below if there are additional recommendations.
Secretor Status	• FUT2 Secretor. No further recommendations.

MaxGen LABS

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Client Name: John Smith
Client DOB: 1/1/1900
Vial Number: Sample Report
Client Sex: Male

Referring Account: Chad Yarbrough, DC
Sample Received: 11/2/2018
Report Date: 8/7/2019

MaxFunction SNP Report

Gene	RS#	Result	Client	Minor	Short Description
AHCY-01	rs819147	-- Wild Type	TT	C	no variant detected.
APOE	rs429358	-- Wild Type	TT	C	If rs 7412 is T =E2 If rs7412 is C = E3 (normal)
APOE	rs7412	-- Wild Type	CC	T	If rs429358 is C = E4 If rs 429358 is T = E3 (Normal)
BCMO1	rs11645428	-+ Heterozygous	GA	A	Research is inconclusive. Possible risk for low retinal levels.
BCMO1	rs12934922	++ Homozygous	TT	T	Risk of low Vitamin A Levels. Retinal palmitate or acetate might benefit.
BCMO1	rs6564851	-+ Heterozygous	GT	G	Research is inconclusive. Possible risk for low retinal levels.
BCMO1	rs7501331	-- Wild Type	CC	T	Normal vitamin A levels.
BCMO1	rs6420424	-- Wild Type	GG	A	Normal vitamin A levels.
CBS	rs4920037	-- Wild Type	GG	A	normal
CBS	rs2851391	-+ Heterozygous	CT	T	Possible slight reduction in CBS activity.
CBS 360	rs1801181	++ Homozygous	AA	A	Potential for upregulated CBS
CBS 699	rs234706	-- Wild Type	GG	A	normal
COMT 61 P199P	rs769224	-- Wild Type	GG	A	Normal COMT status
COMT H62H	rs4633	++ Homozygous	TT	T	Possible down regulation of COMT. Mercury sensitive. Estrogen issue
COMT L136L	rs4818	-- Wild Type	CC	G	Normal COMT status
COMT V158M	rs4680	++ Homozygous	AA	A	Slower COMT (Worrier). Possible increase in Dopamine, Anxiety, etc. Estrogen issues.
CYP1A2	rs762551	++ Homozygous	CC	C	Slow Caffeine Metabolizer.
CYP1B1 L432V	rs1056836	-+ Heterozygous	CG	G	Potential elevation of 4-OH estradiol.
CYP2E1 *6	rs6413432	-+ Heterozygous	AT	A	Possible NAPQI toxicity from Acetaminophen. (Avoid Tylenol)
DAOA/DAAO	rs3741775	-- Wild Type	AA	C	Normal DAAO Enzyme
DAO (AOC1)	rs2052129	-+ Heterozygous	GT	T	Possible elevation in histamine.
DAO (AOC1)	rs10156191	-+ Heterozygous	CT	T	Research is inconclusive. Potential for reduced DAO activity
DHFR	rs1643649	-+ Heterozygous	CT	C	Risk of low tetrahydrofolate. Avoid Bactrim, EGCG,and grape seed extract.
Factor 5	rs6025	-- Wild Type	CC	T	no variant detected.
FADS1	rs174548	-- Wild Type	CC	G	no variant detected.
FADS1(MYRF)	rs174537	-- Wild Type	GG	T	Lower Arachidonic acid. Lower prostate cancer & Diabetes risks
FADS2	rs1535	-- Wild Type	AA	G	No variant detected. (Higher IQ)
FOLR2	rs651933	-+ Heterozygous	GA	A	possible low levels of intracellular folate. Avoid folic acid.
FUT2	rs602662	-- Wild Type	GG	A	possible low B12 levels
FUT2	rs492602	-- Wild Type	AA	G	Normal B12 levels
FUT2	rs601338	-- Wild Type	GG	A	Norovirus susceptibility, Secretor status.
G6PD	rs1050828	-- Wild Type	CC	T	no variant detected.
G6PD	rs1050829	-- Wild Type	TT	C	no variant detected.
G6PD	rs5030868	-- Wild Type	GG	A	no variant detected.
GPX1	rs1050450	-+ Heterozygous	GA	A	risk of low glutathione and elevated heavy metals.
GSTP1	rs1138272	-- Wild Type	CC	T	no variant detected.
GSTP1	rs1695	-- Wild Type	AA	G	no variant detected.
HFE	rs1799945	-+ Heterozygous	GC	G	Carrier, likely unaffected
HFE	rs1800562	-- Wild Type	GG	A	No variant detected. Increased risk of Iron anemia.
HFE	rs1800730	-- Wild Type	AA	T	No variant detected. Increased risk of Iron anemia.

MaxGen LABS

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Client Name: John Smith
Client DOB: 1/1/1900
Vial Number: Sample Report
Client Sex: Male

Referring Account: Chad Yarbrough, DC
Sample Received: 11/2/2018
Report Date: 8/7/2019

Gene	RS#	Result	Client	Minor	Short Description
HNMT	rs1050891	-- Wild Type	AA	G	no variant detected.
MAOA T1410C	rs1137070	-- Wild Type	CC	T	Potentially reduced MAO activity, elevated serotonin levels
MAOA	rs6323	-- Wild Type	TT	G	Potentially reduced MAO activity, elevated serotonin levels
MAOA	rs72554632	-- Wild Type	CC	T	no variant detected.
MAOB	rs1799836	++ Homozygous	CC	C	Possible decrease in MAO activity. Possible elevated dopamine levels.
**Notice: MAO is a X linked gene and is only passed down from the maternal line. Male Children are technically "hemizygous."					
MAT1A R264H	rs72558181	-- Wild Type	CC	T	no variant detected.
MMAB	rs2287182	-- Wild Type	CC	T	no variant detected.
MTHFS	rs6495446	-- Wild Type	CC	T	no variant detected.
MTHFD1	rs2236225	-+ Heterozygous	GA	A	Possibly low levels of 5,10 methylenetetrahydrofolate, MTHFR's substrate.
MTHFR A1298C	rs1801131	-- Wild Type	TT	G	no variant detected.
MTHFR C677T	rs1801133	-+ Heterozygous	AG	A	40% reduction in enzyme activity. Consider methylfolate and methyl testing.
MTR	rs1805087	-- Wild Type	AA	G	no variant detected.
MTRR	rs1801394	-+ Heterozygous	GA	G	possible low levels of methyl-b12 and elevated homocysteine
MTRR A66G	rs1532268	-- Wild Type	CC	T	no variant detected.
MUT	rs1141321	-- Wild Type	CC	T	no variant detected.
MUT	rs9369898	-- Wild Type	AA	G	no variant detected.
NOS3	rs1799983	-+ Heterozygous	GT	T	possible NO issue.
NOS3	rs2070744	-+ Heterozygous	TC	C	Conflicting studies. Less likely an endurance athlete.
NQO1	rs1800566	-+ Heterozygous	GA	A	will cause an increase in oxidative stress and potentially certain cancers.
PEMT	rs4244593	-+ Heterozygous	GT	T	Possible low phosphatidylcholine levels. Consider supplementation.
PEMT	rs4646406	-- Wild Type	TT	A	no variant detected.
PEMT	rs7946	-+ Heterozygous	CT	T	Possible low phosphatidylcholine levels. Consider supplementation.
PON1 Q192R	rs662	-- Wild Type	TT	C	no variant detected.
Prothrombin (F2)	rs1799963	-- Wild Type	GG	A	no variant detected.
SHMT1	rs1979277	-- Wild Type	GG	A	no variant detected.
SLC19A1	rs1051266	-+ Heterozygous	CT	T	Possible cellular folate issue. Consider RBC Folate test.
SOD1	rs2070424	++ Homozygous	GG	G	increased SOD1 levels and increased superoxide breakdown into peroxide.
SOD1	rs4998557	++ Homozygous	AA	A	increased chance of oxidative stress and GI cancers. Consider using SOD.
SOD2	rs2758331	-- Wild Type	CC	A	no variant detected.
SOD2	rs4880	++ Homozygous	AA	A	Increased chance of oxidative stress. Consider SOD supplementation.
SOD3	rs1799895	-- Wild Type	CC	G	normal levels of plasma SOD3
SUOX(A628C)	rs7297662	-+ Heterozygous	GA	G	Possible sulfite oxidase deficiency. Consider Molybdenum supplementation.
SUOX(S370S)	rs773115	-+ Heterozygous	CG	G	Possible sulfite oxidase deficiency.
TCN1	rs526934	-- Wild Type	AA	G	no variant detected.
TCN2	rs1801198	-- Wild Type	CC	G	no variant detected.
TNF C857T	rs1799724	-- Wild Type	CC	T	no variant detected.
TNF	rs1800629	-- Wild Type	GG	A	no variant detected.
VDR TAQ	rs731236	-+ Heterozygous	GA	G	Consider monitoring 1,25 and 25-oh vitamin D.
VDR-BSM	rs1544410	++ Homozygous	TT	T	Low bone density and breast cancer risk factor. 25 and 1,25-OH Vit. D testing.
VDR-FOK	rs2228570	-+ Heterozygous	AG	A	Diabetes risk, consider monitoring 1,25 and 25-oh vitamin D.

MaxGen LABS

TheWorks

Client Name: John Smith
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Vial Number: Sample Report
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Additional Combo SNPs

Gene	RS#	Result	Client	Minor	Short Description
MMp9 C1562T	rs3918242	-+ Heterozygous	CT	T	No Data Available
Fcrl3-3-169C	rs7528684	-+ Heterozygous	GA	G	No Data Available
IRF1	rs9282763	-- Wild Type	TT	C	no variant detected.

MaxFood SNP Report

Gene	RS#	Result	Client	Minor	Short Description
Diet Section					
FABP2 Ala54Thr	rs1799883	++ Homozygous	CC	C	normal potential refined carb sensitivity
KCTD10	rs10850219	-+ Heterozygous	CG	C	normal potential HDL levels on high carb diet
PLIN	rs894160	-+ Heterozygous	CT	T	High complex carb diet will lower risk of obesity/Lower carb diet = risk of obesity.
LIPC	rs1800588	-- Wild Type	CC	T	no predicted increased benefit from a high carb diet.
FADS1(MYRF)	rs174537	-- Wild Type	GG	T	normal Omega-6 levels
APOA2	rs5082	-+ Heterozygous	GA	A	normal dietary fat intake recommended
FABP2 Ala54Thr	rs1799883	++ Homozygous	CC	C	normal potential saturated fat sensitivity
FABP2 Ala54Thr	rs1799883	++ Homozygous	CC	C	higher fatty acid response to dietary fat
FABP2 Ala54Thr	rs1799883	++ Homozygous	CC	C	increased triglycerides
ADIPOQ	rs17300539	-- Wild Type	GG	A	It is not recommended to avoid a high fat diet.
PPARG	rs1801282	-- Wild Type	CC	G	normal benefit from monounsaturated fats (avocados, nuts, olive oils, etc.).
ADIPOQ	rs17300539	-- Wild Type	GG	A	normal benefit from monounsaturated fats (avocados, nuts, olive oils, etc.).
PPARG	rs1801282	-- Wild Type	CC	G	increased benefit from consumption of polyunsaturated fats
APOA2	rs5082	-+ Heterozygous	GA	A	faster, more complete blood lipid metabolism
Vitamin Risks					
MTHFR C677T	rs1801133	-+ Heterozygous	AG	A	potential risk for decreased folate levels
MTHFR A1298C	rs1801131	-- Wild Type	TT	G	normal folate pathway
BCMO1	rs12934922	++ Homozygous	TT	T	intermediate potential risk for decreased Vitamin A levels
BCMO1	rs7501331	-- Wild Type	CC	T	Normal potential Vitamin A levels
MTHFR	rs1801133	-+ Heterozygous	AG	A	increased potential risk for decreased Vitamin B2 levels
NBPF3	rs4654748	-- Wild Type	CC	T	potential risk for lower vitamin B6 (pyridoxine) levels
SLC23A1	rs33972313	-- Wild Type	CC	T	Normal potential Vitamin C levels
GC	rs2282679	-+ Heterozygous	GT	G	potential risk for vitamin D levels
INTERGENIC	rs12272004	++ Homozygous	CC	C	normal potential Vitamin E levels.

MaxGen LABS

TheWorks

Client Name: John Smith
Client DOB: 1/1/1900
Vial Number: Sample Report
Client Sex: Male

Referring Account: Chad Yarbrough, DC
Sample Received: 11/2/2018
Report Date: 8/7/2019

Gene	RS#	Result	Client	Minor	Short Description
Food Intolerances					
CCR3	rs6441961	++ Homozygous	CC	C	normal potential gluten tolerance
HLA-SNP	rs9275596	++ Homozygous	CC	C	Increased risk of developing peanut allergy.
HLA-DQ2.5	rs2187668	-- Wild Type	CC	T	normal potential gluten tolerance
IL21	rs13119723	++ Homozygous	GG	G	increased risk for gluten intolerance
IL21	rs6822844	-+ Heterozygous	GT	T	risk associated with gluten intolerance/celiac disease
MYO9B	rs2305764	-+ Heterozygous	GA	G	moderate risk for gluten intolerance/celiac disease
MCM6	rs4988235	-- Wild Type	GG	A	Possible lactose intolerance
APOA2	rs5082	-+ Heterozygous	GA	A	normal BMI with high dairy intake
Disease Risks					
MYO9B	rs2305764	-+ Heterozygous	GA	G	Mild increased risk for inflammatory bowel disease
MYO9B	rs2305764	-+ Heterozygous	GA	G	Mild increased risk for Barrett's esophagus and esophageal cancer
Eating Habits					
FTO	rs8050136	-+ Heterozygous	CA	A	increased potential food intake
MC4R	rs17782313	-+ Heterozygous	CT	C	higher potential total energy intake
MC4R	rs17782313	-+ Heterozygous	CT	C	risk of higher potential %fat in total energy intake
ANKK1/DRD2	rs1800497	-- Wild Type	GG	A	Normal food desire
FTO	rs9939609	-- Wild Type	TT	A	normal risk for obesity
LEPR	rs2025804	-+ Heterozygous	AG	A	lower 24 hour energy expenditure
NMB	rs1051168	-+ Heterozygous	GT	T	normal response to hunger
FTO	rs9939609	-- Wild Type	TT	A	Typical amounts of food to reach fullness
LEPR	rs2025804	-+ Heterozygous	AG	A	normal snacking behavior
MC4R	rs17782313	-+ Heterozygous	CT	C	normal potential snacking desire
FTO	rs9939609	-- Wild Type	TT	A	higher risk of emotional eating and higher IDEA score
FTO	rs9939609	-- Wild Type	TT	A	normal risk for disorder of corporeality and emotional eating
TAS2R38	rs713598	-+ Heterozygous	CG	G	more able to taste bitter flavors in healthy foods such as broccoli and cabbage.
Obesity & Weight loss					
ADRB3	rs4994	-- Wild Type	AA	G	normal
FTO	rs1558902	++ Homozygous	AA	A	increased risk for obesity
MC4R	rs17782313	-+ Heterozygous	CT	C	moderate risk for higher BMI
ITGB2	rs235326	-+ Heterozygous	GA	G	normal risk of obesity on Western Diet
ADIPOQ	rs17300539	-- Wild Type	GG	A	normal BMI potential
APOA2	rs5082	-+ Heterozygous	GA	A	normal BMI potential
FTO	rs9939609	-- Wild Type	TT	A	normal BMI potential
FTO	rs8050136	-+ Heterozygous	CA	A	less fat mass and weight loss in response to exercise
FTO	rs16945088	-- Wild Type	AA	G	normal potential for weight loss
PPM1K	rs1440581	-+ Heterozygous	CT	C	potential risk for decreased weight loss and insulin sensitivity response to diet
ADIPOQ	rs17300539	-- Wild Type	GG	A	Normal risk of regaining weight after losing it
PPARG	rs1801282	-- Wild Type	CC	G	potential normal diet response
ACSL5	rs2419621	-+ Heterozygous	CT	T	potential normal diet response
PLIN	rs894160	-+ Heterozygous	CT	T	normal potential for fat loss during calorie restriction diet
PLIN	rs894160	-+ Heterozygous	CT	T	normal risk for eating late related to lower weight loss effectiveness

MaxGen LABS

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Referring Account: Chad Yarbrough, DC
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Report Date: 8/7/2019

Gene	RS#	Result	Client	Minor	Short Description
Blood Sugar & Diabetes					
ADRA2A	rs10885122	-- Wild Type	GG	T	normal risk of elevated blood sugar
IRS1	rs2943641	-- Wild Type	CC	T	normal risk for insulin sensitivity, type 2 diabetes, hyperinsulinemia.
ADIPOQ	rs17300539	-- Wild Type	GG	A	increased risk of insulin resistance, high glucose levels and metabolic syndrome.
PPARG	rs1801282	-- Wild Type	CC	G	normal risk of insulin sensitivity
ADRB2	rs1042714	++ Homozygous	GG	G	decreased risk of diabetes
FTO	rs8050136	-+ Heterozygous	CA	A	increased risk of type 2 diabetes
FTO	rs9939609	-- Wild Type	TT	A	normal risk of type 2 diabetes
PPARG	rs1801282	-- Wild Type	CC	G	normal risk of type 2 diabetes
ADIPOQ	rs17300539	-- Wild Type	GG	A	normal risk of overweight and obesity in uncontrolled type 2 diabetes
Blood Lipids					
FADS1	rs174537	-- Wild Type	GG	T	increased risk for higher "bad" cholesterol and total cholesterol
LPL	rs328	-- Wild Type	CC	G	normal risk for higher triglyceride levels
KCTD10	rs10850219	-+ Heterozygous	CG	C	normal risk of reduced HDL
LIPC	rs1800588	-- Wild Type	CC	T	Normal HDL cholesterol association with fat intake

MaxGen LABS

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Referring Account: Chad Yarbrough, DC
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GENE	rsID	Result	Client	Minor	Description
Muscle Performance					
ADRB3	rs4994	++ Homozygous	AA	A	Normal potential for elite endurance performance
NRF2	rs7181866	-- Wild Type	AA	G	Normal potential for elite endurance
PPARGC1A	rs8192678	-+ Heterozygous	CT	T	Normal potential endurance performance
ADRB2	rs1042713	-+ Heterozygous	AG	A	Higher potential for elite endurance activity
GABPB1 (NRF2)	rs12594956	++ Homozygous	AA	A	Greater endurance potential (especially with rs8031031 CT)
GABPB1 (NRF2)	rs8031031	-- Wild Type	CC	T	Normal endurance potential
LIPC	rs1800588	-- Wild Type	CC	T	Enhanced benefit from endurance training
LPL	rs328	-- Wild Type	CC	G	Enhanced benefit from endurance training
PPARD	rs2016520	-+ Heterozygous	CT	T	Normal benefit from endurance training
ACTN3	rs1815739	-- Wild Type	CC	T	Better performing muscles-Likely sprinter
AMPD1	rs17602729	-- Wild Type	GG	A	Normal potential risk of muscle cramping
SLC30A8	rs13266634	-- Wild Type	CC	T	Normal post exercise soreness and strength loss
MSTN	rs1805086	-- Wild Type	TT	C	Normal potential peak muscle power
VO2Max					
GABPB1 (NRF2)	rs12594956	++ Homozygous	AA	A	Higher potential VO2 Max
GABPB1 (NRF2)	rs8031031	-- Wild Type	CC	T	Normal VO2 Max
PPARGC1A	rs8192678	-+ Heterozygous	CT	T	Normal potential baseline VO2 MAX
NRF2	rs7181866	-- Wild Type	AA	G	Normal VO2 Max
Weight loss					
LPL	rs328	-- Wild Type	CC	G	Normal fat loss in response to exercise
FTO	rs8050136	-+ Heterozygous	CA	A	Less potential fat mass and %body fat loss with exercise
INSIG2	rs7566605	-+ Heterozygous	CG	G	Normal potential for weight loss after intervention
LEP	rs7799039	++ Homozygous	AA	A	Higher reduction in fat and BMI levels in response to exercise
FTO	rs1121980	-+ Heterozygous	GA	A	Greater potential for obesity or weight gain if inactive
Resistance Training					
INSIG2	rs7566605	-+ Heterozygous	CG	G	Normal potential benefit from resistance training
IL15	rs1057972	-+ Heterozygous	TA	T	Greater potential post training strength improvement
LEPR	rs1805096	-+ Heterozygous	AG	A	Greater potential muscle gain in response to resistance training
IL15RA	rs2296135	++ Homozygous	CC	C	Greater potential strength improvement from resistance training
Cardiovascular and Injury Risks					
PPARD	rs2016520	-+ Heterozygous	CT	T	Increased benefit to HDL levels by exercising
NOS3	rs2070744	-+ Heterozygous	TC	T	More favorable potential blood pressure response to exercise
EDN1	rs5370	-- Wild Type	GG	T	Normal risk of blood pressure in unfit people
LIPC	rs1800588	-- Wild Type	CC	T	Normal insulin sensitivity in response to exercise
CCL2	rs1024611	++ Homozygous	AA	A	Increased potential risk of exercise induced ischemia
ADRB2	rs1042714	-- Wild Type	GG	C	Normal risk of idiopathic venous thrombosis
LEPR	rs1137101	-+ Heterozygous	GA	G	Moderate potential risk for ischemic heart disease
GDF5	rs143383	-+ Heterozygous	AG	G	Moderate potential increased risk for osteoarthritis
intergenic	rs4140564	++ Homozygous	AA	A	Normal potential risk of knee osteoarthritis
MMP3	rs679620	-+ Heterozygous	TC	C	Normal potential risk for Achilles tendinopathy

Client: Your genotype.
Minor: The genotype that is found least in nature.
Wild Type: The genotype that is found most often in nature, this is reported as green. This isn't always ideal.
Homozygous: This means you tested for both copies of the minor type allele. This typically has more severe issues.
Heterozygous: : This means you tested for one copy of the minor allele and one copy of the wild type allele.
Gene: This is the specific gene we are looking at for variations.
RS#: This is the specific variation within the gene. There are multiple locations within a gene for potential variations, all of which can indicate a different issue or severity.

Disclaimer: This test was developed by Maximized Genetics, LLC and has not been approved by the FDA. It is not intended to diagnose, treat, cure or prevent disease. This test should be considered for educational purposes only. Do not make decisions about your health without discussing it with a licensed practitioner. The information contained within the report does not consider other genetic variations or environmental factors that might contribute to someone's phenotype or symptoms.
This test does not analyze all variations within a gene that someone might carry. The rs#'s contained within the report were picked from scientific literature, multiple physician collaborations, and clinical observation by Maximized Genetics and are subject to change at any time.