dnaPower

POWER OVER YOUR HEALTH

YOUR fitPower 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 6

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

PAGE 8

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

PAGE 31

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 fitPower SUMMARY

Your fitPower report provides you with your personal DNA results related to fitness - power and endurance activities, injury prevention and recovery, and exercise performance. The genetic composition results indicate your risk potential based on the number of normal and mutated genes. By making smart diet and fitness decisions, tailored to your genetic makeup, you can ensure you achieve maximum health.

Normal Genes Variations

YOUR fitPower SUMMARY

Your fitPower report provides you with your personal DNA results related to fitness - power and endurance activities, injury prevention and recovery, and exercise performance. The genetic composition results indicate your risk potential based on the number of normal and mutated genes. By making smart diet and fitness decisions, tailored to your genetic makeup, you can ensure you achieve maximum health.

AREA TESTED	TELLS YOU (Risk Potential)	YOUR GENETIC COMPOSITION RESULTS	PAGE
EXERCISE RESPONSE			
Blood Sugar and Insulin	*How physical activity affects your ability to regulate blood sugar*	75% / 25%	22
Stroke Risk	*Your normal genetic risk for ischemic stroke*	50% / 50%	23
Cardiovascular Health	*How well your body manages cardiovascular health*	50% / 50%	24

Normal Genes Variations

YOUR fitPower ACTION PLAN

Your personal DNA results provide valuable insights into your body based on your unique genetic code.
This is a suggested fitPower 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
POWER AND ENDURANCE		
Power and Sprint Activity	*You are likely more predisposed to endurance type activities or a combination. You may get better results from engaging in jogging, swimming and other aerobic activities.*	10
INJURY AND RECOVERY		
Tendon Strength	*Make time for warm up with full range of motion before starting your fitness routine.*	13
Muscle Strength	*To support muscle strength, consider muscle conditioning exercises, with lighter weights and longer sets. You may also want to consider amino acid supplementation.*	14
EXERCISE RESPONSE		
Stroke Risk	*Engage in aerobic activity with moderate intensity. Limit alcohol and sodium intake and avoid smoking.*	23
Cardiovascular Health	*Consider moderate exercise and decrease sodium in your diet. Closely monitor your cardiovascular health.*	24

» 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:

POWER AND ENDURANCE

In Power and Endurance, your genetic information helps you understand which types of exercise most naturally suit your body.

Power activities involve high-intensity, interval training, whereas endurance activities involve moderate-intensity for a moderate to long duration. Power activities include sprinting, weight training, speed and power sessions, and sports specific drills. Endurance activities include long distance running, cycling, hiking, swimming, triathlon, and some field sports.

People are naturally drawn to the activities that feel best for their bodies and most of us have a mix of both power and endurance capability. You may already know intuitively and through experience which activities are best suited for your genetics. By choosing activities in which you are naturally suited, you may find you reach your fitness goals more easily.

However, genetic potential is just that. You have potential to do well in all aspects of exercise. In the end, do what you enjoy. Maintain a well-rounded exercise plan regardless of your genetic type. Simply be conscious of areas where you may have some potential limitations to ensure you exercise in a way that is healthy and supportive of your body.

Several of the power/sprint and endurance genes are complementary: ACE, ACTN3, HIF1A, PPARA.

If your genes are normal for one, it will automatically be a variation for the other. For example, if you have the gene for fast twitch muscles, it will be normal/green for power/sprint and variation/red for endurance.

Endurance Activity

HOW SUITED YOU ARE FOR ENDURANCE ACTIVITIES

Endurance activity is the ability to do light-to-moderate intensity exercise for extended periods of time. During endurance exercise, your muscles sustain repeated muscle contractions with relatively low resistance and constant heart rate. Having slow-twitch muscle fibres helps people excel at endurance sports. Endurance activity relies on the aerobic system which requires a steady supply of oxygen to generate energy. It burns about 25% muscle and 75% fat. It also increases muscle and joint flexibility, making you less susceptible to injury. Endurance activities improve the capacity of the lungs and have a positive impact on the cardiovascular and circulatory system.

If you are predisposed to endurance activity, your body will tend to perform better doing exercise such as long distance running, cycling, hiking, swimming, rowing and cross-country skiing.

Variations in these genes may lead to trouble maintaining power for extended periods of time. Other effects include increased thirst sensation, desire for salt, sodium retention, water retention and potassium excretion, and decreased urine volume. But it's not all bad. Some variations have been linked to positive effects, such as keeping blood pressure low and having fast twitch muscles which are important in power and sprint activities.

Even if you have good endurance results you should consult all of your other test areas, including tendon and ligament strength, blood pressure regulation etc. when building a fitness routine.

TIPS TO TAKE POWER OVER YOUR HEALTH

If you are predisposed to endurance activity, you may want to consider the following to enhance your fitness:

» Consider controlled exercises such as cycling, swimming, jogging, rowing and yoga.

» Engage in slower, more controlled repetitions in weight training, as your fast twitch muscles may be slower to react. Do longer sets, with lighter weights.

» Consider supplements that support endurance athletes such as: calcium, iron, magnesium, potassium, selenium, sodium, zinc, vitamin E, protein and glutamine.

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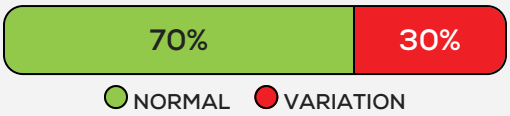

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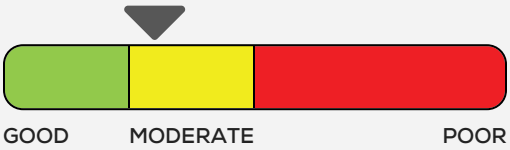


Your genes provide a good balance for both power/sprint and endurance activities.

Power and Sprint Activity

HOW SUITED YOU ARE FOR POWER, SPRINT AND HIGH-INTENSITY ACTIVITIES

Power and sprint activity require the ability to perform at a high intensity for short periods of time. It uses fast twitch muscle fibres to support bursts of power. It also uses the anaerobic system that relies on energy producing processes that don't require oxygen to generate energy. Anaerobic training leads to greater performance in short duration, high-intensity activities, which last from seconds to around 2 minutes. It is used by athletes to promote strength, speed and power as well as muscle size and strength.

If you are predisposed to power, sprint and high intensity activities, your body will tend to perform better doing exercise such as weight training, sprinting, shot put, and jumping. High-intensity interval (HIT) becomes anaerobic when performed in excess of 90% maximum heart rate.

Individuals with variations in these genes may have a disadvantage when it comes to power and sprint activity and are more likely predisposed to endurance activities such as running and swimming.

TIPS TO TAKE POWER OVER YOUR HEALTH

If you are predisposed to power and sprint activities, you may want to consider the following to enhance your fitness:

» Focus more on sprint and power sports such as weight lifting or circuit training.

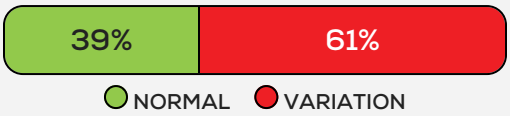
» Consider shorter cardio sessions or interval training.

» Engage in shorter, heavier sets for weight training to leverage your fast twitch muscles.

» Ensure adequate energy and protein intake which are important for increasing muscle mass.

» Consider supplements that support power and sprint athletes such as: beta-alanine and bicarbonate for longer sprints, creatine for muscle mass and strength, and fish oils and electrolytes for recovery.

YOUR GENETIC COMPOSITION %



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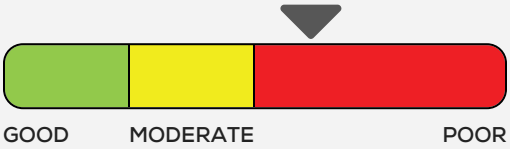

Your variations in these genes are high, which may be disadvantageous for power and sprint activities. However, this is likely to predispose you to endurance activities.

INJURY AND RECOVERY

The strength of your ligaments, tendons, and muscles varies depending on your genetic makeup. Your genetic predisposition in these areas can help you understand where you may have possible weaknesses, and how you can prevent injury.

Similarly, individuals differ in their length of recovery time. The length of time it takes you to recover depends on your inflammatory and antioxidant responses. Returning to regular exercise before your body is ready can amplify and extend a problem. Be sure to provide your body with what it needs to be at its best.

Injuries can prevent you from getting your daily exercise, causing your overall fitness to decrease. Proactively avoid injuries using knowledge about your genes.

Prevent injuries using resistance and flexibility training. Participate in healthy warm ups prior to exercise, give your body the preparation it needs. Consider dynamic stretching. Dynamic stretching utilizes momentum and form to increase the range of movement, blood flow, and oxygen to the soft tissues. This form of stretching has been shown to improve performance while reducing the risk of injury.

Ligament Strength

HOW WELL YOUR BODY MAINTAINS HEALTHY LIGAMENTS

A ligament is a band of collagen fibers that connects one bone to another to form joints. Ligaments are important for athletic performance, but ligament injuries are common among athletes. Ruptures of the anterior cruciate ligament (ACL) are one of the most common injuries sustained by athletes and individuals who engage frequently in sport.

Variations in this gene panel may result in decreased overall ligament strength and conditions such as connective tissue disorders, ligament ruptures, and reduced bone quality.

TIPS TO TAKE POWER OVER YOUR HEALTH

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

» Be aware of your body when engaging in high burst exercises and sports such as jumping, sprinting, and lunging.

» Engage in proper warm ups with full range of motion especially when starting a fitness routine.

» Participate in dynamic stretching before exercise to increase blood flow and oxygen to the soft tissues.

» Include resistance and flexibility training to reduce the likelihood of injury.

» Consider taking glucosamine chondroitin supplements.

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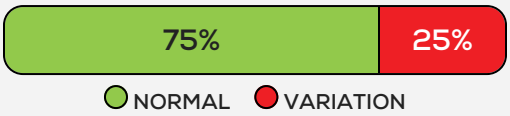

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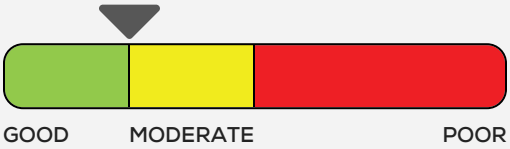


Your genes in this panel are functional. You do not have an increased risk of ligament injury based on these genes, though ligament injuries are still common among athletes. Care should always be taken.

Tendon Strength

HOW WELL YOUR BODY MAINTAINS HEALTHY TENDONS

A tendon is a tough, flexible band of collagen-based fibrous connective tissue that attaches skeletal muscles to bone. Tendons work with bones and muscles to enable movements and withstand tension. Collagen is the main structural protein of connective tissues. Variations in these genes result in the inability to assemble collagen correctly. This leads to decreased tendon strength.

Achilles tendinopathy and tendinitis are conditions that cause pain, swelling and stiffness of the tendon where it attaches muscle to bone. It is most often caused by repetitive, minor impact on the affected area, or from a sudden more serious injury. These conditions have increased as a result of greater participation in recreational and competitive sports but are also common in everyday activities. As tendons age they tolerate less stress, are less elastic, and are easier to tear, particularly if you have genetic variations that may reduce their strength.

TIPS TO TAKE POWER OVER YOUR HEALTH

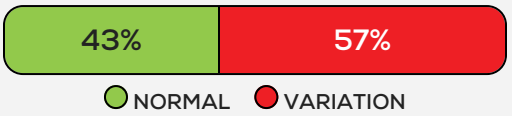
If you have variations in this panel, you may want to consider the following to enhance your fitness:

» Engage in a proper warm up involving full range of motion before starting your fitness routine.

» Do not overuse or do too much when the tendons are not used to a movement. Injuries are common in weekend warriors.

» Speak to your health care provider if you are experiencing pain.

YOUR GENETIC COMPOSITION %



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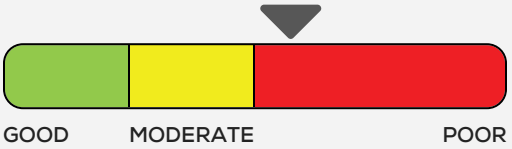


Your variations in these genes are high. You may have an increased risk of tendon injury. Warm up prior to exercise. If you are sedentary, or plan to start a new exercise program, be sure to talk to your fitness professional first.

Muscle Strength

HOW PREDISPOSED YOU ARE FOR MUSCLE STRENGTH AND TONE

Muscle tissue consists of hundreds to hundreds of thousands of muscle fibres consisting of myofibrils composed of overlapping thick and thin filaments. These filaments form functional units called sarcomeres that shorten causing the muscle fibre to contract, thereby producing force. The ability of muscle to produce force at a given speed is the basic definition of muscle strength.

Skeletal muscle is an important link to an individual's health and quality of life. The primary clinical interest in skeletal muscle is muscle strength. Muscle strength is a complex trait, influenced by biological, morphological, psychological, and environmental factors. Muscle strength is highly variable among individuals and has a strong genetic component.

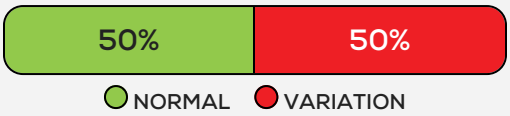
TIPS TO TAKE POWER OVER YOUR HEALTH

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

» Develop a specialized muscle building program to develop and maintain muscle tone and strength.

» Consider taking amino acid supplements, amino acids are the building blocks of proteins. Specifically supplements for amino acids like glutamine, which cannot be produced by the body and must be gained from the diet.

YOUR GENETIC COMPOSITION %



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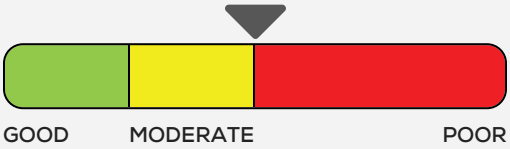

You have some variation in this panel. You may find it takes more effort to gain muscle strength and tone.

Muscle Repair

HOW WELL YOUR MUSCLES BUILD AND REPAIR FROM PHYSICAL ACTIVITY

High intensity exercise, particularly strength training and resistance training, can result in micro-injury or trauma to skeletal muscles. When muscles undergo trauma, the body reacts to repair the muscle, causing muscle cells to increase in number and thickness.

Appetite, energy intake and energy expenditure are key components of the muscle recovery system. Proper energy balance and use of energy stores in the body help maintain the post-exercise recovery cycle.

Genes in this panel help understand your level of muscle repair, linked to the post-exercise recovery process. Variations in these genes may result in decreased muscle repair activity, increased muscle fatigue, and longer recovery time between strenuous activities.

TIPS TO TAKE POWER OVER YOUR HEALTH

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

» Reduce the intensity of your workouts and avoid reaching maximum repetitions.

» Give your body and muscles ample time to recover between workouts, as muscle repair may be slower.

» Ensure adequate fluid replacement and eat well after exercise to replenish energy.

» Consider taking amino acid supplements as amino acids are the building blocks of proteins. Specifically, supplement for amino acid glutamine, which cannot be produced by the body and must be gained from the diet.

» Do dynamic stretches before and after engaging in exercise.

» Perform active recovery with gentle movements.

» Try self-massage techniques after exercise to improve circulation.

» Avoid overtraining.

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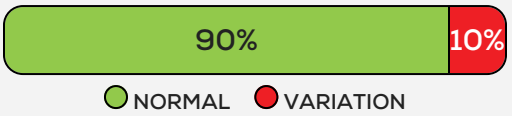

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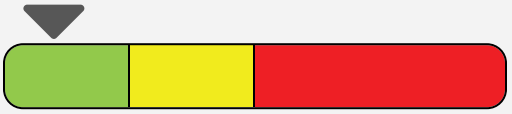


Your genes in this panel are functional. You may experience less muscle fatigue with exercise and need less recovery time after strenuous activity. This can be especially advantageous in strength and resistance training workouts.

EXERCISE PERFORMANCE

Exercise performance is affected by many factors. This section examines your genetic makeup to determine if your blood pressure, energy levels, exercise intensity and oxygen uptake are helping you or slowing you down when you exercise.

Make exercising easier. Be conscious of the areas in which your body needs help. Be sure to help your body, not fight with it when you exercise.

Blood Pressure

HOW WELL YOUR BODY REGULATES BLOOD PRESSURE

High blood pressure, also called hypertension, means that there is too much pressure in your blood vessels. This can damage your blood vessels and cause health problems. High blood pressure usually does not cause symptoms; however, it can be dangerous if it goes undetected. It is more common in the aging population. If you are genetically prone to high blood pressure you can make proactive lifestyle choices to decrease your risks.

TIPS TO TAKE POWER OVER YOUR HEALTH

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

» Manage your weight and engage in moderate exercise.

» Decrease your intake of sodium and increase water and foods rich in antioxidants (beta-carotene, vitamins A, C, and E).

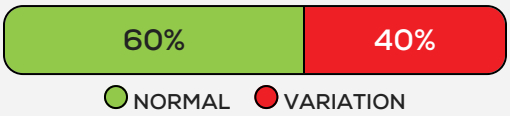
» Closely monitor your heart rate while exercising.

» Avoid smoking and exposure to cigarette smoke.

» Avoid lifestyle risk factors including excess salt, body weight, and alcohol.

» Omege-3 rich foods and oil supplementation can be effective in preventing cardiovascular disease.

YOUR GENETIC COMPOSITION %



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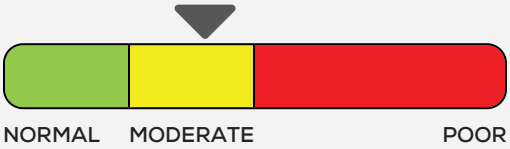

Your variations in these genes are somewhat higher than optimal. Consider omega-3-rich foods and omega-3 supplementation. You may also benefit from a Nitric Oxide 3 (NOS-3) specific diet and lifestyle recommendations from a healthcare professional.

Energy Metabolism

HOW WELL YOU PRODUCE ENERGY FROM NUTRIENTS

Energy metabolism and oxygen-glucose transport are essential for maintaining energy during physical activity. Your body's ability to produce, store, and use energy depends on factors such as age, sex, lean body mass, and genetics. Variations in energy metabolism genes may reduce energy availability and resting metabolic rate, making weight management more challenging. However, regular cardiovascular exercise can significantly improve cellular energy and overall metabolic health.

TIPS TO TAKE POWER OVER YOUR HEALTH

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

» Eat a balanced meal with carbohydrates, proteins, and fats 2–3 hours before exercise, or simple, digestible foods (carbs and protein) 45–60 minutes before.

» Examples include lean protein with brown rice and vegetables (2–3 hours prior), a smoothie with yogurt and fruit (1–2 hours prior), or Greek yogurt and fruit (<1 hour prior).

» Metabolism boosters, consider supplements like creatine or caffeine to enhance energy production during exercise.

» Engage in regular cardiovascular exercise to boost resting metabolism and energy availability.

» Start the morning with 20–30 minutes of low-impact cardio, such as walking or cycling, to kickstart metabolism and reduce fatigue.

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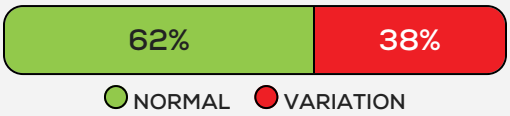

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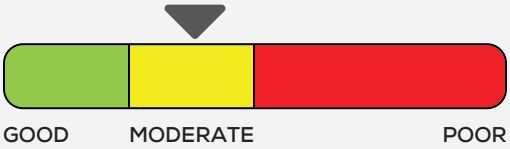


You have some variations in these genes. You may have impaired energy metabolism, which can negatively impact your energy levels.

Exercise Intensity

YOUR GENETIC ABILITY TO TOLERATE THE DISCOMFORT OF INCREASED EXERCISE INTENSITY

Physical activity benefits nearly every organ system, boosts energy, supports healthy weight maintenance, improves cognitive function, and alleviates insomnia, anxiety, and depression. During exercise, the brain releases endorphins, norepinephrine, and serotonin, which reduce discomfort and promote feelings of euphoria.

The drive to engage in exercise varies widely, influenced by environmental and genetic factors, particularly genes involved in dopamine metabolism, which affect exercise reinforcement and tolerance for discomfort. Variations in certain genetic markers may lower exercise tolerance, reducing participation.

Despite genetic tendencies, motivation and consistent effort can help build an exercise routine. Employing strategies to enhance motivation and gradually increasing intensity over time can improve tolerance and promote long-term adherence to physical activity.

TIPS TO TAKE POWER OVER YOUR HEALTH

If you have variation in this panel, you may want to consider the following to enhance your fitness:

» Set specific, achievable goals and gradually increase workout intensity.

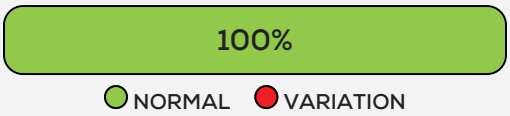
» Choose enjoyable activities, like dancing, cycling, or hiking, to make exercise fun.

» Create a consistent routine by scheduling workouts at the same time daily.

» Stay accountable by partnering with a friend, joining a group, or tracking progress with apps or journals.

» Boost motivation with music, podcasts, fitness challenges, and rewards like new gear or healthy treats.

YOUR GENETIC COMPOSITION %



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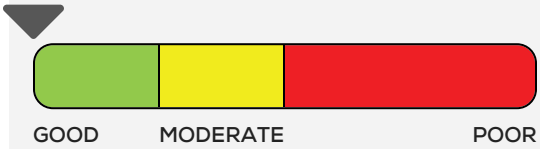


Your genes in this panel are functional. You may be well suited to overcome the discomfort of increased exercise intensity. Be sure to increase exercise intensity in a way that is safe for your body.

Oxygen Uptake

HOW WELL YOU MANAGE OXYGEN DURING EXERCISE

Maximal oxygen uptake (VO2 max) is the ability of working muscles to utilize the oxygen delivered to them. It is based on "milliliters of oxygen used in one minute per kilogram of body weight" that can be delivered to peripheral organs, including skeletal muscle. It is a measure of cardiorespiratory fitness - the ability of the body's circulatory and respiratory systems to supply fuel and oxygen during sustained physical activity. Oxygen delivery to tissues is dependent on lung and heart function.

Genetics account for about 50% of your VO2 max aerobic potential. Regular exercise is the most effective way to improve cardiorespiratory fitness and your VO2 max aerobic capability. VO2 max is a good predictor of performance capability in aerobic events such as distance running, cycling, cross-country skiing, and swimming.

After 25 years of age, oxygen uptake decreases at a rate of about 1% per year but can be greatly influenced by aerobic training. VO2 max can be increased significantly in just 8-12 weeks of training.

TIPS TO TAKE POWER OVER YOUR HEALTH

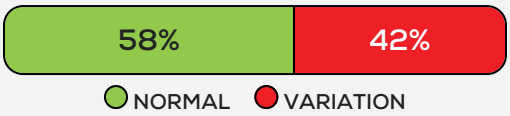
If you have variations in this panel, you may want to consider the following to enhance your fitness:

» Work out at an intensity that raises your heart rate between 65-and-85% of its maximum for at least 20 minutes 3-to-5 times a week.

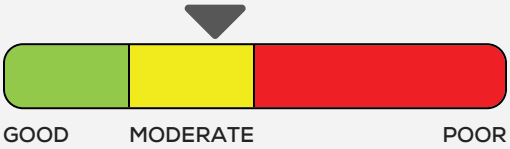
» Engage in consistent aerobic conditioning to increase your VO2 max value.

» Work with a fitness professional to improve your results.

YOUR GENETIC COMPOSITION %



YOUR GENE FUNCTION



Your variations in these genes are higher than optimal. This is associated with a moderate decrease in aerobic potential and oxygen uptake. You may choose to counteract this with exercise and training.

EXERCISE RESPONSE

Regular exercise is helpful in making you look and feel your best. But it also has important implications for your health. Exercise can help you manage your weight, control your blood pressure, support heart and lung function and reduce your risk for specific health conditions such as cardiovascular disease and stroke. It can also improve your mood, boost your energy, and promote good sleep.

Studies have shown certain genetic types are predisposed to get additional benefit from exercise. Understanding the benefit to you may be a great motivator to ensure you are maximizing and maintaining your health.

Blood Sugar and Insulin

HOW PHYSICAL ACTIVITY AFFECTS YOUR ABILITY TO REGULATE BLOOD SUGAR

Insulin production and regulation affect your blood sugar levels. Normally a small amount of insulin released from the pancreas triggers the absorption of glucose into cells to create energy. When the genes that control this are mutated, more insulin is needed to absorb glucose, also known as insulin resistance. Insulin resistance can lead to type 2 diabetes.

When glucose levels get higher than normal, they start to cause inflammation in blood vessels and nerves. This is where the complications of diabetes come from. Having low blood sugar can lead to hypoglycemia, which puts people at risk for confusion and loss of consciousness.

If you are predisposed to having high blood sugar levels, your risk of developing type-2 diabetes can be decreased by regularly participating in exercise and controlling sugar intake in your diet.

TIPS TO TAKE POWER OVER YOUR HEALTH

If you have variation in this panel, you may want to consider the following to enhance your fitness:

» Use physical activity as a tool to regulate your blood sugar.

» Reduce blood glucose levels by increasing your physical activity.

» Eat foods with a low glycemic load as well as healthy fats and high fiber.

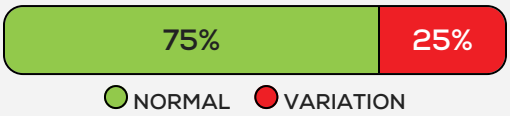
» Losing even a modest amount of weight (5 to 10% of total body weight) through healthy eating and regular physical activity can make a huge difference in your health and quality of life.

» If lifestyle changes are not enough to normalize blood glucose, your healthcare provider might recommend that you use oral medication.

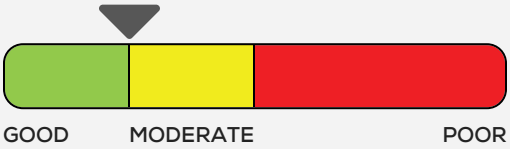
» Improve insulin sensitivity through supplements like resveratrol or L-carnitine.

» Ask your healthcare professional about testing fasting plasma glucose if you are over 40.

YOUR GENETIC COMPOSITION %



YOUR GENE FUNCTION



Your genes in this panel are functional, which studies have linked to an increased insulin sensitivity in response to exercise. This is good. Use exercise to decrease your risk of developing type-2 diabetes.

Stroke Risk

YOUR NORMAL GENETIC RISK FOR ISCHEMIC STROKE

A stroke occurs when blood flowing to an area of the brain is cut off, causing the brain cells to be deprived of oxygen and eventually die. Ischemic stroke, occurs when the blockage is caused by a blood clot. Ischemic Strokes make up 87% of all strokes with the most important risk factor being high blood pressure. Other risk factors include heart disease, smoking, diabetes and your genetic predisposition. The risk of stroke increases with age (over 60) and is seen more commonly in women and people of African American descent.

A variation found on chromosome 9p21 is one of the most studied and significant variations associated with cardiovascular disease. Individuals with the at-risk genotypes more commonly develop atherosclerotic lesion (where an artery wall thickens) and coronary stenosis (narrowing of a blood vessel).

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 or lower your blood pressure by losing excess weight, exercising regularly, eating a balanced diet, reducing your sodium intake and limiting alcohol consumption.

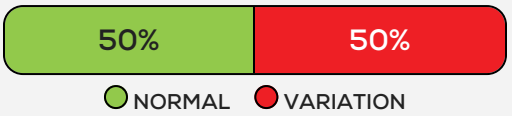
» Follow a heart-healthy diet with foods that are lower in cholesterol and higher in fiber and omega 3 fatty acids.

» Control diabetes as this is an additional risk factor for cardiovascular disease.

» Avoid smoking.

» Consult your health practitioner regularly to assess and maintain good cardiovascular health.

YOUR GENETIC COMPOSITION %



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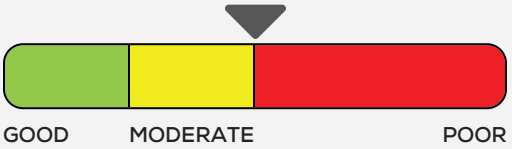


You have some variations in these genes. Studies have linked this to a moderately increased risk of coronary artery disease and stroke. You may wish to speak to your health care provider about vascular monitoring and lifestyle recommendations.

Cardiovascular Health

HOW WELL YOUR BODY MANAGES CARDIOVASCULAR HEALTH

The cardiovascular system transports blood to almost all of the body's tissues. Poor diet and lifestyle can cause our arteries to thicken with plaque and cholesterol as we age, making them stiffer and narrower. When arterial blood flow is restricted, cardiovascular disease can lead to stroke or peripheral artery disease.

Like many other health problems, cardiovascular issues can be avoided if addressed early. Genetics is one tool that can be used to identify potential weaknesses and help prevent more serious health issues. Being proactive by eating a healthy diet and exercising regularly can help manage cardiovascular health risks.

Environmental risk factors that can contribute to an increased risk of cardiovascular disease include tobacco exposure, high blood pressure (hypertension), high cholesterol, obesity, physical inactivity, diabetes, unhealthy diet, overconsumption of alcohol, and stress.

Other major risk factors that cannot be changed include increased age, gender (men are at higher risk) and heredity (children of parents with heart disease are at higher risk).

A genetic variation in this area is not a diagnosis of cardiovascular disease. It indicates you may want to take greater care and check in with your healthcare provider, especially if you show signs of other cardiovascular risk factors.

TIPS TO TAKE POWER OVER YOUR HEALTH

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

» Eat a balanced, whole food diet.

» Decrease your intake of sodium and increase water and foods rich in antioxidants (beta-carotene, vitamins A, C, and E).

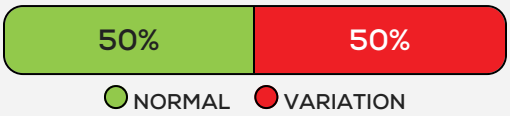
» Monitor your blood pressure and heart rate; keep it in a healthy range.

» Manage your weight and engage in moderate exercise.

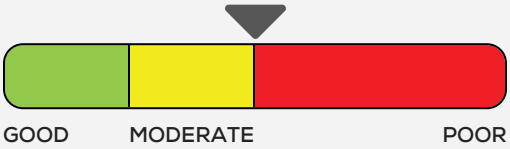
» Avoid smoking and exposure to cigarette smoke.

» Consider omega-3 oil supplementation.

YOUR GENETIC COMPOSITION %



YOUR GENE FUNCTION



You have some variations in these genes. You may wish to monitor your cardiovascular health and take proactive health measures.

FITPOWER KEY GENE INDEX

Power and Endurance

Endurance Activity

ACE: Activates electrolyte balance and systemic blood pressure; stimulates heart muscle enlargement; influences your cardiovascular health. Helps provide optimal muscle efficiency in sports.

ADRB2: Plays an important role in the regulation of the cardiac, vascular, pulmonary, endocrine, and central nervous systems. Associated with elite endurance sports performance.

GABPB1: Involved in the control of mitochondrial function. Mitochondrial produce the energy currency of the cell, and regulate cellular metabolism. "G" is rare, it is associated with positive effects on endurance capacity and elite endurance performance.

GALNTL6: Associated with world-class endurance athletes. Expressed in the testes, brain, and skeletal muscle.

HFE: Regulates iron absorption and storage, which can affect the production of red blood cells. "G" is rare, it is linked to iron overload and an advantage in endurance performance.

HIF1A: Activates genes involved in energy metabolism, angiogenesis, apoptosis, oxygen delivery, and metabolic adaptation to hypoxia. The common "C/C" is associated with higher changes in VO2 max following training. Whereas the rare "T" is associated with an increased proportion of fast-twitch muscle fibers and improved glucose metabolism including a lower risk of type 2 diabetes.

NFIA: Associated with aerobic performance, the efficiency of the body's cardiovascular system in absorbing and transporting oxygen.

PPARA: Mediates fatty acid oxidation, lipid metabolism and the production of glucose for energy consumption. Expression of PPARA is higher in type I (slow-twitch) than in type II (fast-twitch) muscle fibers.

RPLP1: Plays an important role in the elongation step of protein synthesis.

TSSC1: One of several tumor-suppressing sub transferable fragments, an important tumor-suppressor gene region. The rare "C" allele decreases an individual's odds of being an endurance athlete.

VEGF: Involved in the formation of the circulatory system and the growth of blood vessels from pre-existing vasculature. "C" is rare, it is associated with an advantage in endurance performance and greater increase in the maximal oxygen uptake in response to aerobic exercise.

Power and Sprint Activity

ACE: Activates electrolyte balance and systemic blood pressure. Helps provide optimal muscle efficiency in all sports. It is also a stimulator of heart muscle enlargement. This variation is associated with increased strength gain in response to exercise.

ACTN3: Encodes the protein that helps to anchor actin filaments in the muscle and is involved in fast-twitch movements. Plays a key role in power, sprint and endurance. This variation influences the make-up of your fast-twitch muscle fiber.

ADRB3: Signals your adipose tissues to break down stored fats for consumption. Improves cardiac function, present in skeletal muscle. "G" is rare, it is associated with elite athletic performance.

AGT: Encodes angiotensin proteins involved in constriction of blood vessels and increased blood pressure in response to exercise.

HIF1A: Activates genes involved in energy metabolism, angiogenesis, apoptosis, oxygen delivery, and metabolic adaptation to hypoxia. The common "C/C" is associated with higher changes in VO2 max following training. Whereas the rare "T" is associated with an increased proportion of fast-twitch muscle fibers.

IL6: Regulates the body's response to exercise, including processes that recruit stored energy in fat and muscle tissue for quick use to assist in muscle recovery processes.

NOS3: Regulates nitric oxide abundance, influencing muscle vascular tone and blood supply to working muscles.

VDR: Effects on bone and skeletal muscle biology.

Injury and Recovery

Ligament Strength

COL1A1: Plays a vital role in ligament development and strength, regulating the assembly of collagen fiber in the body's connective tissues, including bones, ligaments, and tendons. "A/A" is rare, it is associated with an 85% reduced risk of soft tissue ruptures.

COL5A1: Produces protein that has an important role in assembling collagen to form collagen fibrils. Contributes to soft tissue flexibility during exercise and injury risk.

Tendon Strength

COL1A1: Plays a vital role in ligament development and strength, regulating the assembly of collagen fiber in the body's connective tissues, including bones, ligaments, and tendons. "A/A" is rare, it is associated with an 85% reduced risk of soft tissue ruptures.

COL5A1: Produces protein that has an important role in assembling collagen to form collagen fibrils. Contributes to soft tissue flexibility during exercise and injury risk.

MMP3: Maintains the extracellular matrix —the body's scaffolding. Encodes enzymes involved in wound repair.

Muscle Strength

IGF1: Has growth-promoting effects on almost every cell in the body. Researchers are investigating the link between IGF1 and aging. IGF1 is a primary mediator of the effects of growth hormone. The variation tested in this panel is associated with decreased IGF1 levels. Low levels of IGF1 are associated with increased insulin resistance, metabolic syndrome, and predict development of glucose intolerance and type 2 diabetes. Dietary protein intake increases IGF1 levels. If you are concerned about your IGF1 levels it is possible to have them tested to see if they are within the ideal range.

MSTN: Encodes myostatin, found in muscles and used in skeletal muscle movement. Associated with the ability to produce 'peak' power during muscle contractions.

PPARGC1A: Regulates mitochondrial biogenesis, fatty acid oxidation, glucose utilization and thermogenesis. Variations have a negative effect on mitochondrial function. Endurance exercise has been shown to activate this gene in human skeletal muscle.

TRHR: The TRHR gene encodes the thyrotrophin-releasing hormone receptor, which is important in developing skeletal muscle.

Muscle Repair

ACTN3: Encodes the protein that helps to anchor actin filaments in the muscle and is involved in fast-twitch movements. Plays a key role in power, sprint and endurance. This variation influences the make-up of your fast-twitch muscle fiber.

AMPD1: Encodes enzyme that processes high-energy compounds called ATP, involved in regulation of energy during exercise. Variation is associated with exercise-induced myopathy.

CKMM: Encode proteins that are recruited to damaged tissue which speeds up recovery.

IL6: Regulates the body's response to exercise, including processes that recruit stored energy in fat and muscle tissue for quick use to assist in muscle recovery processes.

TNFA: Encodes a multifunctional proinflammatory cytokine that supports recovery.

Exercise Performance

Blood Pressure

AGT: Angiotensinogen is involved in constriction of blood vessels and increased blood pressure in response to exercise. Variations in this gene are associated with susceptibility to hypertension.

CREB1: Influences heart rate regulation in response to exercise.

GNB3: Helps regulate blood flow and dilation of blood vessels. Associated with risk of high blood pressure.

NOS3: Encodes an enzyme that produces nitric oxide, a potent antioxidant that helps control blood pressure. It helps protect the body against oxidative damage from by-products of natural metabolic processes and harmful environmental substances.

Energy Metabolism

AMPD1: Encodes an enzyme that processes high-energy compounds called ATP. Variation results in complete deficiency of the AMPD protein and diminished AMP metabolism that produces muscle fatigue, weakness and cramping.

PPARD: Mediates fatty acid oxidation, lipid metabolism and the production of glucose for energy consumption. It has also been linked to mitochondrial biogenesis, angiogenesis, and muscle fiber type. Certain variations, found more often in athletes, increase the beneficial impact of endurance exercise on HDL (good) cholesterol levels. "C" is rare, it is associated with increased fatty acid oxidation, and nutrient uptake by muscles.

PPARGC1A: Regulates mitochondrial biogenesis, fatty acid oxidation, glucose utilization and thermogenesis. Variations have a negative effect on mitochondrial function. Endurance exercise has been shown to activate this gene in human skeletal muscle.

UCP1: Encodes a protein used to generate heat by thermogenesis in the mitochondria of brown adipose tissue. Thermogenesis is a significant component of your metabolic rate, which can potentially be stimulated to increase energy expenditure and fat oxidation.

Excercise Intensity

CNR1: Associated with variations in exercise intensity and performance, potentially due to its role in modulating pain, reward, and energy balance.

GABRG3: Encodes a subunit of the GABA-A receptor, may influence exercise intensity by affecting neural excitability, muscle relaxation, and the perception of effort during physical activity.

Oxygen Uptake

ADRB2: Plays an important role in the regulation of the cardiac, vascular, pulmonary, endocrine, and central nervous systems. Associated with elite endurance sports performance.

ADRB3: Signals your adipose tissues to break down stored fats for consumption. Improves cardiac function and lung fluid clearance after exercise.

AMPD1: Encodes enzyme that processes high-energy compounds called ATP, involved in regulation of energy during exercise.

NFIA: Associated with hematological parameters of endurance athletes.

NRF1: Activates genes that control respiration in mitochondria, which produces energy, and influences oxygen uptake and capacity.

PPARA: Mediates fatty acid oxidation, lipid metabolism and the production of glucose for energy consumption. Expression of PPARA is higher in type I (slow-twitch) than in type II (fast-twitch) muscle fibers.

PPARGC1A: Regulates mitochondrial biogenesis, fatty acid oxidation, glucose utilization and thermogenesis. Variations have a negative effect on mitochondrial function. Endurance exercise has been shown to activate this gene in human skeletal muscle.

VEGF: Involved in both the formation of the circulatory system and the growth of blood vessels from pre-existing vasculature. The rare "C" is associated with an advantage in endurance performance and greater increase in the maximal oxygen uptake in response to aerobic exercise.

Exercise Response

Blood Sugar and Insulin

HNF4A: Regulates genes involved in lipid metabolism, insulin secretion and glucose homeostasis. "A" and "T" are rare, they are associated with increased positive effects of physical activity on blood sugar regulation.

LIPC: Modulates insulin and glucose levels. Regulates HDL levels and is associated with lowering 'high hepatic lipase' activity, which is linked to abdominal fat accumulation. Also associated with functions that lower the risk of coronary artery disease.

PPARD: Mediates fatty acid oxidation, lipid metabolism and the utilization of glucose for energy consumption.

PPARG: Involved in carbohydrate metabolism and insulin production—two factors that moderate the risk of obesity and type 2 diabetes. "G" is rare, it is associated with an increased glucose sensitivity response to exercise.

PPARGC1A: Regulates mitochondrial biogenesis, fatty acid oxidation, glucose utilization and thermogenesis. Variations have a negative effect on mitochondrial function. Endurance exercise has been shown to activate this gene in human skeletal muscle.

Stroke Risk

9p21: The chromosome 9p21 (Ch9p21) locus remains the most widely recognized and replicated genetic risk factor for coronary heart disease and stroke to date.

ACE: Produces the angiotensin 1 converting enzyme that balances electrolytes and regulates blood pressure. Variations in this gene are associated with hypertension, salt sensitivity, and cardiovascular risk.

Cardiovascular Health

9p21: The chromosome 9p21 (Ch9p21) locus remains the most widely recognized and replicated genetic risk factor for coronary heart disease and stroke to date.

ACE: Produces the angiotensin I converting enzyme that balances electrolytes and regulates blood pressure. Variations in this gene are associated with hypertension, salt sensitivity, and cardiovascular risk.

LPA: Codes for lipoprotein (a), high LPA in blood is a risk factor for coronary heart disease, cerebrovascular disease, atherosclerosis, thrombosis, and stroke. LPA concentrations may be affected by disease, and are only slightly affected by diet, exercise, and other environmental factors.

MTHFR: Involved in folate metabolism, antioxidant properties, and has biological effects in vascular cells. Associated with neural tube defects, immunodeficiency, and central system malformations.

NOS3: Encodes an enzyme that produces nitric oxide. Variations in the NOS3 gene can have an impact on antioxidant protection, increase the risk of high blood pressure, cardiovascular disease, rheumatoid arthritis and cancer. Variant carriers are more vulnerable to cigarette smoke.

SCARB1: A receptor for HDL that facilitates the uptake of cholesterol in the liver. This movement of cholesterol is a protective mechanism against the development of atherosclerosis, which is the principal cause of heart disease and stroke.

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.

POWER AND ENDURANCE

TEST	GENE	DESCRIPTION	GENOTYPE	RESULT
Endurance Activity	ACE	Cardiovascular System 1	GA	Moderate
	ADRB2	Regulation of Systems 1	GA	Moderate
	GALNTL6	World Class Endurance	GG	Good
	HFE	Protective Iron Absorption and Storage 1	CC	Good
	HIF1A	Improvement in Aerobic Performance 1	CC	Good
	NFIA	Aerobic Potential 1	TT	Poor
	PPARGC1A	Energy Regulation and Fitness 1	TT	Poor
	RPLP1	Endurance Associated 1	TT	Good
	RPLP1	Protein Synthesis 2	TT	Good
	VEGF	Protective Blood Circulation 1	GG	Good
Power and Sprint Activity	ACE	Increased Strength Gain 1	GA	Moderate
	ACTN3	Fast-Twitch Muscle 1	TC	Moderate
	ADRB3	Protective Elite Athlete Status 1	AA	Good
	AGT	Power Sports Performance 1	AA	Poor
	HIF1A	Fast-Twitch Muscle 1	CC	Poor
	IL6	Muscle Protection and Repair 1	GG	Good
	MTOR	Power Athlete Performance	GG	Poor
	NOS3	Blood/Oxygen Supply 2	CT	Moderate
	VDR	Muscle Strength and Size 1	CC	Poor

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INJURY AND RECOVERY

TEST	GENE	DESCRIPTION	GENOTYPE	RESULT
Ligament Strength	COL1A1	Protective Collagen Assembly 1	CC	Good
	COL5A1	Soft Tissue Injury Risk 1	CT	Moderate
Tendon Strength	COL1A1	Protective Collagen Assembly 1	CC	Good
	COL5A1	Soft Tissue Injury Risk 1	CT	Moderate
	COL5A1	Tendon Pathology 2	CT	Moderate
	COL5A1	Tendinopathy 3	CA	Moderate
	MMP3	Tendon Repair 1	CC	Poor
	MMP3	Tendon Repair 2	GA	Moderate
	MMP3	Tendon Repair 3	CC	Poor
Muscle Strength	IGF1	Muscle Growth and Function 1	GG	Moderate
	MSTN	Muscle Strength	TT	Good
	PPARGC1A	Energy Regulation and Fitness 1	TT	Poor
	TRHR	Muscle Mass and Strength	AA	Moderate
Muscle Repair	ACTN3	Susceptibility to Strenuous Exercise 1	TC	Moderate
	AMPD1	ATP Regulator 1	GG	Good
	CKMM	Muscle Damage	CC	Good
	IL6	Muscle Protection and Repair 1	GG	Good
	TNFA	Muscle Atrophy 1	GG	Good

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EXERCISE PERFORMANCE

TEST	GENE	DESCRIPTION	GENOTYPE	RESULT
Blood Pressure	AGT	Blood Pressure Regulation 1	AA	Good
	CREB1	Heart Rate Regulation	GA	Moderate
	GNB3	Blood Flow/Vessel Dilation 1	CT	Moderate
	NOS3	Coronary Disease 1	GT	Moderate
	NOS3	Blood/Oxygen Supply 2	CT	Moderate
Energy Metabolism	AMPD1	Irregular ATP and Muscle Myopathy	GG	Good
	PPARD	Glucose Utilization/Insulin Sensitivity 1	GA	Moderate
	PPARGC1A	Energy Regulation and Fitness 1	TT	Poor
	UCP1	Resting Energy Expenditure 1	TT	Good
Exercise Intensity	CNR1	Exercise Intensity Tolerance	TT	Good
	GABRG3	Tolerance for Exercise Intensity	GG	Good
Oxygen Uptake	ADRB2	Regulation of Systems 1	GA	Moderate
	AMPD1	ATP Regulator 1	GG	Good
	NFIA	Aerobic Potential 1	TT	Poor
	NRF1	Aerobic Potential	AA	Good
	PPARGC1A	Energy Regulation and Fitness 1	TT	Poor
	VEGF	Protective Blood Circulation 1	GG	Good

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EXERCISE RESPONSE

TEST	GENE	DESCRIPTION	GENOTYPE	RESULT
Blood Sugar and Insulin	HNF4A	Protective Positive Homeostasis Effects 1	AG	Good
	HNF4A	Protective Increased Insulin Response 2	CC	Good
	LIPC	Training-Induced Improvement 1	CC	Good
	PPARD	Glucose Utilization/ Insulin Sensitivity 1	GA	Moderate
	PPARG	Protective Helpful Glucose Utilization 1	CC	Good
	PPARGC1A	Insulin Sensitivity Response 1	TT	Poor
Stroke Risk	9p21	Coronary Artery Disease and Stroke	GG	Poor
	ACE	Cardiovascular System 1	GA	Good
Cardiovascular Health	9p21	Coronary Artery Disease and Stroke	GG	Poor
	ACE	Cardiovascular System 1	GA	Good
	LPA	Heart Disease Related 1	AA	Good
	MTHFR	Folate Metabolism 2	AG	Moderate
	NOS3	Coronary Disease 1	GT	Moderate
	SCARB1	Coronary Pathology Related 1	AA	Poor

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