



Genetic Report

Confidential Report Number

NA130372

Wellness & Longevity App

Whole Genome Sequencing



Confidential Information

Athletic Performance

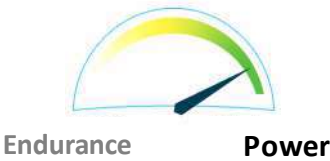
Your genes can affect many aspects of your health, including your potential to excel at specific workouts and sports. The genetic testing results below allow you to personalize your physical fitness routine in-order to help you reach your fitness and wellness goals.

Genetic testing for athletic performance focuses on a gene that determines your muscle fiber type. A number of different genes that are associated with exercise-induced fatigue and exercise-induced muscle damage have also been analyzed.



Your genes indicate you are likely to excel at

**Power-based
Sports and Training**



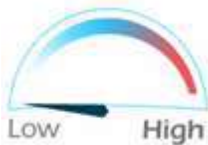
Athletic Predisposition

You are more likely to excel at power-based sports and physical activities. This doesn't mean you can't play or excel at endurance-based sports, only that when participating in endurance-based sports you are more likely to experience fatigue and muscle pain earlier and more intensely than people predisposed to those endurance sports.



Significant Exercise-Induced Fatigue

Your genes indicate you are genetically predisposed to becoming fatigued while exercising. You should not let this discourage you from exercising or physical activities, however, since the type of fatigue you are genetically prone to can be overcome with training.



Exercise-Induced Muscle Damage

You do not have sickle cell trait and are not at risk of exercise-induced muscle damage due to this specific trait.

Genetically Tailored Prevention

Your Athletic Predisposition

- ❖ Your genes indicate that you are *more likely* to excel in sports requiring physical power and strength. These activities include:
 - Five to ten minutes intervals of intense exercise on cardio equipment
 - Resistance and weight training
 - Short distance running sprints and swimming
 - Soccer, volleyball, and tennis
 - Gymnastics and wrestling
 - Boxing
 - Archery
 - Downhill skiing

This section is not shown in this sample report.

Exercise-induced Fatigue

- ❖ If you haven't exercised for a few months or longer, you may feel muscle pain, soreness and significant fatigue when you do start to exercise.

This section is not shown in this sample report.

Exercise-induced Muscle Damage

- ❖ You do not have exercise-induced muscle damage (sickle cell trait).

Hair Loss & Baldness

Your genes can affect many aspects of your health, including physical traits such as your risk of losing a noticeable amount of hair on your head during adulthood. This type of hair loss is sometimes referred to as male-pattern baldness or, in medical terminology, androgenetic alopecia. Male-pattern baldness can affect adult men of any age.

Genetic testing for a predisposition to hair loss focuses on genes that are involved in how your hair follicles interact with the testosterone that is normally produced by your body. Fortunately, there are a number of preventions that can be enacted to limit hair loss in men predisposed to baldness, so we can be empowered to prevail over this trait.

Your genes indicate you have a

Very High Risk
of Hair Loss and Baldness



Very Low Very High

Clinical Significance

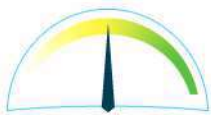
This trait is not clinically significant.
If this trait manifests, it will not have an
impact upon your health.



Very Low Very High

Your Risk of Significant Hair Loss

Your Lifetime Risk:
Very High
(72% Lifetime Risk)



Very Low Very High

Actionability

Preventive measures have been
shown to help prevent or delay
onset or progression of this trait.

Compared to other people with different genes, you are more likely to experience significant hair loss during adulthood, which is likely to lead to noticeable baldness. Preventive measures may limit hair loss. The preventions discussed below are usually most effective when put in place before significant hair loss has occurred.

Genetically Tailored Prevention

Lifestyle Modifications

This section is not shown in this sample report.

Medications

This section is not shown in this sample report.

Screening

This section is not shown in this sample report.

Misconceptions

- ❖ Wearing a hat does not cause hair loss.
- ❖ Getting your hair cut more often won't make your hair grow back quicker or thicker.
- ❖ Brushing your hair won't slow down hair loss.
- ❖ Shampooing/washing your hair more or less often does not affect hair loss.

Additional Information

This section is not shown in this sample report.

Hair Loss & Baldness

The Hamilton-Norwood Scale

The Hamilton-Norwood Scale provides a way to monitor both a receding hairline and baldness at the crown (vertex), as well as the effectiveness of treatments either to slow down further hair loss or to regrow hair. Treatments for hair loss have the greatest chance of being effective when started early, before significant loss has occurred.

This section is not shown in this sample report.

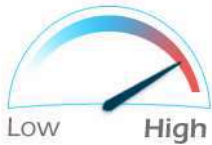
Melanoma

Melanoma is a very serious cancer of pigment-producing cells called melanocytes. While melanoma most often occurs in the skin, it can also develop in other areas of the body, such as the eyes. The rate of melanoma is increasing faster than almost all other cancers in North America but it can be cured if detected early.

The key to protecting yourself against melanoma is prevention throughout life and vigilance by both you and your doctor that will allow for early detection should the disease ever occur.

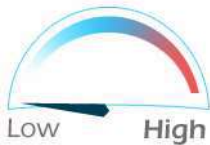
Your genes indicate you have a

LOW RISK
of Melanoma



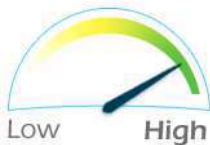
Clinical Significance

This potential disease can have a very significant impact upon your health & wellness.



Your Risk of Melanoma

Your Genetic Lifetime Risk:
Low (<2%)
Normal Lifetime Risk: 2%



Actionability

Preventive measures have been shown to help prevent or delay onset or progression of this disease.

Onset & Symptoms

Due to your genes, you have a lower genetic risk of developing melanoma compared to most people. While melanoma may occur at any age, if it does manifest then it is more likely to develop during adulthood.

Please note: This genetic report does not take into account non-genetic factors that may increase your risk of melanoma, such as if you've ever had sunburns (especially during your childhood) and if you've ever used tanning beds. Because of this, your overall lifetime risk of melanoma may be higher than your genetic risk.

Genetically Tailored Prevention

Monitoring and Screening

- ❖ A lower than normal risk does not mean you have no risk of getting melanoma. Therefore, it is important you still protect yourself from the sun and see a dermatologist as directed.
- ❖ Even though you have a lower than normal genetic risk of melanoma, your doctor may still want to conduct routine full body skin exams, such as once a year (or more frequently to monitor any suspicious moles).

This section is not shown in this sample report.

Lifestyle Modifications

This section is not shown in this sample report.

Disease Interventions

This section is not shown in this sample report.

Additional Information

- ❖ Melanoma Research Foundation: www.melanoma.org
- ❖ American Cancer Society: www.cancer.org/Cancer/SkinCancer-Melanoma
- ❖ Pictures of melanoma (useful for self-exams): www.mayoclinic.com/health/melanoma/DS00575

Arthritis
(Osteoarthritis)

Osteoarthritis, commonly referred to as just “arthritis,” results from the “wear and tear” on a person’s joints that occur over his or her life. When the cartilage in a joint wears down and osteoarthritis manifests, it can have a very detrimental impact on a person’s job, hobbies, and overall lifestyle. This condition is one of the leading causes of chronic disability throughout the world.

Osteoarthritis cannot be cured, although it can be treated with surgery (such as joint replacement) and symptoms can usually be somewhat controlled with medications. In order to avoid surgery and/or medications, preventive measures should be taken throughout life. While wear and tear to joints can’t be entirely avoided, knowing your genetic risk of developing arthritis in specific key joints will allow you to take the protective measures that will help to preserve your joint function later in-life.

Your genes indicate you have a



MODERATE RISK for Knee Arthritis



Knee

Your Risk of Osteoarthritis

Your Lifetime Risk of **Knee** Arthritis:

Moderate (53%)

Normal Generic Lifetime Risk: 40%



SLIGHTLY INCREASED RISK for Hip Arthritis



Hip

Your Lifetime Risk of **Hip** Arthritis:

Slightly Increased (26%)

Normal Generic Lifetime Risk: 25%



NORMAL RISK for Wrist Arthritis



Wrist

Your Lifetime Risk of **Wrist** Arthritis:

Normal (30%)

Normal Generic Lifetime Risk: 30%



Clinical Significance of Osteoarthritis

This potential condition can have a significant impact upon your health & wellness.



Actionability

Specific measures have been shown to help prevent or delay the progression of this condition.

Onset & Symptoms

Osteoarthritis usually occurs after the age of 50 because of wear and tear to joints throughout life. By age 70, almost 100% of people have some degree of arthritis in one or more joints. Symptoms usually include pain and stiffness when moving the affected joints, especially following exercise. Over time the affected joints are also likely to become stiffer and harder to move.

Genetically Tailored Prevention

Monitoring

This section is not shown in this sample report.

Medications & Supplements

This section is not shown in this sample report.

Alternative Interventions

- ❖ In some studies acupuncture has been shown to help alleviate some symptoms but has not yet been shown to help prevent arthritis from occurring.§

Myths & Misconceptions

- ❖ Cracking knuckles does not cause arthritis.

Lifestyle Modifications

This section is not shown in this sample report.

Additional Resources

- ❖ Arthritis Foundation: www.arthritis.org

Malignant Hyperthermia

Malignant Hyperthermia is a rare condition that causes a life-threatening increase in body temperature upon exposure to certain general anesthesia medications routinely used during surgical procedures. The majority of people with this disease do not have any warning signs or symptoms until they are exposed to the triggering medications during surgery, and the disease doesn't always manifest each time a person is exposed to anesthesia.

If a person has a genetic variant that causes this condition, he or she is predisposed to Malignant Hyperthermia. Numerous preventive measures have been shown to significantly decrease the risk of its potentially harmful effects. The most important prevention is for a person and his or her healthcare provider to know a genetic predisposition to this condition exists *before* they are ever given general anesthesia.

Your Genetic Assessment

You are likely
NOT AFFECTED



Clinical Significance

This potential disease can have a very significant impact upon your health & wellness.



Your Risk of Malignant Hyperthermia

This genetic test did not detect any genetic mutations associated with Malignant Hyperthermia.



Actionability

Preventive measures have been shown to help prevent the onset of this disease.

Genetically Tailored Prevention

Monitoring

- ❖ Because your genetic screening indicates you are not likely to be affected by this condition, no special monitoring is required.

Additional Information

- ❖ If you are interested in learning more about this condition, you can visit the Malignant Hyperthermia Association of the United States' website at: www.mhaus.org

Heart Attack

Coronary Artery Disease

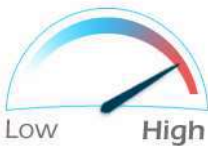
A heart attack occurs when the blood supply to the heart is interrupted, causing some heart tissue to die. A heart attack is an emergency because it may cause sudden death or, following a heart attack, the heart may not function correctly. The most common cause is a build-up of plaque in one of the blood vessels feeding the heart, a condition referred to as coronary artery disease (CAD), which is related to high cholesterol levels.

Over one million people suffer a heart attack each year in the United States and about 40% of these people will die from the heart attack. Heart disease, including heart attacks, is the leading cause of death in the world but numerous preventive measures exist. Your healthcare provider will now be able to use this report to genetically tailor a plan to protect your heart.



Your genes indicate you have a

HIGH RISK of a Heart Attack due to Coronary Artery Disease



Clinical Significance

This potential disease is very important to your health & wellness.

Your Lifetime Risk

Your Lifetime Risk:
High (55%)
Normal Lifetime Risk: 42%

Actionability

Preventive measures have been shown to help prevent or delay onset or progression of this disease.

Onset & Symptoms

You are at greatest risk of a heart attack **both before and after the age of 50.**

Symptoms of a heart attack include chest pain or pressure that may radiate down the left arm or up to the jaw as well as shortness of breath, fatigue, sweating and nausea/vomiting.

A heart attack is an emergency and if you think you are having one, you should immediately go to an emergency room, call an ambulance, or call 911.

Genetically Tailored Prevention

Monitoring

- ❖ Your healthcare provider may want to monitor your CRP, homocysteine and HgA1C levels, which are biomarkers that, when elevated, may indicate the need for specific interventions and more frequent monitoring to protect against heart attacks.

This section is not shown in this sample report.

Lifestyle Modifications

This section is not shown in this sample report.

Complementary Preventions

This section is not shown in this sample report.

Additional Information

This section is not shown in this sample report.

Medication Assessment for Cardiovascular Health

Medications

As with the rest of your report, the following information is based solely upon an analysis of your genes. Other factors not analyzed within this report, such as other medications you take, your age, gender, and weight, may also affect whether the following medications are likely to be effective and/or cause side effects. Please do not stop or modify any medications you are currently taking because of the information below unless instructed to do so by your doctor.

- ✓ means that no significant findings were detected.
- ✚ means that an important finding was detected and should be discussed with your healthcare provider.

ANTICOAGULANTS (thins the blood)

Warfarin (Coumadin®) ✓
Warfarin (Coumadin®) Slight Resistance Detected

This section is not shown in this sample report.

ANTITHROMBOTICS (makes blood less sticky and less likely to form clots)

Clopidogrel (Plavix®) ✓

This section is not shown in this sample report.

Aspirin ✓

- ❖ Aspirin is likely to be effective in helping to prevent heart attacks and strokes.

CHOLESTEROL LOWERING MEDICATIONS

Statins (such as Lipitor®, Crestor®, Zocor®, etc.) ✚

- ❖ Statin Adverse Reaction not detected: You are at very low risk (~0.6%) of adverse reactions, which may include severe muscle pains, with statins.

Increased Benefit of High Dose Atorvastatin (Lipitor®) Detected

- ❖ You are likely to benefit from taking high-dose atorvastatin versus standard doses of other statins, such as pravastatin (Pravachol®).
- ❖ Your genes indicate that you may be able to reduce (by around 40%) your risk of death or a major cardiovascular event such as a heart attack if you are prescribed high-dose atorvastatin therapy (80mg) compared to standard-dose pravastatin therapy.

ASSOCIATED CONDITIONS

Blood Clot Risk including Deep Vein Thrombosis (DVTs) ✓

- Normal Risk: You do not have any genes that are increasing your risk of blood clots such as DVTs.

Preventable Sudden Death
due to a Heart Arrhythmia

Sudden death can be caused by a heart arrhythmia, which is an abnormality in the heart’s electrical conduction system that can affect newborns, children, and adults. Many times this abnormality is caused by a change in a gene that a person is born with.

Unfortunately, people who are born with this abnormal gene usually do not have any symptoms, and the first presentation of the condition is death itself. Therefore, without genetic testing they remain unaware of this life-threatening predisposition.

Once a healthcare professional knows about the condition, however, heart arrhythmias can be treated, and sudden death can likely be prevented through various interventions, such as medications.

If a person has a change in a gene associated with sudden death, his or her risk of death increases even further during exercise. If you’ve ever heard a news story about an athlete who collapsed and died while exercising or playing a sport, many times it is because the person’s genes were predisposing him or her to sudden death, and because no one knew of this predisposition, death could not be prevented.

It is important to remember that the analysis covered by this report only evaluated the data that was provided from your genetic test. If data was not provided then it was not included in the analysis. Some types of genetic tests provide more data than others and you may also want to discuss your genetic testing options with a healthcare professional if you want to confirm that your genetic testing provided comprehensive data on genes associated with sudden death.

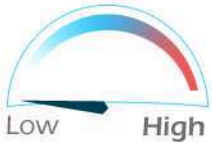
Your Genetic Assessment

You are **NOT** predisposed
to Sudden Death



Clinical Significance

This potential condition can have a very significant impact upon your health & wellness.



Your Risk of Sudden Death

You do not have any variations in genes that are associated with sudden death due to a heart arrhythmia.



Actionability

Preventive measures have been shown to help prevent or delay the progression of this condition.

Genetically Tailored Prevention

Additional Information

- ❖ You are not predisposed to sudden death due to a heart arrhythmia.
- ❖ This analysis included both rare and more common genetic causes of sudden death due to an abnormal heartbeat, including:
 - Hypertrophic Cardiomyopathy (HCM)
 - Dilated Cardiomyopathy (DCM)
 - Restrictive Cardiomyopathy (RCM)
 - Long QT Syndrome (LQTS)
 - Arrhythmogenic Right Ventricular Dysplasia (ARVD)
 - Brugada Syndrome
 - Catecholaminergic Polymorphic Ventricular Tachycardia (CPVT)
- ❖ It is important to understand that you may still be at risk of sudden death from other causes that were not assessed here. For instance, you may have cholesterol build-up in the arteries that feed your heart (known as coronary artery disease, or CAD), which would put you at risk of sudden death due to a heart attack. Your healthcare provider will be able to screen you for both early and late stage heart disease and, if necessary, implement interventions.

Additional Resources

- ❖ Here are some additional resources you can use if you would like to learn more about sudden death due to heart arrhythmias:
 - ❖ Sudden Arrhythmia Death Syndromes Foundation: www.sads.org
 - ❖ Cardiac Arrhythmias Research and Education Foundation (C.A.R.E.): www.longqt.org
 - ❖ Hypertrophic Cardiomyopathy Association: www.4hcm.org
 - ❖ Mayo Clinic Hypertrophic Cardiomyopathy Page: www.mayoclinic.org/hypertrophic-cardiomyopathy

Genetic Profile

Disease or Condition

Your Risk Status

Medications

Severe Adverse Reactions to Abacavir	No Increased Risk Detected
Effectiveness of High Dose Atorvastatin (Lipitor®) vs Standard Dose Pravastatin (Pravachol®) to Protect against Coronary Artery Disease	REDUCED RISK OF DEATH OR MAJOR CARDIOVASCULAR EVENTS (41%) WITH HIGH-DOSE ATORVASTATIN THERAPY (80MG) COMPARED TO STANDARD-DOSE PRAVASTATIN THERAPY
Risk of Adverse Reactions to Statins (Severe Muscle Pain)	VERY LOW RISK OF ADVERSE REACTION (0.6%)
Aspirin Effectiveness	Normal Effectiveness of Aspirin (Aspirin likely to be effective in protecting against blood clots, heart attacks, and strokes.)
Clopidogrel (Plavix®) Effectiveness	Normal Effectiveness of clopidogrel (Plavix®)
Warfarin (Coumadin®) Dosing	WARFARIN RESISTANCE (MAY NEED SLIGHTLY HIGHER LOADING DOSE AND MAINTENANCE (~5-7MG/DAY) DOSE)
Adverse Reaction to Nitrous Oxide	You may be at INCREASED RISK due to two mutations in the MTHFR gene (Check Homocysteine Levels)
Mercaptopurine and Azathioprine Adverse Reactions due to ITPA	Partial ITPase DEFICIENCY DETECTED - Possible Increased Risk of Adverse Reactions
Mercaptopurine and Azathioprine Dosing & Toxicity due to TPMT	No Increased Risk Detected
Dihydropyrimidine Dehydrogenase Deficiency & Possible 5-FU Toxicity	RISK DETECTED
Susceptibility to Postanesthetic Apnea with Succinylcholine, Mivacurium or Suxamethonium due to BCHE Gene	Carrier
Phenytoin Metabolism & Dosing	Normal Metabolism of Phenytoin (Approximate Mean Daily Phenytoin Dose = 354/mg)
Adverse Reactions to Sulfonylureas	No Increased Risk Detected

Cancer

Adrenocortical Carcinoma	No Increased Risk Detected
Breast Cancer	SLIGHTLY INCREASED RISK
Breast Cancer with Radiation Exposure	No Increased Risk Detected
Colorectal Cancer	MODERATE RISK

Genetic Profile

Disease or Condition

Your Risk Status

Heart & Blood Vessels
(Cardiology)

Atrial Fibrillation	No Increased Risk Detected
MTHFR Deficiency That May Lead to Blood Clots and Cardiovascular Disease (Reversible with Special Methyl B Vitamins)	You are LIKELY AFFECTED by MTHFR Deficiency due to two mutations in the MTHFR gene known as A222V (Check Homocysteine Levels)
Salt-sensitive Hypertension	No Increased Risk Detected

Child Development

Effect of Breastfeeding as a Baby on IQ	BREASTFEEDING AS A BABY MAY INCREASE IQ
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Fertility

Congenital Bilateral Absence of Vas Deferens	No Increased Risk Detected
Obstructive Azoospermia	No Increased Risk Detected

Digestive Tract & Liver
(Gastroenterology)

Lactose Intolerance	Increased risk of becoming lactose intolerant as an adult
Liver Disease	No Increased Risk Detected
Hirschsprung Disease	Increased Risk of approx. 5.7-fold Detected

Blood
(Hematology)

Blood Clot Risk due to Factor V Leiden	No Increased Risk Detected
Blood Clot Risk due to Prothrombin 20210	No Increased Risk Detected
Blood Clot Risk due to Protein C Deficiency	No Increased Risk Detected
Blood Clot Risk due to Protein S Deficiency	No Increased Risk Detected

Genetic Profile

Disease or Condition

Your Risk Status

Hematology continued

Blood Clot Risk due to Antithrombin III Deficiency	No Increased Risk Detected
Bleeding Risk due to Factor V Deficiency	No Increased Risk Detected
Bleeding Risk – Factor XI Deficiency	No Increased Risk Detected
Bleeding Risk – Von Willebrand Disease, Type 2M	No Increased Risk Detected
Bleeding Risk due to Prothrombin Deficiency	No Increased Risk Detected
Bleeding Risk – Von Willebrand Disease, Type 1	No Increased Risk Detected
Bleeding Risk – Von Willebrand Disease, Type 2B	No Increased Risk Detected
Hemochromatosis	Carrier
Drug-induced Hemolysis	No Increased Risk Detected
Hemolytic Anemia due to Triosephosphate Isomerase Deficiency	No Increased Risk Detected
Homocystinuria	No Increased Risk Detected
Thrombotic Thrombocytopenic Purpura	No Increased Risk Detected
Idiopathic Pancreatitis	No Increased Risk Detected
Susceptibility to Lead Poisoning due to ALAD Gene	Normal Susceptibility

Neurology

Brain Aneurysm	INCREASED RISK
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Pulmonology

Alpha-1-Antitrypsin Deficiency	No Increased Risk Detected
Asthma	RISK DETECTED
Bronchiectasis	No Increased Risk Detected

Genetic Profile

Disease or Condition

Your Risk Status

Pulmonology continued

Emphysema

No Increased Risk Detected

Chronic Respiratory Disease

No Increased Risk Detected

Infectious Disease

Resistance to HIV Infection

No Resistance Detected

Susceptibility to West Nile Virus

Normal Susceptibility

Recurrent Bacterial Infections

No Increased Risk Detected

Increased Risk of Disseminated Infection with
Mycobacterium avium and Salmonella
enteritidis

No Increased Risk Detected

Hearing (Audiology)

Noise-induced Hearing Loss

LOWER RISK

Analysis Alerts

This page contains important information about to the analysis of your genetic data. The alerts below are provided so that you are aware of any limitations that were identified during the analysis of your data. You may want to discuss the alerts with your healthcare professional.

Additional information about alerts: <https://sequencing.com/knowledge-center/app-alerts>

Ambiguity in genetic data

✓ No ambiguity exists in the genetic data.

Incomplete genetic data

✓ Genetic data used in this analysis is complete. There was no incomplete data. 100% of data was available to analyze each disease, condition and trait that appears in this report.

No genetic data (analysis not possible)

✓ All diseases, traits and conditions were analyzed.

Your Genetic Testing Data

Variant ID column lists the exact position that was tested for within the gene listed in column #2. This variant ID can be thought of as the exact “GPS coordinate” within the gene.

Gene column refers to the gene that’s being tested for in that row.

No Risk column refers to the letter of the genetic code that is usually not associated with having an increased or decreased risk of the disease, condition, or trait listed in column #6.

Risk column refers to the letter of the genetic code that is likely to be associated with having either an increased or decreased risk of the disease, condition, or trait listed in column #6.

Your Genetic Makeup column refers to the exact letters of YOUR genetic makeup at that position (column #1) in that gene (column #2). Single most genes come in pairs, there are usually two letters at each position. If only one letter is listed, this means you only have one copy of that gene (which is perfectly normal for some genes).

The letters of the genetic code are G, A, T, and C. You may also see an I (Insertion) or D (Deletion). Two dashed lines “--” means that variant’s data did not pass quality control and therefore the data was excluded from your analysis.

Condition / Trait Assessed column lists what exactly is being analyzed at that specific position within the gene listed in column #2.

Reference(s) column refers to the scientific research studies that found that the specific position (column #1) within the gene (column #2) is associated with the specific disease, condition, or trait listed in column #6. You can find these papers by either searching pubmed.com or Google for the reference listed (one at a time) along with the Gene and the name of the condition.

Variant ID	Gene	No Risk	Risk	Your Genetic Makeup	Condition / Trait Assessed	Reference(s)
70740	MTCYB	G	A	G	Insurmountable Exercise-induced Fatigue	Bouzidi (1993), Dumoulin (1996), Andreu (1999), Katirji (2013)
73822	MTTG	T	C	T	Insurmountable Exercise-induced Fatigue	Nishigaki (2002), Kitzman (2008), Bhatia (2015)
44	ACTN3	C	T	CT	Athletic Predisposition	North (1999), Suminaga (2000), Yang (2003), MacArthur (2004), Niemi (2005), Lucia (2006), MacArthur (2007), Moran (2007), Roth (2007), Santiago (2008), Eynon (2009), Shang (2010), Berman (2010), Gentil (2011), Hagberg (2011), Chiu (2011), Cieřczyk (2011), Puthuchear (2011), Eynon (2011), Shang (2012), Pimenta (2012), Zilberman-Schapira (2012), Mehlman (2012), Kikuchi (2012), Eynon (2012), Eynon (2013), Tucker (2013), Ahmetov (2013), Guth (2013), Grealy (2013), Pimenta (2013), Seto (2013), Maffulli (2013), Massidda (2014), Mikami (2014), Morucci (2014), Garatachea (2014), Kim (2014), Tringali (2014), Kikuchi (2015), Orysiak (2015), Ben-Zaken (2015), Ahmetov (2015), Deschamps (2015), Head (2015), Kikuchi (2015), Coelho (2016), Sarzynski (2016), Pasqua (2016), Garton (2016), Papadimitriou (2016), Baumert (2016), Lee (2016), Del Coso (2017), Dionisio (2017), Galeandro (2017), Li (2017), Yang (2017)
40652	AMPD1	G	A	GA	Surmountable Exercise-induced Fatigue	Morisaki (1992), Rico-Sanz (2003), Lucia (2005), Ruiz (2009), Eynon (2013)

Your Genetic Testing Data

Variant ID	Gene	No Risk	Risk	Your Genetic Makeup	Condition / Trait Assessed	Reference(s)
19985	HBB	T	A	TT	Exercise-induced Muscle Damage (Sickle Cell Trait)	Ingram (1956), Ingram (1959), Serjeant (1968), Dozy (1978), Mears (1981), Kan (1982), Orkin (1982), Antonarakis (1984), Pagnier (1984), Nagel (1985), Kulozik (1986), Jenkins (1987), Embury (1987), Ragusa (1988), Sammarco (1988), Barany (1991), Lapoumeroulie (1992), Zeng (1994), Currat (2002), Romero (2002), Kwiatkowski (2005), Serjeant (2007), Modiano (2008), Center for Pediatric Genomic Medicine of Children's Mercy Hospital and Clinics (2014), Emory Genetics Laboratory of Emory University (2014), Genetic Services Laboratory of the University of Chicago (2015), GeneDx (2016), Division of Human Genetics of Children's Hospital of Philadelphia (2016)
68422	20p11.22	G	A	A	Androgenic Alopecia	Richards (2008), Hilmer (2008)
74786	AR	G	A	G	Androgenic Alopecia	Hilmer (2005)
51103	CDKN2A	C	A	CC	Melanoma, Cutaneous Malignant	MacGeoch (1994), Holland (1995), Hayward, (1996), Borg (1996), Liu (1999), Liu (1999)
51126	CDKN2A	C	G	CC	Melanoma, Cutaneous Malignant	Holland (1995), Monzon (1998), MacKie (1998)
51145	CDKN2A	C	G	CC	Melanoma, Cutaneous Malignant	Walker (1995), Harland (1997), Monzon (1998), Pollock (1998), MacKie (1998)
51152	CDKN2A	A	C	AA	Melanoma, Cutaneous Malignant	Soufir (1998), Ruiz (1999), Yakobson (2001), Yakobson (2003)
51183	CDKN2A	C	A	CC	Melanoma, Cutaneous Malignant	Hussussian (1994), Mori (1994), Whelan (1995), Ciotti (1996)
51197	CDKN2A	C	G	CC	Melanoma, Cutaneous Malignant	Hewitt (2002)
51199	CDKN2A	A	T	AA	Melanoma, Cutaneous Malignant	Goldstein (2001)
51212	CDKN2A	T	C	TT	Melanoma, Cutaneous Malignant	Harland (2001)
102407	9p21	A	G	AA	Melanoma	Bishop (2009)
102405	22q13	A	G	AG	Melanoma	Bishop (2009)
45635	BRCA2	A	G	AA	Melanoma	Scott (2002)
102409	MATP	C	G	GG	Melanoma	Duffy (2009) , Fernandez (2008) , Guedj (2008)
9162	MC1R	G	A	GG	Melanoma	Landi (2006)
101962	MC1R	G	T	GG	Melanoma	Landi (2006)
102406	PIGU	G	A	GG	Melanoma	Brown (2008)
74814	TYRP1	T	C	CC	Melanoma	Gudbjartsson (2008), Duffy (2010)
9169	MC1R	C	T	CC	Melanoma	Landi (2006)
101976	MC1R	G	A	GG	Melanoma	Landi (2006)

Lifetime Risk Tables

The following tables are generic and for reference purposes only. **They do not represent your own lifetime risk of any of these conditions.** Everyone who receives a report receives this exact page. Your own particular calculated lifetime risk for each of the following diseases is conveyed in the pages that follow later in this report.

Your genetic report assigns you to a specific risk category for each of the following conditions. The tables below convey what each category represents. Please note that the lifetime risk values associated with each risk category are unique for each condition, which is why each disease has its own table.

Risk legend for Melanoma

Melanoma Risk		
Risk Category	Lifetime Risk Range	Automatic Minimum Risk Level
Lower	<2%	
Normal	2%	
Slightly Increased	2.1-3.9%	
Moderate	4-9.9%	One marker found in the MC1R gene
High	10-19.9%	Two markers found in the MC1R gene
Very High	≥20%	One marker found in the CDKN2A or CDK4 genes

Risk legend for Osteoporosis

Osteoporosis Risk*		
Risk Category	Lifetime Risk Ranges	Automatic Minimum Risk Level
	Female	
Lower	<30%	
Normal	30%	
Slightly Increased	30.1-34.9%	
Moderate	35-49.9%	
High	50-69.9%	
Very High	≥70%	One or two G661S risk markers in the COL1A2 gene

*Osteoporosis risk provided only for females due to insufficient genetic studies of osteoporosis risk in men.

Risk legend for Osteoarthritis

Arthritis (Osteoarthritis) Risk				
Risk Category	Knee Arthritis		Hip Arthritis	Hand/Wrist Arthritis
	Lifetime Risk Ranges		Lifetime Risk Ranges	Lifetime Risk Ranges
	Female	Male		
Lower	<47%	<40%	<25%	<30%
Normal	47%	40%	25%	30%*
Slightly Increased	47.1-49.9%	40.1-44.9%	25.1-29.9%	30.1-34.9%
Moderate	50-59.9%	45-59.9%	30-49.9%	35-49.9%
High	60-74.9%	60-74.9%	50-69.9%	50-69.9%
Very High	≥75%	≥75%	≥70%	≥70%

*The exact statistic for normal lifetime risk of wrist and hand arthritis does not exist, so the 30% lifetime risk is an estimate based on epidemiologic data from the CDC.

Risk legend for Heart Attack

Heart Attack Risk*			
Risk Category	Lifetime Risk Ranges		Automatic Minimum Risk Level
	Female	Male	
Lower	<25%	<42%	
Normal	25%	42%	
Slightly Increased	25.1-29.9%	42.1-44.9%	
Moderate	30-49.9%	45-49.9%	One or two risk markers at rs268 in the LPL gene
High	50-69.9%	50-69.9%	
Very High	≥70%	≥70%	One or two risk markers in the LDLR, LPL, LIPI, LIPA, APOB, APOA2, APOA5, ABCG5, or ABCG8 genes

*Early-onset heart attack (before age 50) = one or two markers detected at rs5918 in ITGB3 or rs10757274, rs2383206, rs2383207, rs10757278, rs1333049 in 9p21.