

# TEST PATIENT1










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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.

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## 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 A (Retinol)	① Consider Action	★ ★ ★ ★ ★ 1/5 ★ ★ ★ ★ ★ 1/5	BCMO1 (rs7501331) BCMO1 (rs12934922)
Vitamin B6 (Pyridoxine)	① Consider Action	★ ★ ★ ★ ★ 3/5 ★ ★ ★ ★ ★ 1/5	NBPF3 (rs4654748) CBS (rs234706)
Folate	① Consider Action	★ ★ ★ ★ ★ 5/5 ★ ★ ★ ★ ★ 5/5	MTHFR C677T (rs1801133) MTHFR A1298C (rs1801131)
Choline	① Consider Action	★ ★ ★ ★ ★ 3/5 ★ ★ ★ ★ ★ 2/5	PEMT (rs7946) MTHFD1 (rs2236225)
Vitamin B12 (Cobalamin)	① Consider Action	★ ★ ★ ★ ★ 2/5 ★ ★ ★ ★ ★ 3/5 ★ ★ ★ ★ ★ 2/5 ★ ★ ★ ★ ★ 4/5	MTRR (rs1801394) TCN2 (rs1801198) MTR (rs1805087) FUT2 (rs602662)
Vitamin E (Alpha-tocopherol)	① Consider Action	★ ★ ★ ★ ★ 5/5	Intergenic (rs12272004)
Zinc	① Consider Action	★ ★ ★ ★ ★ 4/5	SLC30A8 (rs11558471)
Omega-3 Fatty Acids	① Consider Action	★ ★ ★ ★ ★ 4/5 ★ ★ ★ ★ ★ 4/5 ★ ★ ★ ★ ★ 5/5	FADS1 (rs174537) FADS1 (rs174547) FADS1 (rs174546)
Antioxidant Enzymes	① Consider Action	★ ★ ★ ★ ★ 5/5 ★ ★ ★ ★ ★ 5/5 ★ ★ ★ ★ ★ 4/5	SOD2 (rs4880) GPx1P1 (rs1050450) NQO1 (rs1800566)
Environmental Toxins	① Consider Action	★ ★ ★ ★ ★ 2/5	GSTP1 (rs1695)
Estrogen Metabolism	① Consider Action	★ ★ ★ ★ ★ 2/5	COMT (rs4680)
Salt Sensitivity	① Consider Action	★ ★ ★ ★ ★ 2/5	AGT (rs699)
C-reactive Protein Level	① Consider Action	★ ★ ★ ★ ★ 5/5	CRP (rs1205)
Coenzyme Q10 Levels	① Consider Action	★ ★ ★ ★ ★ 1/5	SLCO1B1 (rs4149056)
Lactose Intolerance	① Consider Action	★ ★ ★ ★ ★ 3/5	MCM6 (rs4988235)
Microbial Balance in the Intestine	① Consider Action	★ ★ ★ ★ ★ 2/5	FUT2 (rs601338)
Dopamine Receptor Function	① Consider Action	★ ★ ★ ★ ★ 2/5 ★ ★ ★ ★ ★ 2/5 ★ ★ ★ ★ ★ 4/5 ★ ★ ★ ★ ★ 2/5	DRD2 (rs6277) DRD2 (rs2283265) DRD2 (rs1076560) ANKK1-DRD2 (rs1800497)
IL-6 Activation	① Consider Action	★ ★ ★ ★ ★ 2/5	IL-6 (rs1800795)

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Trait	Result	Scientific Rating	Actionable SNPs
TNF-alpha Activation	ⓘ Consider Action	★ ★ ★ ★ ★ 2/5	TNF (rs1800629)
Tendon or Ligament Injury	ⓘ Consider Action	★ ★ ★ ★ ★ 4/5 ★ ★ ★ ★ ★ 2/5	COL1A1 (rs1800012) COL5A1 (rs12722)
Achilles Tendon Injury	ⓘ Consider Action	★ ★ ★ ★ ★ 4/5	MMP3 (rs679620)
Glucose Metabolism	ⓘ Consider Action	★ ★ ★ ★ ★ 5/5 ★ ★ ★ ★ ★ 5/5	TCF7L2 (rs7903146) ADRA2A (rs553668)

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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	⚠


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## GENE ANALYSIS SUMMARY

### GENETIC REPORT : VITAMINS, MINERALS & OMEGA-3S

 Vitamin A (Retinol)

 Consider Action

A nutrient that maintains healthy vision, growth, cell growth, reproduction, and immune system function.

SNP	RISK/RESPONSE VARIANT	YOUR VARIANT
BCMO1 (rs7501331)	CT,TT	CT
BCMO1 (rs12934922)	AT,TT	AA


 IMPLICATIONS

Individuals with your genotype may have a reduced capacity to convert beta-carotene to vitamin A (retinol). This may increase the need for directly consuming vitamin A.

 DIET & LIFESTYLE RECOMMENDATIONS

You should eat more foods with vitamin A, such as organ meats (liver, kidney, etc.), eggs, cod liver oil, and dairy products. If these foods are not part of your regular diet, you may benefit from a supplement.

 Vitamin B6 (Pyridoxine)

 Consider Action

A nutrient that supports nervous system health.

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

 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. If these foods are not part of your regular diet, you may benefit from a supplement.

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 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	CT
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. If these foods are not part of your regular diet, you may benefit from a supplement.

 Choline

 Consider Action

A nutrient that supports mental health and liver function.

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

 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. If these foods are not part of your regular diet, you may benefit from a supplement.

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 **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
MTRR (rs1801394)	GG,AG	AG
TCN2 (rs1801198)	CG,GG	CG
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. If these foods are not part of your regular diet, you may benefit from a supplement.

 **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. If these foods are not part of your regular diet, you may benefit from a supplement.



 Zinc

 Consider Action

A nutrient that plays a 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 If these foods are not part of your regular diet, 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 (rs174537)	GT,TT	GT
FADS1 (rs174547)	CT,CC	CT
FADS1 (rs174546)	CT,TT	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. If these foods are not part of your regular diet, you may benefit from a supplement.

## 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. If these foods are not part of your regular diet, you may benefit from a supplement. 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	GG

#### 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. If these foods are not part of your regular diet, you may benefit from a supplement. You should avoid smoking and being around people that are smoking.

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 Estrogen Metabolism

 Consider Action

Estrogens are a family of hormones that are required for female sexual development and menstrual cycle regulation. Estrogens are produced in larger amounts in females but are also produced in males.

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

 IMPLICATIONS


COMT is an enzyme that detoxifies the reactive breakdown products of estrogen. Individuals with your genotype may have reduced enzyme activity.

 DIET & LIFESTYLE RECOMMENDATIONS

Your diet should include lots of cruciferous vegetables such as broccoli, brussels sprouts, arugula, kale, and cauliflower. These foods help balance estrogen levels in your body. If these foods are not part of your regular diet, you may benefit from a supplement.

## GENETIC REPORT : CARDIOVASCULAR HEALTH

 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	CT

 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.

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 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	CT


 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.

 Coenzyme Q10 Levels

 Consider Action

An antioxidant that your cells use for energy production.

SNP	RISK/RESPONSE VARIANT	YOUR VARIANT
SLC01B1 (rs4149056)	CT,CC	CT

 IMPLICATIONS


Individuals with your genotype may be more likely to experience coenzyme Q10 (CoQ10) depletion with the use of simvastatin.

 DIET & LIFESTYLE RECOMMENDATIONS

If you take cholesterol medication, talk to your health care provider.

## GENETIC REPORT : GASTROINTESTINAL HEALTH

 Lactose Intolerance

 Consider Action

This condition means you are unable to fully digest the sugar found in milk and dairy products.

SNP	RISK/RESPONSE VARIANT	YOUR VARIANT
MCM6 (rs4988235)	AG,GG	AG

 IMPLICATIONS

Individuals with your genotype are more likely to be lactose intolerant.


 DIET & LIFESTYLE RECOMMENDATIONS

You may benefit from reducing consumption of foods or drinks with lactose in them. Choose lactose-free options when possible. Make sure to get enough calcium from other things, such as kale and other dark green leafy vegetables.

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 **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**

 **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	TT
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. If these foods are not part of your regular diet, you may benefit from a supplement. You should avoid smoking as it may alter dopamine receptor function.

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## 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.

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## 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
COL1A1 (rs1800012)	GT,GG	GG
COL5A1 (rs12722)	CT,TT	CC


#### 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.

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 **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	AG

 **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).

 **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.

## GENETIC REPORT : GLUCOSE METABOLISM

 **Glucose Metabolism**

 **Consider Action**

Glucose is a type of simple sugar carbohydrate that is a source of energy for cell function.

SNP	RISK/RESPONSE VARIANT	YOUR VARIANT
TCF7L2 (rs7903146)	CT, TT	CT
ADRA2A (rs553668)	AG, AA	GG

 **IMPLICATIONS**

Your genotype may affect glucose metabolism.

 **DIET & LIFESTYLE RECOMMENDATIONS**

You should consider the 'Mediterranean Diet' or another type of plant-based diet. If these foods are not part of your regular diet, you may benefit from a supplement.

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## SUPPLEMENT RECOMMENDATIONS

Supplements	Dosage	Comments
Balanced Immune 60's	1 Capsules 1-2 times daily	
Nrf2 Detox 60's	1 Capsules 1-3 times daily	
PureGenomics® Multivitamin 60's	1 Capsules daily	
O.N.E.™ Omega	1 Softgel Capsules daily	
I-Tyrosine 90's	1 Capsules 1-4 times daily	
Vitamin A + Carotenoids 90's	1 Capsules daily	
Phosphatidylcholine	2 Softgel Capsules daily	
P5P 50 (activated vitamin B6)	1 Capsules 1-2 times daily	
Metabolic Xtra 90's	1 Capsules 1-3 times daily	
Vitamin E (with mixed tocopherols)	1 Softgel Capsules daily	
Gluten/Dairy Digest	1 Chewable Tablets	
Poly-Prebiotic powder	1 Scoops 1-2 times daily	
PureGG 25B	1 Capsules daily	
Ubiquinol-QH 100 mg 60's	1 Softgel Capsules 1-2 times daily	
Magnesium Glycinate	1 Capsules daily	
DIM Detox 60's	2 Capsules daily	
Liposomal Glutathione	1 Softgel Capsules 1-2 times daily	
DopaPlus 180's	3 Capsules 1-2 times daily	
O.N.E.™ Omega	1 Softgel Capsules daily	
I-Tyrosine 90's	1 Capsules 1-4 times daily	
PureGenomics® Multivitamin 60's	1 Capsules daily	
I-Theanine	2 Capsules 1-3 times daily	
O.N.E.™ Omega	1 Softgel Capsules daily	
I-Tyrosine 90's	1 Capsules 1-4 times daily	
PureGenomics® Multivitamin 60's	1 Capsules daily	
I-Theanine	2 Capsules 1-3 times daily	

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## LIFESTYLE SUGGESTIONS

### NUTRITION AND DIET

**Overview**

We suggest that you eat a whole foods based diet consisting of a wide variety of vegetables, fruit, beans, nuts, seeds, whole grains, herbs, spices, eggs, fish, poultry, pork, and red meats and minimally processed dairy products. A good rule of thumb is that 50-75% of your plate should come from plant-based foods. Based on your genetics, you may have lactose intolerance and should consider avoiding food or drinks containing lactose.

**Suggested**

**Macronutrient Sources**

**Protein**

Meat (beef, pork), eggs, soy (edamame, tempeh, tofu), quinoa, lentils, legumes, low mercury fish (anchovies, catfish, herring, mackerel (north atlantic, chub), salmon (fresh, wild), sardines, sole (pacific), tilapia, trout (freshwater), whitefish), poultry (turkey, chicken, duck), nuts, seeds, cottage cheese, cheese, beans, legumes.

**Fats**

Avocado, nuts, seeds, oils (coconut, avocado, olive), olives, coconut, butter, ghee, fatty fish (salmon, halibut, and mackerel), whole eggs, cheese.

**Carbohydrates**

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

**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. (<a href='https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5093372/' target='\_blank'>Original research: Remission of pre-diabetes to normal glucose tolerance in obese adults with high protein versus high carbohydrate diet: randomized control trial</a>). 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 weight gain is the desired goal then you can increase total daily calories by 15%.

**Additional  
Considerations**

**Increase**

Avocados  
Cruciferous vegetables  
Fresh fruit  
Fresh vegetables  
Fruits  
Leafy green vegetables  
Spinach  
Vegetables  
Herbs and spices  
Beans  
Legumes (like beans, lentils, chickpeas, and peanuts)  
Almonds  
Nuts  
Pumpkin seeds  
Seeds  
Sunflower seeds  
Whole grains  
Cold-water fish  
Low mercury fish  
Mackerel  
Salmon  
Low-fat yogurt  
Crab  
Fish  
Oysters  
Cod liver oil  
Extra virgin olive oil  
Lean beef  
Lean meats  
Lean pork  
Meat  
Organ meats (liver, kidney, etc.)  
Poultry  
Eggs

**Decrease**

Dairy products  
Lactose containing foods or drinks  
Salty preserved foods (pickles, pepperoni, salami, bacon, etc.)  
Salt

**Add**

Arugula  
Broccoli  
Brussels sprouts  
Cauliflower  
Mushroom  
Kidney beans  
Quinoa  
Kefir  
Fermented foods

**Avoid**

Red meat (grassfed is okay rarely)

## EXERCISE

### Overview

Our genetics can influence how we perform during exercise and exercise can also influence the expression of certain genes. Exercise is an important part of a healthy lifestyle. Daily exercise promotes stress reduction and mental well-being, cognitive function, metabolism, sleep, as well as many other key body functions. You should choose activities or sports that you 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 well-being.

### Additional Considerations

Exercise can help support a healthy immune system. You are more likely to perform better in activities that need strength, power, and speed. However, physical fitness and diet have a much bigger effect on how good an athlete you are. 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 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.

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## SLEEP

### Overview

Our genetics can influence how we sleep and sleep issues can also influence the expression of certain genes. 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, blood sugar regulation, and cognitive function. It is recommended that you get 7-9 hours of sleep per night. If you are having trouble with sleep, or if you are not well-rested each morning you may benefit from a more detailed consultation with your practitioner.

### Additional Considerations

Getting at least 7-8 hours of restful sleep every night can help support healthy immune function.

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## STRESS MANAGEMENT

### Overview

Our genetics can influence how we experience and handle stress and stress can also influence the expression of certain genes. 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 exercises, a minute of silence, or even asking for help when needed can help mitigate the effects of stress in your daily life. Incorporating stress-reducing techniques throughout your 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.

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## SUN EXPOSURE

### Overview

Our genetics can influence the availability and conversion to the active form of Vitamin D in the body. 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 a healthy circadian rhythm and sleep. You 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.

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## ENVIRONMENTAL EXPOSURES

### Overview

Our genetics can influence how we respond to environmental toxins and exposures to toxins may also influence the expression of certain genes. 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

You should avoid smoking and also avoid being around people that are smoking.

### Considerations

## MEDICATION AND SUBSTANCE USE

### Overview

Our genetics can influence how medications and substances affect us and in some cases, they may also influence the expression of certain genes. Medications, recreational drugs, and substances such as caffeine and nicotine can have different effects on your health. Stimulation, calming/sedation, and increased or decreased alertness are a few of the effects brought about by these substances and may either be positive or negative. Long-term use of certain substances may lead to undesired health consequences for you.

### Additional

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 avoid smoking as it may alter dopamine receptor function.

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