

PATIENT NAME










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HOW TO READ THIS REPORT

TRAIT: A unique characteristic or process that is controlled by genetic factors. Examples include vitamin D levels, body weight, food sensitivities, and response to exercise.

SNP (SINGLE NUCLEOTIDE POLYMORPHISM): Differences in a single DNA building block that, along with the environment, influence a person's traits.

RISK VARIANT: Specific genetic variations where a dietary or lifestyle recommendation may improve health.

PATIENT VARIANT: Which of the different genetic options a person has.

PATIENT RESULT: Results will fall into 1 of 3 categories: Consider Action, Enhanced Benefit, or No Action. "Consider Action" appears for traits where diet and lifestyle recommendations that may improve health. "Enhanced Action" appears for traits where a dietary or lifestyle factor may lead to greater health benefits. "No Action" appears for traits that are not associated with increased needs.

SCIENTIFIC RATING: Level of scientific evidence supporting the associated effect. 5 is the highest level of evidence, 1 is the lowest.

IMPLICATIONS: Details the impact of specific traits on the body.

DIET & LIFESTYLE RECOMMENDATIONS: Nutrition advice and behavior changes that may provide a health benefit based on an individual's results.

SCIENTIFIC RATING BREAKDOWN

- ★★★★★ Based on a study of 5000 or more subjects; findings have been replicated in at least 1 additional study.
- ★★★★☆ Based on a study of 2000-5000 or more subjects; findings have been replicated in at least 1 additional study.
- ★★★☆☆ Based on a study of 800-2000 or more subjects; findings have been replicated in at least 1 additional study.
- ★★☆☆☆ Based on a study of 200-8000 subjects without replication; or 1 smaller human study (> 200 subjects) with findings that have been replicated in at least 1 additional small study.
- ★☆☆☆☆ Based on 1 smaller study without replication.

GENETIC REPORT SUMMARY

This summary highlights key findings of your traits where you may consider actions to improve your health with diet and lifestyle recommendations.

! HIGH PRIORITY ACTIONS

Trait	Result	Scientific Rating	Actionable SNPs
Vitamin B6 (Pyridoxine)	! Consider Action	★ ★ ★ ★ ★ 1/5 ★ ★ ★ ★ ★ 3/5	CBS (rs234706) NBPF3 (rs4654748)
Folate	! Consider Action	★ ★ ★ ★ ★ 5/5 ★ ★ ★ ★ ★ 5/5	MTHFR C677T (rs1801133) MTHFR A1298C (rs1801131)
Choline	! Consider Action	★ ★ ★ ★ ★ 2/5 ★ ★ ★ ★ ★ 3/5	MTHFD1 (rs2236225) PEMT (rs7946)
Vitamin B12 (Cobalamin)	! Consider Action	★ ★ ★ ★ ★ 3/5 ★ ★ ★ ★ ★ 2/5 ★ ★ ★ ★ ★ 2/5 ★ ★ ★ ★ ★ 4/5	TCN2 (rs1801198) MTRR (rs1801394) MTR (rs1805087) FUT2 (rs602662)
Vitamin D	! Consider Action	★ ★ ★ ★ ★ 5/5 ★ ★ ★ ★ ★ 5/5 ★ ★ ★ ★ ★ 5/5	GC (rs2282679) DHCR7 (rs12785878) CYP2R1 (rs10741657)
Vitamin E (Alpha-tocopherol)	! Consider Action	★ ★ ★ ★ ★ 5/5	Intergenic (rs12272004)
Zinc	! Consider Action	★ ★ ★ ★ ★ 4/5	SLC30A8 (rs11558471)
Omega-3 Fatty Acids	! Consider Action	★ ★ ★ ★ ★ 5/5 ★ ★ ★ ★ ★ 4/5 ★ ★ ★ ★ ★ 4/5	FADS1 (rs174546) FADS1 (rs174537) FADS1 (rs174547)
Antioxidant Enzymes	! Consider Action	★ ★ ★ ★ ★ 5/5 ★ ★ ★ ★ ★ 5/5 ★ ★ ★ ★ ★ 4/5	SOD2 (rs4880) GPx1P1 (rs1050450) NQO1 (rs1800566)
Environmental Toxins	! Consider Action	★ ★ ★ ★ ★ 2/5	GSTP1 (rs1695)
Caffeine Metabolism	! Consider Action	★ ★ ★ ★ ★ 2/5	CYP1A2 (rs762551)
Saturated Fat Response	! Consider Action	★ ★ ★ ★ ★ 5/5	APOA2 (rs5082)
Response to Saturated Fat	! Consider Action	★ ★ ★ ★ ★ 2/5	ACE (rs4343)
Salt Sensitivity	! Consider Action	★ ★ ★ ★ ★ 2/5	AGT (rs699)
C-reactive Protein Level	! Consider Action	★ ★ ★ ★ ★ 5/5	CRP (rs1205)
Caffeine Metabolism	! Consider Action	★ ★ ★ ★ ★ 4/5	CYP1A2 (rs762551)
Paraoxonase-1 (PON1) Activity	! Consider Action	★ ★ ★ ★ ★ 3/5	PON1 (rs662)
Histamine Metabolism	! Consider Action	★ ★ ★ ★ ★ 2/5	AOC1 (rs10156191)
Microbial Balance in the Intestine	! Consider Action	★ ★ ★ ★ ★ 2/5	FUT2 (rs601338)

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Trait	Result	Scientific Rating	Actionable SNPs
Executive Function	ⓘ Consider Action	★★★★☆ 3/5	COMT (rs4680)
Serotonin Production	ⓘ Consider Action	★★★★☆ 2/5	TPH2 (rs4570625)
Brain-Derived Neurotrophic Factor	ⓘ Consider Action	★★★★☆ 1/5	BDNF (rs6265)
Dopamine Receptor Function	ⓘ Consider Action	★★★★☆ 2/5 ★★★★☆ 2/5 ★★★★☆ 4/5 ★★★★☆ 2/5	DRD2 (rs6277) DRD2 (rs2283265) DRD2 (rs1076560) ANKK1-DRD2 (rs1800497)
Cannabis Response	ⓘ Consider Action	★★★★☆ 3/5	FAAH (rs324420)
IL-6 Activation	ⓘ Consider Action	★★★★☆ 2/5	IL-6 (rs1800795)
TNF-alpha Activation	ⓘ Consider Action	★★★★☆ 2/5	TNF (rs1800629)
Tendon or Ligament Injury	ⓘ Consider Action	★★★★☆ 2/5 ★★★★☆ 4/5	COL5A1 (rs12722) COL1A1 (rs1800012)
Achilles Tendon Injury	ⓘ Consider Action	★★★★☆ 4/5	MMP3 (rs679620)

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TRAITS AND TRAIT CATEGORIES

ⓘ = **Consider Action**

⬆ = **Enhanced Benefit**

Vitamins, Minerals & Omega-3s



Vitamin A (Retinol)	
Vitamin B2 (Riboflavin)	⬆
Vitamin B6 (Pyridoxine)	ⓘ
Folate	ⓘ
Choline	ⓘ
Vitamin B12 (Cobalamin)	ⓘ
Vitamin C (Ascorbic Acid)	
Vitamin D	ⓘ
Vitamin E (Alpha-tocopherol)	ⓘ
Iron Overload	
Zinc	ⓘ
Omega-3 Fatty Acids	ⓘ

Detoxification



Antioxidant Enzymes	ⓘ
Environmental Toxins	ⓘ
Estrogen Metabolism	
Caffeine Metabolism	ⓘ

Glucose Metabolism



Glucose Metabolism	
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Weight Management



Eating Between Meals	
Protein Intake	
Saturated Fat Response	ⓘ
Adiponectin Levels	
Monounsaturated Fat Response	

Cognitive Health and Memory



Executive Function	ⓘ
Stimulant Sensitivity	
Serotonin Production	ⓘ
Brain-Derived Neurotrophic Factor	ⓘ
Dopamine Receptor Function	ⓘ
Cannabis Response	ⓘ

Immune Health



IL-6 Activation	ⓘ
TNF-alpha Activation	ⓘ

Energy & Fitness



Strength & Power	
Endurance	
Tendon or Ligament Injury	ⓘ
Achilles Tendon Injury	ⓘ
Endurance Potential	⬆
Aerobic Capacity	⬆
Exercise-related Fatigue	
Body Fat and Exercise	⬆
Muscle Soreness	
Glucose Response to Exercise	⬆

Cardiovascular Health



Response to Saturated Fat	ⓘ
Salt Sensitivity	ⓘ
C-reactive Protein Level	ⓘ
Caffeine Metabolism	ⓘ
Blood Flow and Exercise	
Paraoxonase-1 (PON1) Activity	ⓘ
HDL Cholesterol Level	
HDL Cholesterol and Exercise	
Coenzyme Q10 Levels	

Gastrointestinal Health



Histamine Metabolism	ⓘ
Lactose Intolerance	
Processed Meat Sensitivity	
Microbial Balance in the Stomach	
Microbial Balance in the Intestine	ⓘ

GENE ANALYSIS SUMMARY

GENETIC REPORT : VITAMINS, MINERALS & OMEGA-3S

Vitamin B2 (Riboflavin)

 Enhanced Benefit

A nutrient that supports energy production by helping to break down the carbohydrates, proteins, and fats in the food you eat and supports healthy blood vessel function.

SNP	RISK/RESPONSE VARIANT	YOUR VARIANT
MTHFR C677T (rs1801133)	TT	TT


IMPLICATIONS

Individuals with your genotype are more likely to respond well to vitamin B2 (riboflavin) supplementation.

DIET & LIFESTYLE RECOMMENDATIONS

Foods that contain riboflavin (vitamin B2) should be part of your diet. Good sources include leafy green vegetables, lean meats, eggs, and dairy products.

Vitamin B6 (Pyridoxine)

 Consider Action

A nutrient that supports nervous system health.

SNP	RISK/RESPONSE VARIANT	YOUR VARIANT
CBS (rs234706)	CT,TT	CT
NBPF3 (rs4654748)	CT,CC	TT


IMPLICATIONS

Individuals with your genotype are more likely to have lower vitamin B6 (pyridoxine) levels.

DIET & LIFESTYLE RECOMMENDATIONS

You should eat foods that are rich in vitamin B6, including beans, whole grains, meat, eggs, and fish.

 Folate

 Consider Action

A vitamin that supports healthy brain function and growth of red blood cells. This nutrient is critical during early pregnancy to support the development of the brain and spine.

SNP	RISK/RESPONSE VARIANT	YOUR VARIANT
MTHFR C677T (rs1801133)	CT,TT	TT
MTHFR A1298C (rs1801131)	AC,CC	AA

 IMPLICATIONS

Individuals with your genotype have a reduced capacity to convert folic acid and other precursors to its activated form, folate.

 DIET & LIFESTYLE RECOMMENDATIONS

You should eat plenty of leafy green vegetables and legumes (like beans, lentils, chickpeas, and peanuts) which provide folate in a form the body can easily use.

 Choline

No Action

A nutrient that supports mental health and liver function.

SNP	RISK/RESPONSE VARIANT	YOUR VARIANT
MTHFD1 (rs2236225)	AA,AG	GG
PEMT (rs7946)	AA,AG	AA


 IMPLICATIONS

Individuals with your genotype may have a reduced capacity for choline production.

 DIET & LIFESTYLE RECOMMENDATIONS

You should include choline-rich foods in your diet, such as lean meats, poultry, fish, dairy products, and eggs. Kidney beans, mushrooms, and quinoa are also good sources of choline.

 Vitamin B12 (Cobalamin)

 Consider Action

A nutrient that supports red blood cell production, energy production, nerve health, and DNA production.

SNP	RISK/RESPONSE VARIANT	YOUR VARIANT
TCN2 (rs1801198)	CG,GG	CG
MTRR (rs1801394)	GG,AG	AG
MTR (rs1805087)	GG,AG	AA
FUT2 (rs602662)	GG,AG	AA


 IMPLICATIONS

Individuals with your genotype may have a lower capacity to absorb, utilize and/or transport vitamin B12 (cobalamin) to parts of the body that need it.

 DIET & LIFESTYLE RECOMMENDATIONS

Foods containing vitamin B12 should be part of your regular diet. Good sources include lean meats, fish, dairy products, and eggs.

 Vitamin D

 Consider Action

A nutrient that maintains strong bones and supports immune system function.

SNP	RISK/RESPONSE VARIANT	YOUR VARIANT
GC (rs2282679)	GT,GG	GT
DHCR7 (rs12785878)	GT,GG	missing-data
CYP2R1 (rs10741657)	AG,GG	missing-data


 IMPLICATIONS

Individuals with your genotype are more likely to have increased vitamin D requirements.

 DIET & LIFESTYLE RECOMMENDATIONS

You should eat foods that contain vitamin D such as mushrooms, fish, and lean pork. Sunlight is a source of vitamin D. In small amounts (up to 20 min per day), regular sunlight exposure on the skin can help boost Vitamin D levels.

 Vitamin E (Alpha-tocopherol)

 Consider Action

A nutrient that supports healthy blood vessel function.

SNP	RISK/RESPONSE VARIANT	YOUR VARIANT
Intergenic (rs12272004)	CC	CC


 IMPLICATIONS

Individuals with your genotype may have slightly lower levels of circulating vitamin E (alpha-tocopherol).

 DIET & LIFESTYLE RECOMMENDATIONS

Your diet should include foods that are rich in vitamin E, such as sunflower seeds, almonds, avocados, and spinach.

 Zinc

 Consider Action

A nutrient that plays vital role in immune system function and energy production.

SNP	RISK/RESPONSE VARIANT	YOUR VARIANT
SLC30A8 (rs11558471)	AG,AA	AG


 IMPLICATIONS

Individuals with your genotype are more likely to have increased zinc requirements.

 DIET & LIFESTYLE RECOMMENDATIONS

Your diet should include foods that are rich in Zinc, such as Oysters; Crab; Fish; Lean beef; Lean pork; Low-fat yogurt; Pumpkin seeds; Almonds You report an allergy to ShellFish. Some of these foods may not be a part of your regular diet and you may benefit from a supplement.

 Omega-3 Fatty Acids

 Consider Action

Healthy fats that support brain, skin, and joint health.

SNP	RISK/RESPONSE VARIANT	YOUR VARIANT
FADS1 (rs174546)	CT,TT	CT
FADS1 (rs174537)	GT,TT	GT
FADS1 (rs174547)	CT,CC	CT

 IMPLICATIONS


Individuals with your genotype may have a reduced capacity to convert omega-3 fatty acid precursors (e.g. linolenic acid from flaxseed oil and other plant sources) to active omega-3 fatty acids (EPA and DHA).

 DIET & LIFESTYLE RECOMMENDATIONS

Your diet should include cold-water fish, such as salmon and mackerel, that provide activated omega-3 fatty acids the body can easily use. Plant sources with omega-3, such as nuts, seeds, and seed oils, may not be enough.

GENETIC REPORT : DETOXIFICATION

Antioxidant Enzymes

 Consider Action

These molecules help to protect the body's cells from free radicals, which come from the environment and are produced during cell energy production.

SNP	RISK/RESPONSE VARIANT	YOUR VARIANT
SOD2 (rs4880)	AG,GG	AG
GPx1P1 (rs1050450)	CT,TT	CC
NQO1 (rs1800566)	CT,TT	CC


IMPLICATIONS

Superoxide dismutase 2 (SOD2) is an antioxidant enzyme that detoxifies superoxide to prevent harmful levels from accumulating. Your genotype is associated with reduced SOD2 function. The GPX1P1 enzyme is a member of the glutathione peroxidase family of enzymes. It detoxifies hydrogen peroxide, a reactive oxygen species formed during mitochondrial energy metabolism. Your genotype has no effect on GPX1P1 enzyme function. NQO1 is an enzyme that detoxifies the quinone breakdown products of benzene, tobacco smoke, and other environmental toxins. Your genotype has no effect on NQO1 enzyme function.

DIET & LIFESTYLE RECOMMENDATIONS

Your diet should include lots of fruits and vegetables. Cruciferous vegetables such as broccoli, brussels sprouts, arugula, kale, and cauliflower are best. Eat them raw or avoid overcooking them. Too much heat can destroy the vegetable's antioxidant benefits. You may benefit from regular exercise as it boosts antioxidant levels.

Environmental Toxins

 Consider Action

Harmful substances that are found in our surroundings.

SNP	RISK/RESPONSE VARIANT	YOUR VARIANT
GSTP1 (rs1695)	AG,GG	AG


IMPLICATIONS

GSTP1 is one of many glutathione sulfotransferase (GST) enzymes that participate in the elimination of environmental substances, which include toxins found in tobacco smoke. Your genotype is associated with reduced enzyme function.

DIET & LIFESTYLE RECOMMENDATIONS

Your diet should include lots of fruits and vegetables. Cruciferous vegetables such as broccoli, brussels sprouts, arugula, kale, and cauliflower are best. These help your body get rid of harmful substances from the environment. You should avoid smoking and being around people that are smoking.

 Caffeine Metabolism

 Consider Action

An over-the-counter stimulant found in many beverages including coffee, tea, and energy drinks.

SNP	RISK/RESPONSE VARIANT	YOUR VARIANT
CYP1A2 (rs762551)	AC,CC	AC

 IMPLICATIONS


Individuals with your genotype may metabolize caffeine more slowly.

 DIET & LIFESTYLE RECOMMENDATIONS

You should keep track of how much caffeine you consume in beverages like coffee, tea, and energy drinks. Even if you drink them in the morning, they can interfere with sleep.

GENETIC REPORT : WEIGHT MANAGEMENT

 Saturated Fat Response

 Consider Action

Saturated fat is a macronutrient found mainly in animal food sources. This type of fat can be harmful if you consume too much.

SNP	RISK/RESPONSE VARIANT	YOUR VARIANT
APOA2 (rs5082)	GG	GG

IMPLICATIONS

Individuals with your genotype are more likely to lose some weight simply by reducing their saturated fat intake to less than 22 g/day.

DIET & LIFESTYLE RECOMMENDATIONS


You should limit the amount of saturated fat in your diet to 22g/day when trying to lose weight including fried foods, baked goods, processed meats (like pepperoni, sausage, and bacon), and foods that have lots of cream or butter. These are all high in saturated fat.

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GENETIC REPORT : CARDIOVASCULAR HEALTH

Response to Saturated Fat

 Consider Action

Saturated fat is a macronutrient found mainly in animal food sources. Too much of it can be harmful to your blood vessels.

SNP	RISK/RESPONSE VARIANT	YOUR VARIANT
ACE (rs4343)	GG	GG


IMPLICATIONS

Individuals with your genotype may experience significant improvements in vascular function on a diet low in saturated fat, according to a small study.

DIET & LIFESTYLE RECOMMENDATIONS

You should limit how much of your daily calories come from fat to no more than 30%. Cut back on salty foods and table salt and avoid foods that are very high in saturated fat. These include beef, butter, coconut, fried foods, cream, baked goods, chocolate, and processed meats (such as pepperoni, sausage, bacon).

Salt Sensitivity

 Consider Action

Sodium (salt) is a mineral found in most foods. Too much sodium can damage the way your blood vessels work.

SNP	RISK/RESPONSE VARIANT	YOUR VARIANT
AGT (rs699)	CT,CC	CC


IMPLICATIONS

Individuals with your genotype may have higher plasma angiotensin levels (a 10-30% increase was suggested in one study). These individuals may be more sensitive to the effects of dietary sodium on vascular function.

DIET & LIFESTYLE RECOMMENDATIONS

Limit how much salt you eat to 2,300 mg a day. Make sure you eat enough foods that have potassium, like fruits and vegetables. Aim to eat 4,700 mg of potassium a day.

C-reactive Protein Level

 Consider Action

A protein in your body that increases when your immune system is activated.

SNP	RISK/RESPONSE VARIANT	YOUR VARIANT
CRP (rs1205)	CT,CC	CC

IMPLICATIONS

Individuals with your genotype are more likely to have higher C-reactive protein (CRP) levels.


DIET & LIFESTYLE RECOMMENDATIONS

The following recommendations have been shown to support healthy immune function: - Regular Exercise - At least 7-8 hours of restful sleep every night - Relaxation techniques, therapy, or meditation.

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 Caffeine Metabolism

 Consider Action

An over-the-counter stimulant found in many beverages including coffee, tea, and energy drinks.

SNP	RISK/RESPONSE VARIANT	YOUR VARIANT
CYP1A2 (rs762551)	AC,CC	AC


 IMPLICATIONS

Individuals with your genotype are more likely to metabolize caffeine more slowly. They may also be more sensitive to the effects of caffeine on cardiovascular function. Studies suggest a greater potential for adverse cardiovascular health effects when caffeinated coffee consumption exceeds 2-3 cups per day.

 DIET & LIFESTYLE RECOMMENDATIONS

You should keep track of how much caffeine you consume in beverages like coffee, tea, and energy drinks. Even if you drink them in the morning, they can interfere with sleep.

 Paraoxonase-1 (PON1) Activity

 Consider Action

This enzyme helps protect HDL ("good cholesterol") particles from the effects of free radicals.

SNP	RISK/RESPONSE VARIANT	YOUR VARIANT
PON1 (rs662)	CT,CC	CT

 IMPLICATIONS


Paraoxonase 1 (PON1) is an HDL-associated enzyme that protects lipoproteins from the effects of oxidative stress. Individuals with your genotype may have lower levels of the PON1 enzyme.

 DIET & LIFESTYLE RECOMMENDATIONS

Eat foods that have a lot of antioxidants. These include colorful fruits and vegetables like berries, pomegranates, and also green tea. The "Mediterranean Diet" is also a good way to get more antioxidants.

GENETIC REPORT : GASTROINTESTINAL HEALTH

Histamine Metabolism

 Consider Action

A substance found in many foods that can lead to intolerance in some individuals.

SNP	RISK/RESPONSE VARIANT	YOUR VARIANT
AOC1 (rs10156191)	CT,TT	CT


IMPLICATIONS

Diamine oxidase (DAO), encoded by the AOC1 gene, is one of the enzymes that metabolizes dietary histamine. Individuals with your genotype may have reduced DAO activity and a reduced capacity to metabolize dietary histamine.

DIET & LIFESTYLE RECOMMENDATIONS

You may benefit from a low histamine diet, limiting the amount of meat, fermented and canned items, poultry, fish, tomatoes, chocolate, spinach, eggplant, avocado, and nuts.

Microbial Balance in the Intestine

 Consider Action

Organisms living in the stomach and gastrointestinal tract that support healthy digestion and immune system function.

SNP	RISK/RESPONSE VARIANT	YOUR VARIANT
FUT2 (rs601338)	AA	AA

IMPLICATIONS


Individuals with your genotype are more likely to have an altered intestinal microbial composition.

DIET & LIFESTYLE RECOMMENDATIONS

You should try eating foods high in fiber like vegetables and whole grains. Fermented foods like yogurt or kefir are also good.

GENETIC REPORT : COGNITIVE HEALTH AND MEMORY

Executive Function

 Consider Action

Executive functioning skills help you get things done. These skills help you pay attention, plan, remember details, self-monitor, and adapt.

SNP	RISK/RESPONSE VARIANT	YOUR VARIANT
COMT (rs4680)	GG, AA	GG


IMPLICATIONS

Individuals with the GG (Val/Val) genotype tend to have sharper executive function in stressful situations, but are more likely to struggle in normal, non-stressful environments. This is likely due to lower levels of dopamine in the prefrontal cortex, a region of the brain that controls executive function.

DIET & LIFESTYLE RECOMMENDATIONS

You should include protein-rich foods to support mental sharpness. Good sources include Meat,nuts,seeds,dairy,eggs and legumes/beans Regular exercise helps support your mental sharpness.

Serotonin Production

 Consider Action

A chemical in the brain that helps you relax.

SNP	RISK/RESPONSE VARIANT	YOUR VARIANT
TPH2 (rs4570625)	GT,TT	GT


IMPLICATIONS

Tryptophan hydroxylase 2 (TPH2) is an enzyme that converts tryptophan to a serotonin precursor, 5-HTP. Serotonin helps to maintain a positive emotional state, and promotes relaxation and healthy eating behavior. Individuals with your genotype may have reduced TPH2 activity.

DIET & LIFESTYLE RECOMMENDATIONS

You should consider eating lean meats, chicken, and fish because they contain tryptophan. It is important to eat a balanced diet containing lots of fruits and vegetables. Fruits and vegetables also support emotional health by providing essential vitamins, minerals, and fiber.

 **Brain-Derived Neurotrophic Factor**

 Consider Action

A protein that supports nerve function by promoting their growth and maintenance.

SNP	RISK/RESPONSE VARIANT	YOUR VARIANT
BDNF (rs6265)	AG,AA	AG


 **IMPLICATIONS**

Individuals with your genotype tend to make lower amounts of brain-derived neurotrophic factor (BDNF).

 **DIET & LIFESTYLE RECOMMENDATIONS**

Try to eat foods that have “healthy fats”, like salmon, sardines, and herring. Berries and other fruits, vegetables, teas, and spices also contain antioxidants that help your body make more BDNF. Regular exercise can help increase your BDNF levels . Getting at least 7-8 hours of quality sleep every night can help you increase BDNF levels. Relaxation techniques, therapy, or meditation can help you decrease stress and increase BDNF levels.

 **Dopamine Receptor Function**

 Consider Action

A chemical in the brain that plays a role in motivation, pleasure, and reward.

SNP	RISK/RESPONSE VARIANT	YOUR VARIANT
DRD2 (rs6277)	CT,TT	CT
DRD2 (rs2283265)	AC,AA	CC
DRD2 (rs1076560)	AC,AA	CC
ANKK1-DRD2 (rs1800497)	AG, AA	GG


 **IMPLICATIONS**

The ability to respond to dopamine requires dopamine receptors. This result indicates that at least one relevant genotype is present, suggesting that dopamine receptor activity may be altered. Further research is required to determine the impact.

 **DIET & LIFESTYLE RECOMMENDATIONS**

You should eat plenty of lean meats (beef, pork chicken); legumes (beans, lentils, chickpeas, peanuts); eggs; nuts; seeds and leafy greens which provide folate and zinc in a form the body can easily use. You should avoid smoking as it may alter dopamine receptor function.

 Cannabis Response

 Consider Action

A controlled substance containing the active compound THC.

SNP	RISK/RESPONSE VARIANT	YOUR VARIANT
FAAH (rs324420)	AC,AA	AC

 IMPLICATIONS


Individuals with your genotype are more likely to engage in habitual cannabis use.

 DIET & LIFESTYLE
RECOMMENDATIONS

You should use caution with THC containing cannabis products as it may become a habit.

GENETIC REPORT : IMMUNE HEALTH

IL-6 Activation

 Consider Action

A substance that activates the immune response.

SNP	RISK/RESPONSE VARIANT	YOUR VARIANT
IL-6 (rs1800795)	CG,GG	GG


IMPLICATIONS

Individuals with your genotype may have a higher expression and/or blood levels of IL-6.

DIET & LIFESTYLE RECOMMENDATIONS

The following recommendations have been shown to support healthy immune function: - Regular Exercise - At least 7-8 hours of restful sleep every night - Relaxation techniques, therapy, or meditation.

TNF-alpha Activation

 Consider Action

A substance that activates the immune response.

SNP	RISK/RESPONSE VARIANT	YOUR VARIANT
TNF (rs1800629)	AG,AA	AG

IMPLICATIONS


Individuals with your genotype may have a higher expression and/or blood levels of TNF-alpha.

DIET & LIFESTYLE RECOMMENDATIONS

The following recommendations have been shown to support healthy immune function: - Regular Exercise - At least 7-8 hours of restful sleep every night - Relaxation techniques, therapy, or meditation.

GENETIC REPORT : ENERGY & FITNESS

Tendon or Ligament Injury

 Consider Action

Fibrous cords that attach muscles to bone (tendons) and bones to bones (ligaments).

SNP	RISK/RESPONSE VARIANT	YOUR VARIANT
COL5A1 (rs12722)	CT,TT	CT
COL1A1 (rs1800012)	GT,GG	GG


IMPLICATIONS

Individuals with your genotype are more likely to be susceptible to exercise-related tendon or ligament injury.

DIET & LIFESTYLE RECOMMENDATIONS

Regular exercise is part of a healthy lifestyle, however, it is important for your patient to stretch before and after playing sports or exercising. Your risk of injury may be higher for activities like plyometrics (jump training), uphill running, or anything that requires quick, forceful movements. You should include flexibility and mobility exercises for calves and knees as part of your routine to help prevent injury to a tendon or ligament.

Achilles Tendon Injury

 Consider Action

This tendon is a fibrous cord that connects your calf muscles to your heel bone.

SNP	RISK/RESPONSE VARIANT	YOUR VARIANT
MMP3 (rs679620)	AG,GG	AG

IMPLICATIONS

Individuals with your genotype are more susceptible to Achilles tendon injury. Studies suggest that the risk of injury may be up to 2.5 times greater for your genotype compared to other genotypes.

DIET & LIFESTYLE RECOMMENDATIONS

It is important for you to stretch before and after playing sports or doing intense exercise. If you perform high-impact activities, like running and jumping, you may benefit from adding some low-impact activities, like cycling or swimming. This will give the tendons in your ankle a break so they can stay strong. Your patient should choose running shoes carefully and be sure to replace them when they are worn out.

 Endurance Potential

 Enhanced Benefit

Your ability to perform exercise at low to moderate intensity over long periods of time (e.g., swimming, running, cycling, cross-country skiing).

SNP	RISK/RESPONSE VARIANT	YOUR VARIANT
ADRB2 (rs1042713)	AG,AA	AA


 IMPLICATIONS

Individuals with your genotype may respond better to endurance training. Studies show that male endurance runners with this genotype had the fastest times. More research is needed to explore how it affects women.

 DIET & LIFESTYLE RECOMMENDATIONS

You may have a small genetic advantage in endurance sports (sports that require energy for a long time).

 Aerobic Capacity

 Enhanced Benefit

A type of exercise that improves the body's use of oxygen and endurance.

SNP	RISK/RESPONSE VARIANT	YOUR VARIANT
PPARGC1A (rs8192678)	AG,GG	GG

 IMPLICATIONS

Your genotype is common among elite athletes with a high level of aerobic fitness according to some studies.

 DIET & LIFESTYLE RECOMMENDATIONS

You may have a small genetic advantage that makes you better at aerobic fitness (cardio).

 Body Fat and Exercise

 Enhanced Benefit

These variants may affect your ability to lose fat with exercise.

SNP	RISK/RESPONSE VARIANT	YOUR VARIANT
ADRB2 (rs1042713)	AG,AA	AA
LPL (rs328)	CG,GG	CC


 IMPLICATIONS

Women with your genotype may experience enhanced fat loss during endurance training. Currently, there is not enough scientific evidence to show whether this is also true in men.

 DIET & LIFESTYLE RECOMMENDATIONS

No recommendation

 **Glucose Response to Exercise**

 **Enhanced Benefit**

How exercise affects your body's ability to process glucose, a type of simple sugar.

SNP	RISK/RESPONSE VARIANT	YOUR VARIANT
LIPC (rs1800588)	CT,CC	CC

 **IMPLICATIONS**

Individuals with your genotype are more likely to experience significant improvements in glucose metabolism when following an exercise program.

 **DIET & LIFESTYLE RECOMMENDATIONS**

Exercise alone may provide noticeable improvements for balancing your blood sugar. Consult with your practitioner to determine what type of exercise is best for you.

LIFESTYLE SUGGESTIONS

NUTRITION AND DIET

Patient Detail

You report primarily consuming a Ketogenic Diet.
2-3 meals per day typically consumed.
3+ snacks per day typically consumed.
You typically avoid organ meats.
Your BMI: 28.8.
You report the following weight management issues: Overweight.
You report the following blood sugar issues: Carbohydrate intolerance.
You report taking the following vitamins, nutritional or herbal supplements: Multivitamin, Folate, Omega-3 FattyAcids, Zinc.

Overview

We suggest the Heart Healthy Diet for you based on your genetic profile. This diet is predominantly plant-based, with an emphasis on whole, fresh foods and moderate amounts of protein largely from fish and seafood, as well as eggs, poultry, with minimally processed dairy to a lesser extent. Red meats are consumed rarely. Complex Carbohydrates including varied vegetables, fruits, herbs, spices, nuts, beans, whole grains and olive oil comprise the base of this diet. A good rule of thumb is that 50-75% of your plate should come from plant-based foods.

Suggested

Macronutrient Sources

Protein

Low mercury fish (anchovies, catfish, flounder, herring, mackerel (North Atlantic, chub), salmon (fresh, wild), sardines, sole (Pacific), tilapia, trout (freshwater), whitefish), poultry, eggs, quinoa, lentils, beans and other legumes, nuts, seeds, cheese, occasional red meat

Fats

Olive oil and olives, avocado oil and avocado, nuts, seeds, fatty fish like salmon, halibut and mackerel, (Omega 3s - DHA and EPA): flaxseed, fish and fish oils, avocado, eggs.

Carbohydrates

Sweet potatoes, squash, quinoa, brown rice, steel cut oats, buckwheat, beans, legumes, lentils, fruit, and root vegetables (carrots, parsnips, rutabaga, celery root etc.)

Suggested

Macronutrient

Distribution

Suggested macronutrient distribution for you is 40-50% carbohydrates, 30% protein, and 20-30% fat. To effectively support blood sugar control and healthy body weight the lower end of the range for carbohydrates is likely to work better for you. (<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5093372/>Original research: Remission of pre-diabetes to normal glucose tolerance in obese adults with high protein versus high carbohydrate diet: randomized control trial). If you are an athlete or very active you may require a carbohydrate intake at the higher end of the range depending on your goals. If weight loss is the desired goal then you can decrease total daily calories by 10-15%. If you are trying to lose weight then reducing the amount of saturated fat your diet to less than 22g/day may help. If weight gain is the desired goal then you can increase total daily calories by 15%.

**Additional
Considerations**

Increase

Avocados
Cold-water fish
Mackerel
Salmon
Dairy products
Low-fat yogurt
Fish
Butter
Lean beef
Lean meats
Lean pork
Meat
Poultry
Eggs
Berries
Broccoli
Cruciferous vegetables
Fresh fruit
Fresh vegetables
Fruits
Leafy green vegetables
Mushroom
Peas
Pomegranates
Vegetables
Watercress
Green tea
Herbs and spices
Beans
Legumes (like beans, lentils, chickpeas, and peanuts)
Almonds
Nuts
Pumpkin seeds
Seeds
Sunflower seeds
Whole grains

Decrease

Eggplant
Spinach
Tomatoes
Chocolate
Fermented foods
Salty preserved foods (pickles, pepperoni, salami, bacon, etc.)
Salt
Canned Foods

Add

Arugula
Brussels sprouts
Cauliflower
Kidney beans
Quinoa
Herring
Sardines
Kefir
Low-fat dairy
Chicken
Turkey

Avoid

Cream
Coconut products
Foods with butter
Foods with cream
Fatty beef
Processed meats (such as pepperoni, sausage, bacon)
Fried foods
Baked goods

EXERCISE

Patient Detail

You report exercising 1-3 times per week.

Overview

Exercise is an important part of a healthy lifestyle. Daily exercise promotes stress reduction and mental wellbeing, cognitive function, metabolism, sleep, as well as many other key body functions. Your patient should choose activities or sports that they enjoy doing and can do well. Getting out in nature can enhance many of the benefits of exercise, notably stress reduction and their sense of wellbeing.

Additional Considerations

Exercise helps support your mental sharpness Exercise can help increase BDNF levels Exercise can help support a healthy immune system You should choose a form of physical activity that they can do and enjoy. Regular exercise is part of a healthy lifestyle, however, it is important for you to stretch before and after playing sports or exercising. Your risk of injury may be higher for activities like plyometrics (jump training), uphill running, or anything that requires quick, forceful movements. You should include flexibility and mobility exercises for calves and knees as part of their routine to help prevent injury to a tendon or ligament. It is important for you to stretch before and after playing sports or doing intense exercise. If you perform high-impact activities, like running and jumping, you may benefit from adding some low-impact activities, like cycling or swimming. This will give the tendons in your ankles a break so they can stay strong. You should choose running shoes carefully and be sure to replace them when they are worn out. You may have a small genetic advantage in endurance sports (sports that require energy for a long time). You may have a small genetic advantage that makes you better at aerobic fitness (cardio). Exercise alone may provide noticeable improvements for balancing your blood sugar. You may want to consult with your provider on what activities are best for you.

SLEEP

Patient Detail

You report not waking up refreshed and rested each morning.
You report the following sleep issues: Sleep Apnea, Snoring.

Overview

Sleep is a critical component of overall health as many vital functions occur during this time of rest, such as cellular repair and rejuvenation, detoxification, and hormone repletion. Proper sleep is also important for immune health, emotional health, energy levels, metabolism and blood sugar regulation, and cognitive function. It is recommended that your patient get 7-9 hours of sleep per night. If your patient is having trouble with sleep, or if they are not well-rested each morning they may benefit from a more detailed consultation with you.

Additional Considerations

Getting at least 7-8 hours of restful sleep every night can help support healthy immune function. Getting at least 7-8 hours of quality sleep every night can help you increase your BDNF levels.

STRESS MANAGEMENT

Patient Detail	You report experiencing Moderate levels of stress on a regular basis. You do not regularly use a relaxation technique.
Overview	Stress is how the body reacts to both conscious and unconscious demands, changes, and other stimuli. This happens every moment of every day, whether we are aware of it or not. Our bodies are designed to handle a certain amount of stress, and beyond that it can have detrimental effects on our health. Incorporating stress management techniques such as therapy, prayer, meditation, breathing exercise, a minute of silence, or even asking for help when needed can help mitigate the effects of stress in your patient's daily life. Incorporating stress reducing techniques throughout your patient's day supports healthy immune and hormone function, energy levels, mental clarity and mood.
Additional Considerations	Relaxation techniques, therapy, or meditation can help decrease your stress which supports healthy immune function. Relaxation techniques, therapy, or meditation can help you decrease stress and increase BDNF levels.

SUN EXPOSURE

Patient Detail	You report no daily sun exposure.
Overview	Daily sun exposure is an important component of a healthy lifestyle. Skin exposure to sunlight produces Vitamin D which is essential for bone, mental health, immune function, and stress reduction. Getting out in the sun early in the day also supports healthy circadian rhythm and sleep. Your patient should aim for 15-30 minutes of sunlight on exposed skin daily to produce adequate Vitamin D. Times may vary with skin color - people with darker skin may need a little more and people with lighter or sensitive skin may need less.
Additional Considerations	Based on your genotype, exposure to sunlight for 15-30 minutes per day may help boost Vitamin D levels and support healthy circadian rhythm and sleep.

ENVIRONMENTAL EXPOSURES

Patient Detail	You live in a Suburban setting. You report regular exposure to second-hand smoke. You report a significant history of exposure to the following: Air pollution.
Overview	There are many toxicants in the environment that can have detrimental effects on our health. Smog/ozone, car emissions, smoke, industrial pollutants, solvents, pesticides, herbicides, and other chemicals can enter our bodies through the air, water, soil, and household products. It is best to minimize exposure to these to support detoxification and overall health. When preparing foods, avoid charring, burning, or overcooking foods as this is also a common environmental exposure. Filtering your water and air, as well as eating organic when possible can help decrease your total exposures.
Additional Considerations	You should avoid smoking and also avoid being around people that are smoking.

MEDICATION AND SUBSTANCE USE

Patient Detail

You report consuming 3-5 cups of caffeinated beverages per day.
You are seeking to reduce their daily caffeine consumption.
You report regularly consuming alcohol.
You report these behaviors related to alcohol consumption: None of the Above.
You report taking the following medications: Anxiety, Statins for high cholesterol.

Overview

There are many toxicants in the environment that can have detrimental effects on our health. Smog/ozone, car emissions, smoke, industrial pollutants, solvents, pesticides, herbicides, and other chemicals can enter our bodies through the air, water, soil, and household products. It is best to minimize exposure to these to support detoxification and overall health. When preparing foods, avoid charring, burning, or overcooking foods as this is also a common environmental exposure. Filtering your water and air, as well as eating organic when possible can help decrease your total exposures.

**Additional
Considerations**

You should keep track of how much caffeine you drink in beverages like coffee, tea, and energy drinks. Even if you drink them in the morning, they can interfere with sleep. You should use caution with THC containing cannabis products as it may become a habit. You should avoid smoking as it may alter dopamine receptor function.
