dnaPower

POWER OVER YOUR HEALTH

YOUR brainPower RESULTS

Your Personal DNA Results

Congratulations on making the decision to take Power over your Health!

Your personalized DNA results contain information unique to **your body**, giving you the power to make informed decisions about your health.

WHY DNA IS IMPORTANT

DNA is our personal biological roadmap. It guides the development and functioning of our bodies. DNA sequences, known as genes, contain genetic markers that differ among people. dnaPower's genetic testing zeros in on specific genes and genetic markers that have been scientifically proven to impact health, nutrition, fitness, and disease and that may vary between people.

HOW GENETIC VARIATIONS CAN IMPACT YOUR HEALTH

Hereditary and environmental factors can cause genetic variations or mutations in your DNA. Some mutations have minimal effects, while others may alter a gene in such a way that its function is changed or lost. When this occurs, there is a risk that your gene may not function at an optimum level.

HOW YOUR DNA RESULTS CAN HELP YOU

Your dnaPower results provide a snapshot of selected genetic variations that have been proven through scientific studies to impact your health. By knowing your genetic variations, you can learn where you may be predisposed to good or poor health related traits. By understanding this information, you can take proactive steps to enhance your wellbeing. The good news is that through healthy diet, nutrition and exercise, you can change or improve how your DNA functions.

RELIABLE RESULTS

dnaPower uses a state of the art Agena MassArray genotyping platform to provide greater than 99.7% accuracy in the genes and SNPs (Single Nucleotide Polymorphisms) that we test. We test genetic sites that identify the most common DNA markers scientifically studied and proven to be associated with certain conditions. We report on genes that have a high incidence relationship. It is important to note that DNA research is constantly evolving. There may be variations related to a condition that are yet to be discovered and may in future improve on the accuracy and thoroughness of the results.

MAXIMIZING YOUR RESULTS

Knowledge is power. We encourage you to use your dnaPower results to understand potential impacts to your health and to take positive action. We recommend consulting a qualified health practitioner to gain further insight and advice for a program specific to you.

How To Read Your Report

YOUR SUMMARY
A snapshot of each area tested and your genetic composition results.

PAGE 4

YOUR ACTION PLAN
Key suggested actions based on areas with higher variations.

PAGE 5

YOUR DETAILED TEST AREA DESCRIPTIONS
Detailed information on each test area along with further tips to take power over your health.

PAGE 7

YOUR GENETIC PROFILE
Your personal genotype results for each gene tested.

PAGE 21

READING YOUR GENETIC COMPOSITION GRAPH

Your personal results are represented in a genetic composition graph.

Green is Good. Indicates the percentage of gene(s) or SNPs tested that are normal. With good health decisions, your gene(s) should function properly.

Red is Poor. Indicates there are variations in the gene(s) or SNPs that have potential to impact your health. This is a possible area of risk. Take proactive action to look after your health.

In your report, focus on areas that are 50% red or more as this is where you are more likely to experience issues over time.

YOUR brainPower SUMMARY

Your brainPower report provides you with your personal DNA results related to genetic factors which can affect your overall mental wellness. The genetic composition results indicate your risk potential based on the number of normal and variant genes. By understanding these risk factors you can make informed choices to help achieve maximum health.

AREA TESTED	TELLS YOU (Risk Potential)	YOUR GENETIC COMPOSITION RESULTS	PAGE
MENTAL WELLNESS			
Cognitive Resilience	*Your genetic predisposition for cognitive resilience*	75% / 25%	8
Compulsive Tendency	*Your normal genetic risk of developing compulsive tendencies*	50% / 50%	10
Concussion	*Your ability to recover normally from concussion*	83% / 17%	11
Cortisol	*Your ability to regulate cortisol levels normally*	67% / 33%	12
Depression	*Your normal risk of experiencing depression*	25% / 75%	13
Emotional Eating	*Your ability to eat normally during stressful or emotional situations*	50% / 50%	14
Parkinson's	*Your normal risk of developing Parkinson's disease*	100%	15
Restless Legs Syndrome	*Your normal genetic risk for restless legs syndrome*	25% / 75%	16
Sleep-Wake Cycle	*Your need for a regular sleep-wake cycle*	75% / 25%	17
Smoking Behaviour	*Your ability to respond normally to nicotine*	75% / 25%	18

Normal Genes Variations

YOUR brainPower ACTION PLAN

Your personal DNA results provide valuable insights into your body based on your unique genetic code.
This is a suggested brainPower Action Plan based on your personal DNA results. We have provided you with Action Tips that may help support your DNA and health.

The areas below are where you have higher genetic variations (>50% red in the Genetic Composition graphs). This increases your risk potential in that area over time. By taking action to support your health in these areas and managing lifestyle factors such as diet, exercise, sleep, stress and environmental factors, you increase the opportunity for your genes to function optimally.

AREA TESTED	ACTION TIPS	PAGE
MENTAL WELLNESS		
 Compulsive Tendency	*You may have a higher tendency to develop compulsive behaviour. Be cautious when taking prescribed pain killing medication. Maintain healthy relationships, and a healthy lifestyle to decrease your risk of seeking dopamine from unhealthy sources. If you are facing unwanted behaviour talk to someone who can help you, think of all the troubles this causes you, and get to know your triggers and root cause.*	10
 Depression	*You may have a higher risk of experiencing depression. Focus on a healthy diet including omega-3s and folate rich foods to regulate hormones and overall health, reduce or eliminate sugar and environmental toxins, regular exercise to boost endorphins, plenty of sleep, positive routines and mindful practices.*	13
 Emotional Eating	*You may have a higher tendency to eat when emotional or under stress. Focus on healthy foods only in your home, eat only when hungry, try to do something kind for yourself if you are feeling stress, do light exercise like a walk, yoga or mindfulness.*	14
 Restless Legs Syndrome	*Management strategies for Restless Legs Syndrome include regular exercise, maintaining adequate Vitamin B, iron and magnesium levels, and exploring therapies like yoga or acupuncture.*	16

» Additional Tips are available throughout the report. Focus on areas where you have high red variations.

» These Action Tips are based on your genetic predisposition only. They are intended to support better health. They are not an indication of a problem and do not take into account where your health may be today.

» Consult with a healthcare practitioner before embarking on any major lifestyle changes.

My personal action plan and notes:

MENTAL WELLNESS

While it's important to maintain a healthy body physically, it is just as important to take care of our mental health as well. Our emotions and stress levels can trigger chemical changes in our brains. Without proper care and attention, mental health issues can arise.

Mental illness may be more common than you think. Its estimated that 1 in 5 people will experience some kind of mental illness during their lifespan with depression being the most common form. Mental illness can be brought on by a number of different circumstances including a chemical imbalance, genetics, psychological and social factors or a traumatic life event.

It's normal to have mental health concerns from time to time but when they become ongoing it can turn into a problem. Signs and symptoms can cause frequent stress and affect your ability to function in your day to day life.

In your brainPower report we will dive into several well-studied genes that affect key aspects of your mental wellness including two neurological diseases: Alzheimer's and Parkinson's. Be aware that your report is not a diagnostic tool to indicate that you have a certain disorder or that you will develop it in the future. Nor do negative results change the overall general population risk rates, which apply to everyone regardless of genetic makeup.

This report is to help you know if you have the potential for genetic health-related risks that should be followed up on. If any risks are identified, be sure to discuss the results with a qualified healthcare provider. Talk to your doctor about complementary risk assessment tests, so that you can make optimal, informed decisions about future actions or options.

In general, it is great to practice brain health through daily activities and mental wellness exercises such as the ones listed below:

» Be physically active as daily exercise can help reduce stress, tension and anxiety.

» Get plenty of sleep – you are more likely to enjoy overall health if you are well rested.

» Eat a healthy, balanced diet avoiding excess sugar, caffeine and alcohol.

» Seek professional help when needed. There is nothing wrong with needing an outside source to confide in.

Cognitive Resilience

YOUR GENETIC PREDISPOSITION FOR COGNITIVE RESILIENCE

Cognitive resilience is your brain's ability to stay sharp and adapt as you age. While some decline in memory or focus is natural over time, understanding your genetics can help support long-term brain health.

One of the most studied genes in this area is APOE. APOE can affect how the brain processes certain proteins like amyloid beta, which are involved in memory and cognitive function. This has been linked to late-onset Alzheimer's, a condition that usually begins after age 60.

There are three common forms of the APOE gene: e2, e3, and e4. Most people have e3; e2 may offer protective effects; and e4 is linked to a higher risk for plaquing and developing cognitive issues later in life.

It's common to have variations in this gene. Use the tables on the next page and your genotype results on page 21 to better understand your unique cognitive profile and ways to support your brain health over time.

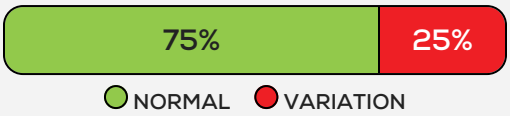
TIPS TO TAKE POWER OVER YOUR HEALTH

Lifestyle plays a powerful role in maintaining cognitive resilience. While carrying the **APOE e4** allele is associated with a higher risk of developing Alzheimer's or cognitive decline in later years, it is not a certainty. Likewise, not having the e4 allele does not guarantee protection. Genetics is only one part of the picture.

Key lifestyle factors—including a nutrient-rich diet, regular physical activity, cognitive stimulation, quality sleep, social connection, and heart health—can all help reduce risk and support lifelong brain health. These modifiable habits offer practical, empowering ways to strengthen your cognitive resilience, regardless of your genetic profile.

Consider the MIND Diet (Mediterranean-DASH Intervention for Neurodegenerative Delay) which emphasizes brain-protective foods and has been linked to significantly slower cognitive decline.

YOUR GENETIC COMPOSITION %



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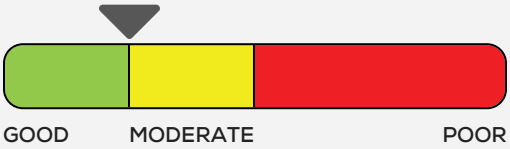


Your genes in this panel are normal. You are less likely to develop this form of cognitive decline.

APOE status based on the rs429358 and rs7412 allele combination.

rs429358	rs7412	APOE STATUS
TT	TT	e2/e2 – low risk
TT	CT	e2/e3 – low risk
TT	CC	e3/e3 – lower risk
CT	CT	e2/e4 – higher risk
CT	CC	e3/e4 – higher risk
CC	CC	e4/e4 – high risk

Risk of developing Alzheimer's disease by age 85.

	Men	Women
All Genotypes	10 – 11%	14 – 17%
e2/e2 or e2/e3	4 – 6%	6 – 9%
e3/e3	10 – 12%	12 – 15%
e2/e4	18 – 22%	25 – 30%
e3/e4	20 – 25%	28 – 34%
e4/e4	35 – 50%	55 – 65%

Lifestyle Strategies to Support Cognitive Resilience

NOURISH YOUR BRAIN **Eat quality protein:** fatty fish rich in omega-3s (wild salmon, albacore tuna, trout) 2-3 times a week. Higher protein consumption has been linked to lower levels of amyloid beta. **Add brain-boosting plants**: berries (blueberries), dark leafy greens (spinach and kale), cruciferous and colourful vegetables, and sweet potatoes. **Include:** nuts (especially walnuts), beans, whole grains, and extra virgin olive oil. **Avoid**: refined sugars, deep-fried foods, highly processed meats, excess sodium, trans and saturated fats, inflammatory omega-6 oils (e.g. corn, soybean, sunflower oils). **Consider supplements**: high-quality omega-3, MCT oil, B-complex vitamins (especially B12 and folate), vitamin D, and turmeric.

HEALTHY LIFESTYLE PRACTICES **Regular physical activity**: Engage in at least 30 minutes of exercise daily to help maintain cognitive function. **Cognitive engagement**: Activities like reading, games, crafts, learning new skills, and social interaction are beneficial for brain health. **Stress and sleep management:** Incorporate mindfulness practices like meditation, time in nature, or relaxation to reduce chronic stress. 7-9 hours of quality sleep per night is crucial for memory consolidation and overall cognitive health.

Compulsive Tendency

YOUR NORMAL GENETIC RISK OF DEVELOPING COMPULSIVE TENDENCIES

The importance of genetic factors in compulsion has long been established. By understanding the function of compulsion genes and their molecular pathways researchers can develop therapeutic targets that could be used in the prevention and management of these behaviours.

The brain's reward system plays a key role in the development of these bahaviours. The dopamine system, is activated and multiple neurotransmitter and enzyme systems have been shown to play a role.

Variation in this panel is associated with compulsive behaviour risk. The heritability of these disorders is estimated to be 50– 70%. These complex conditions result from the combined interaction of environmental influences, neurobiological changes, and personality traits. Genetic variations that affect these factors may work in concert to affect your vulnerability to these disorders.

TIPS TO TAKE POWER OVER YOUR HEALTH

If you have a variation in this panel you may want to consider the following to improve your health:

» Maintain healthy relationships and lifestyle to decrease your risk of seeking dopamine from unhealthy sources.

» Avoid or eliminate addictive substances from your life. These include drugs and alcohol.

» Be cautious when taking prescribed pain killing medication.

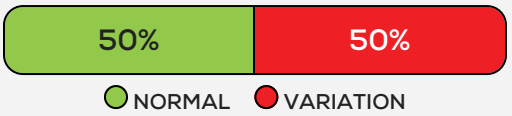
» If you are facing unwanted behaviour, talk to someone who can help you, consider getting professional help.

» Know your triggers. Uncomfortable events that you escape through compulsive behavior.

» Behaviour often has a root cause, identify what yours could be.

» Try not to judge the compulsive tendencies. If the judgement makes you feel guilty it will likely reinforce the behaviour.

YOUR GENETIC COMPOSITION %



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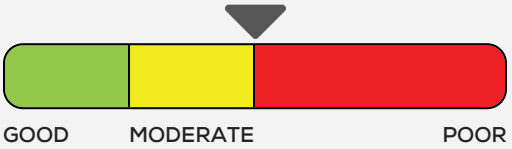


You have some genetic variation associated with an increased risk for compulsive tendencies at the markers tested.

Concussion

YOUR ABILITY TO RECOVER NORMALLY FROM CONCUSSION

Concussions are a form of traumatic brain injury and are usually a result of a sudden direct blow or bump to the head. During an injury, the brain is pushed against the wall of the skull which can cause bruising, swelling, nerve tissue damage and alter the balance of ions and chemicals in the brain. Nerve fibers that are injured can recover however there are some injuries which are too severe, and these nerves then lose their ability to communicate permanently.

Those who experience a concussion might feel pressure in the brain, headaches, loss of consciousness, confusion, dizziness, fogginess, nausea and/or vomiting. Delayed symptoms include sensitivity to noise and light, concentration issues, sleep disturbances and personality changes.

The APOE (apolipoprotein E) gene helps control the cholesterol in the brain and can affect the way neurons are repaired. Individuals who have a variation in the APOE gene may be more prone to concussion and have more severe, longer lasting concussion effects.

It is common to have variations in this panel. Please note that two of the gene SNPs work in combination. Please refer to your results at the back of the report and refer to the table in Alzheimer's to assess your risk for the combined genes.

TIPS TO TAKE POWER OVER YOUR HEALTH

If you have a variation in this panel you may want to do the following to improve your health:

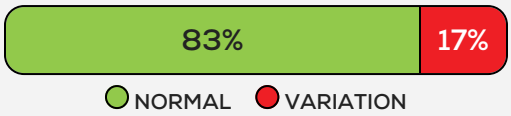
» Make sure you always wear the right helmet for the right activity.

» Make your home safe by removing anything that may cause you to trip or fall.

» Exercising regularly can strengthen muscles and improve balance, preventing accidental falls.

» Report any suspected concussion to your health care provider.

YOUR GENETIC COMPOSITION %



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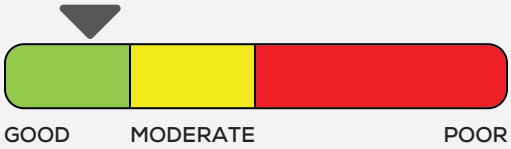


Your genes in this panel are normal. You are likely to recover normally from concussion.

Cortisol

YOUR ABILITY TO REGULATE CORTISOL LEVELS NORMALLY

Cortisol is an essential steroid hormone sometimes known as the "stress hormone". Produced in the adrenal gland, it is essential to stress response within the body. However, cortisol has many functions in the body such as its ability to help regulate blood sugar levels and your metabolism. It also helps reduce inflammation, assist with memory formulation, control blood pressure and in women, support the developing fetus during pregnancy.

The SERPINA6 gene encodes a protein called corticosteroid-binding globulin. This protein then binds to our cortisol hormone and delivers it to other tissues when needed. Variations in corticosteroid-binding globulin affect binding affinity for cortisol and tissue delivery of cortisol. Individuals carrying variation in plasma cortisol have been associated with extreme fatigue, chronic pain, cardiovascular and psychiatric disease. These individuals may have a harder time losing weight and building muscle.

TIPS TO TAKE POWER OVER YOUR HEALTH

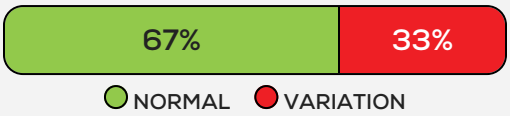
If you have a variation in this panel, you may want to consider the following to improve your health:

» If you have symptoms related to irregular cortisol levels talk to your health care provider about getting your cortisol levels tested.

» If your cortisol levels are irregular there are health care measures that you can take to increase your quality of life.

» Try to increase your sleep, decrease your stress, and take up relaxing activities such as yoga and meditation.

YOUR GENETIC COMPOSITION %



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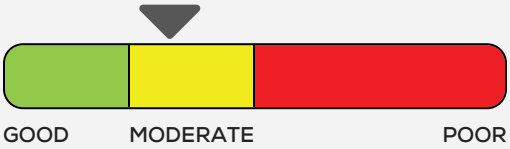


You have moderate variation in this gene. You have some variation in the gene that regulates cortisol "stress hormone" levels.

Depression

YOUR NORMAL RISK OF EXPERIENCING DEPRESSION

Depression is a medical condition with physical, emotional and cognitive effects. A person may have prolonged feelings of sadness, hopelessness and is often unable to live in a normal way.

Major Depressive Disorder (MDD) is a common condition with lifetime prevalence estimates in the population of 11-16%. In addition, depressive disorders are the second leading cause of disability worldwide. A variety of stressful life events have been shown to increase the risk for depression including poverty, negative family relationships, and childhood maltreatment.

MDD is believed to be a combination of genetics, environment and physiological factors. Depression can be brought on by a life event, medication, substance abuse or a chronic health problem. A family history of depression is also considered a risk factor. It's believed that genetics account for about 40% of your depression risk.

TIPS TO TAKE POWER OVER YOUR HEALTH

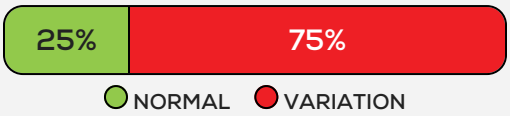
If you have variations in this panel, you may want to consider the following to improve your health:

» Watch for signs of depression such as sadness that lasts throughout the day, loss of enjoyment of your favorite activities, feelings of worthlessness, trouble making decisions, concentrating, irritability, fatigue, sleeping too much or too little.

» If you are experiencing depression, seek medical and non-medical options that can improve your quality of life.

» Aerobic exercise is shown to improve memory function and reduce depression.

YOUR GENETIC COMPOSITION %



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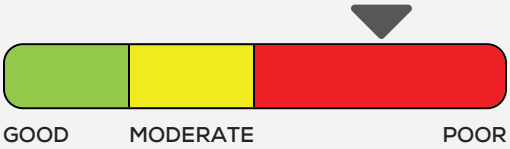


Your variations in these genes are high. This is associated with an increased risk of experiencing major depressive disorder.

Emotional Eating

YOUR ABILITY TO EAT NORMALLY DURING STRESSFUL OR EMOTIONAL SITUATIONS

Food cravings can hit when you're emotionally weak. You may turn to food for comfort — consciously or unconsciously — when facing a difficult problem, feeling stressed or even feeling bored. This can lead to overeating, especially of high-calorie, sweet and fatty foods. Emotional eating is using eating as a way to suppress or soothe negative emotions, such as stress, anger, fear, boredom, sadness and loneliness.

Genetic and environmental factors can have an impact on our eating behavior. These genetic neuronal influences link to impulsive behavior, emotional response and preferences for high-calorie food. Eating behavior or emotional eating involves a complex interplay of physiologic, psychological, social, and genetic factors that influence meal timing, quantity of food intake, food preference and ability to eat normally during emotional or stressful times.

Variations that have an impact on the desire to eat have been linked to increased body mass index (BMI). By understanding why we eat and the motivational factors driving food choices, we can take proactive steps to avoid health issues including obesity, diabetes and cardiovascular disease.

TIPS TO TAKE POWER OVER YOUR HEALTH

If you have a variation in this panel, you may want to consider the following to improve your health:

» Pack healthy snacks, such as fruit and nuts to avoid temptation - they tend to contain more fiber and water, so you fill up on fewer calories.

» Don't keep hard-to-resist comfort foods in your home.

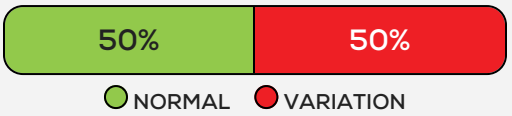
» Avoid shopping for groceries while you are hungry and don't buy processed foods, refined sugar and flour.

» Keep a food diary to identify the emotional or impulse source of your eating.

» Substitute a healthier behavior such as taking a walk, playing with your pet, or calling a friend.

» Consider consulting a healthcare professional.

YOUR GENETIC COMPOSITION %



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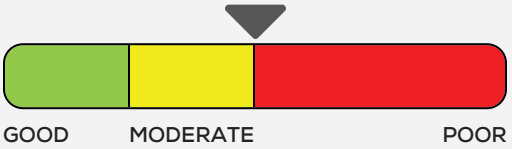


You are slightly more likely to turn to food for comfort. Be aware of this tendency to avoid falling into unhealthy eating patterns.

Parkinson's

YOUR NORMAL RISK OF DEVELOPING PARKINSON'S DISEASE

Parkinson's disease is a progressive disorder of the nervous system that affects movement and motor skills. It develops slowly over time and usually begins with a small tremor, stiffness and a slowing of movement. Sensory and sleep difficulties are also common symptoms and can often prelude the signs of tremors.

In Parkinson's, certain neurons (nerve cells) in the brain begin to break down and die. The cause of the disease is still unknown, but researchers have identified both genetic and environmental factors that play a role.

We report on two of the most commonly studied genetic variations related to the development of Parkinson's Disease. There are other genetic risk factors being studied that may become important indicators in the future.

TIPS TO TAKE POWER OVER YOUR HEALTH

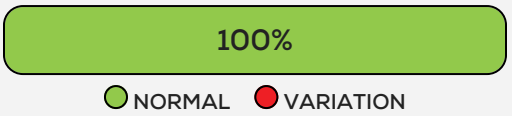
Prevalence: There are approximately 4 million people worldwide who have been diagnosed with the disease and about 60,000 diagnosed each year in the United States. The disease affects people of all races but is slightly more common in Caucasians and in men. Majority of people are diagnosed at age 60 and over.

Symptoms: Early signs are often mild and sometimes unnoticeable. A tremor may affect one side of the body and slowly get worse over time. Other symptoms include slowed movement, muscle stiffness and a change in speech and involuntary movement.

Diagnosis: There is no specific test to diagnose Parkinson's disease. A neurologist will diagnose Parkinson's disease based on medical history, a review of signs and symptoms, and a neurological and physical examination. They will also rule out other diseases and conditions through other testing.

Treatment: Genetic approaches to therapies are being provided, such as reducing and clearing alpha-synuclein and inhibiting LRRK2 kinase activity. Pharmaceutical companies have active programs aimed at targeting LRRK2 kinase activity.

YOUR GENETIC COMPOSITION %



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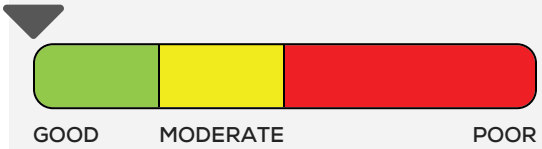


Your genes in this panel are normal. This is not associated with an increased risk of Parkinson's disease.

Restless Legs Syndrome

YOUR NORMAL GENETIC RISK FOR RESTLESS LEGS SYNDROME

Restless Legs Syndrome (RLS) is a sensorimotor disorder marked by an irresistible urge to move the arms or legs, often triggered by rest or inactivity. Symptoms typically occur in the evening or night and are temporarily relieved by movement. Many with RLS also experience periodic limb movements during sleep or rest. Severe cases can significantly impact sleep, quality of life, and emotional well-being.

RLS is influenced by genetics, environment, and coexisting conditions. Common comorbidities include iron deficiency, chronic kidney disease, cardiovascular disease, diabetes, and neurological or respiratory disorders. Addressing deficiencies, particularly iron (ferritin >50 ng/mL), is key.

This genetic panel identifies common variants linked to increased RLS risk. While these variants contribute to genetic susceptibility, rarer mutations may also play a role. A comprehensive approach, considering genetic and non-genetic factors, is essential for managing RLS.

TIPS TO TAKE POWER OVER YOUR HEALTH

If you experience restless legs syndrome, you may want to consider the following to improve your health:

» Engage in moderate activity, like walking or yoga, to ease symptoms. Avoid intense workouts before bed.

» Eat foods rich in vitamin B, iron, and magnesium to support dopamine. Supplements may help.

» Try yoga, acupuncture, or cognitive-behavioral therapy (CBT) for relaxation and symptom relief.

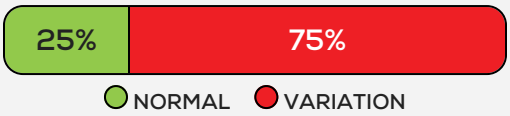
» Use tools like pneumatic compression devices or near-infrared light therapy to reduce discomfort.

» Establish a bedtime routine and avoid caffeine or alcohol in the evening.

» Natural remedies like valerian root or chamomile may aid relaxation and sleep.

» In severe cases, dopamine agonists or a2d ligands may help but could worsen symptoms long-term.

YOUR GENETIC COMPOSITION %



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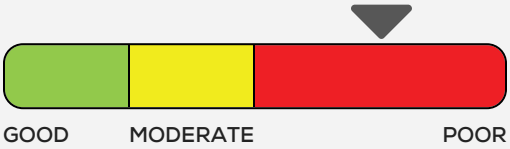


You have variations in these genes, which could increase your genetic risk of experiencing restless legs syndrome.

Sleep-Wake Cycle

YOUR NEED FOR A REGULAR SLEEP-WAKE CYCLE

The sleep-wake cycle, a key part of your circadian rhythm, is a 24-hour internal clock that regulates vital functions like sleep, metabolism, body temperature, and hormone production. A central clock in the brain's hypothalamus coordinates with peripheral clocks in organs such as the liver and adrenal glands, using signals like melatonin to maintain balance across the body's systems.

Circadian disruptions, caused by factors like shift work, irregular schedules, stress, or altered meal times, can harm health. These disruptions are linked to higher risks of weight gain, metabolic disorders, diabetes, cancer, mood issues, infertility, and preeclampsia.

For individuals with variations in circadian-related genes, such as CLOCK, maintaining a consistent daily routine can help stabilize the circadian rhythm.

TIPS TO TAKE POWER OVER YOUR HEALTH

If you have a variation in this panel, you may want to consider the following to improve your health:

» Maintain a consistent sleep schedule and limit blue light exposure in the evening to support your circadian rhythm.

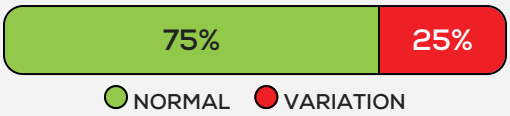
» Follow a Mediterranean diet rich in fish, seeds, olive oil, and nuts, and include tryptophan- and melatonin-rich foods like poultry, cherries, and milk for better sleep and reduced inflammation.

» Eat balanced breakfasts and lunches with fiber, protein, and carbs earlier in the day while reducing evening calorie intake and avoiding late-night eating.

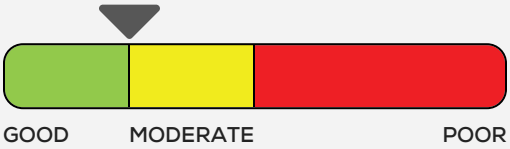
» Exercise regularly to boost health but avoid intense workouts near bedtime to protect sleep quality.

» Limit stimulants like caffeine, alcohol, and high-fat foods, especially in the evening, and manage stress with relaxation techniques such as mindfulness or yoga.

YOUR GENETIC COMPOSITION %



YOUR GENE FUNCTION



You do not have increased genetic risk for an altered circadian rhythm based on the markers tested.

Smoking Behaviour

YOUR ABILITY TO RESPOND NORMALLY TO NICOTINE

Smoking is a risk factor for most of the diseases that lead in human mortality rates. Smoking behaviour and nicotine dependence are influenced by genetics. While environmental factors play a strong role in the initiation of smoking, the heritability of smoking persistence, smoking quantity and nicotine dependence is high in most twin studies. Variations within these genes are associated with the smoking initiation, number of cigarettes smoked per day, nicotine dependence, and smoking-related diseases such as lung cancer, peripheral arterial disease, and chronic obstructive pulmonary disease.

TIPS TO TAKE POWER OVER YOUR HEALTH

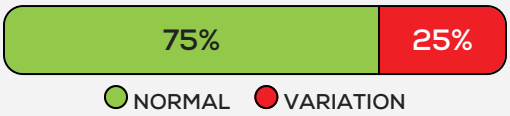
If you have variations in this panel, you may want to consider the following to improve your health:

» If you don't smoke, don't start. You are at higher risk of dependence and addiction.

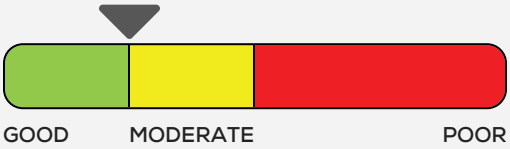
» If you do smoke, make every effort to quit or reduce smoking to preserve your health.

» Contact your health care provider if you need assistance in quitting smoking.

YOUR GENETIC COMPOSITION %



YOUR GENE FUNCTION



Your genes in this panel are functional. If you choose to smoke it is likely to be an average amount. However, remember that smoking is not good for your health.

BRAINPOWER KEY GENES INDEX

Mental Wellness

Alzheimer's

APOE: Plays many important roles in the body, including transporting cholesterol and cholesterol-like molecules, including beta-amyloid, in and out of cells.

Compulsive Tendency

ANKK1: The ANKK1 gene is closely linked to dopamine receptor D2. Dopamine is a neurotransmitter in the brain, which controls feelings of wellbeing. This sensation results from the interaction of dopamine and other neurotransmitters such as serotonin, the opioids, and other brain chemicals. Dopamine increases the motivation for cravings and appetite mediation.

BDNF: Expressed at high levels in the prefrontal cortex and hippocampus, which are brain regions implicated in the cognitive-enhancing effects of nicotine. Genetic variation could alter the rewarding effects through modulation of dopamine reward circuits.

COMT: Encodes the enzyme catechol-O-methyl transferase, which plays a critical role in the postsynaptic breakdown of dopamine and has been shown to be a major regulator of dopamine levels. Dopamine plays a critical role in addiction through the brain's reward system.

Concussion

APOE: Plays many important roles in the body, including transporting cholesterol and cholesterol-like molecules, including beta-amyloid, in and out of cells.

Cortisol

SERPINA6: Encodes corticosteroid-binding globulin, the major plasma binding protein of glucocorticoids and regulates plasma cortisol levels and bioavailability in humans.

Depression

BDNF: Plays a key role in neuronal survival, proliferation, and synaptic remodeling, and modulates other neurotransmitters. It's a growth factor in the brain, altered by commonly abused drugs like alcohol. Chronic stress decreases BDNF, leading to hippocampal atrophy, which occurs in chronic depression. Voluntary exercise, caloric restriction, intellectual stimulation, and treatments like antidepressants increase BDNF expression in the brain.

TPH2: Produces enzyme in the synthetic pathway for brain serotonin and considered a key factor for the maintenance of normal serotonin transmission in the central nervous system. Studies show that those who carry a variation have an increased risk for major depressive disorder.

Emotional Eating

FTO: Encodes the fat mass and obesity-associated protein. Affects the hypothalamus region of the brain which regulates appetite, energy intake and satiety.

Parkinson's

GBA: Encodes an enzyme known as acid beta-glucocerebrosidase or beta-glucosidase, a lysosomal enzyme that catalyzes the breakdown of a fatty waste product called glucocerebroside.

LRRK2: Encodes the leucine-rich repeat kinase 2 protein. Variation is associated with lysosomal function and neuronal health.

Restless Legs Syndrome

BTBD9: Linked to an increased risk of restless legs syndrome, with its variants potentially affecting dopamine pathways and iron homeostasis in the brain.

Sleep-Wake Cycle

CLOCK: Plays a pivotal role in regulating the sleep-wake cycle by influencing the expression of core circadian rhythm genes, which synchronize biological processes with the 24-hour day.

Smoking Behaviour

BDNF: Expressed at high levels in the prefrontal cortex and hippocampus, brain regions linked to nicotine's cognitive-enhancing effects. Genetic variation may alter nicotine's reward effects by modulating dopamine circuits, contributing to continued use after initial exposure.

CHRNA3: A nicotinic acetylcholine receptor in the central nervous system that responds to acetylcholine and drugs mimicking nicotine, playing key roles in the peripheral nervous system.

YOUR GENETIC PROFILE

Your genetic profile provides you with your individual gene and SNP details. It provides further insight into your overall results. *Good* is a functional gene with two normal copies, *Moderate* is one normal copy and one variant copy, *Poor* is two variant copies.

MENTAL WELLNESS

TEST	GENE	DESCRIPTION	GENOTYPE	RESULT
Cognitive Resilience	APOE	rs429358	TT	Good
	APOE	rs7412	CC	Moderate
Compulsive Tendency	ANKK1	Dopamine Receptor Density 2	GG	Good
	BDNF	Addictive Behaviour 1	TT	Poor
	COMT	Dopamine Regulation 1	GA	Moderate
	DRD2	Dopamine Reward System	0	No Data
Concussion	APOE	rs405509	GG	Good
	APOE	rs429358	TT	Good
	APOE	rs7412	CC	Moderate
Cortisol	SERPINA6	Rare Low Cortisol 1	AA	Good
	SERPINA6	Lower Cortisol Levels 2	0	No Data
	SERPINA6	Significant Increased Cortisol 3	GT	Moderate
	SERPINA6	Common Increased Cortisol 4	CT	Moderate
Depression	BDNF	Depression 1	TT	Poor
	TPH2	Major Depressive Disorder	GT	Moderate
Emotional Eating	FTO	Satiety and Weight 3	AT	Moderate
Parkinson's	GBA	rs76763715	TT	Good
	LRRK2	rs34637584	GG	Good
Restless Legs Syndrome	BTBD9	Restless Legs and Insomnia	AA	Poor
	BTBD9	Restless Legs	CA	Moderate
Sleep-Wake Cycle	CLOCK	rs12649507	AG	Moderate
	CLOCK	rs3749474	CC	Good

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MENTAL WELLNESS (continued)

TEST	GENE	DESCRIPTION	GENOTYPE	RESULT
Smoking Behaviour	BDNF	Smoking Initiation 1	TT	Good
	CHRNA3	Number of Cigarettes Smoked	GA	Moderate

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healthPower — Power over your Health – Detoxification, Hormone, Inflammation, Mental Wellness, Methylation

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