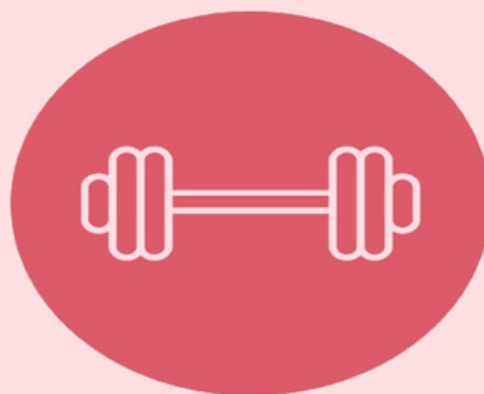




This is a sample report intended for illustrative purposes only. Some content and data have been changed. To purchase the full report, please visit www.xcode.life

Your guide to personalized fitness

GENE FITNESS



**For Informational Purposes Only. Not for Medical use*

Table of contents

Endurance	11
Aerobic Capacity or VO2 max	12
Muscle Power	13
Cardiac Output	14
Lung Function	15
Lactate Accumulation during Training	16
HDL Cholesterol Levels with Exercise	17
Insulin Sensitivity with Exercise	18
Resting Metabolic Rate or RMR	19
Achilles Tendinopathy	20
Exercise Induced Muscle Damage	21
Ligament Injury	22
Pain Tolerance	23
Fatigue	24
Handgrip Strength	25
Joint Strength and Flexibility	26
Performing Under Stress or Warrior vs Worrier	27
Exercise Motivation	28
Exercise Recovery	29
Response to Resistance Training	30
Lean Body Mass	31
Muscle Building	32
Weight Loss with Exercise	33
Glucose Response to Exercise	34
Triglyceride Levels with Exercise	35
Exercise Behaviour	36

This is a sample report

Introduction

Have you ever wondered why many Olympics sprint winners are Jamaicans? And why the world's best marathon runners are from Kenya? Do you want to know what sport you are ideally built for? The answer is in your genes.

Some interesting facts about genes and athletic performance-

- **Finnish skier Eero Mäntyranta became the “greatest endurance athlete” of his generation in part because of a mutation in his erythropoietin receptor (EPOR) gene which helps produce excessive amounts of red blood cells. His family was found to carry this gene.**
- **The Kalenjin tribe of Kenya makes up about 12% of the African population. In 2011, 32 Kalenjin runners finished a marathon faster than 2 hours, 10 minutes, whereas only 17 Americans managed to do so historically.**
- **The Indian Cricket Team, The National Basketball Association (NBA) and other professional sports teams around the world are beginning to incorporate genetics as part of their training regimen.**
- **A study by Lancashire University showed that when the genotype matched with training, the likelihood of significant improvement was 21 times more for power based activities and 28.5 times more for endurance based activities, when compared with mismatched training.**
- **Donald Thomas had barely 8 months of training when he won a gold at the Osaka World Championships in '07 beating Stefan Holm, despite Holm's extensive training. Later on, scientists identified one of the key reasons for his dramatic success – a 10.5” uncharacteristically long Achilles tendon. The longer and stiffer the tendon, the more elastic energy it can store, and when stretched, rocket its owner into air.**

Recent research has confirmed that our efficiency of performing various physical activities is dependent on a number of genes. Inheritance of favorable genetic type provides an advantage in athletic and sports performance. Genes play a key role in influencing your athletic ability, sports performance and physical fitness.

In this report we profile genes that have been shown to influence endurance performance, aerobic capacity, power/strength activity performance and several other attributes relevant to fitness.

We hope that this report will help you understand your body better and align your training with your genetic type to get the best performance enhancement.

Introduction

Human health is a complex interplay between genetics and environment (lifestyle, diet, activity, stress, etc.). Your genes, training and diet, all play a vital role in your overall fitness.

This report is presented in a user friendly language and format. The following tips will help you get the best information value out of the report.

1. The word “likely” is used often in the report. What does it mean?

People generally know that high cholesterol can lead to heart conditions. However, there are individuals with high cholesterol who do not develop heart disease. Similarly, smoking can lead to lung disease, but not always. Hence, certain genetic parameters can lead to certain outcomes but other factors may modify the outcome. “Likely” means, it is more likely that one will see the outcome, but other factors may modify it.

2. What does the term “average” mean in the report?

Average implies neither high nor low, rather an intermediate outcome. For example, average likelihood of injury is an intermediate level between high and low likelihood. Average can also be understood in the context of “Normal” or “Typical” or “Moderate”

3. How do I know which result is applicable to me?

Only results with a check mark (✓) or exclamation (!) are applicable to you, the others are not applicable. All possible outcomes are provided in the table to provide a context to your outcome.

4. Where did the information contained in the report come from?

The genetic markers that are used in this report are based on scientific studies published in international journals. A list of references is available for you to read on our web blog.



















5. Some genes indicate beneficial and some non-beneficial for the same outcome, why?





It's estimated that there are around 20,000 to 30,000 genes in the human body. Most of the human body functions are regulated by several genes, not one. Humans have a combination of favorable and unfavorable genes for the same trait. “Your Outcome” indicates an overall outcome from all of the genes. Please note that, not all genes contribute equally towards the trait, hence, pay attention to individual gene outcomes as well and see which one is closely aligned to your own observations about yourself. Olympics athletes, for example, are likely to carry many more gene variants that are favorable, than unfavorable for their sport.

6. Some sentences are colored in green and others in red, why?





Attributes that are advantageous for sports fitness are indicated in green and those that are not advantageous are in red. Neutral outcomes are indicated in black. But do remember, what is an advantage in one thing could be a disadvantage in another and vice versa. For example, generally, being flexible is an advantage, but not so for sprint runners, where inflexibility favours superior performance.

YOUR SUMMARY RESULTS

Trait Name	Your Result	Your Outcomes
Endurance Genetic variations in endurance levels Learn More		
		
		
Aerobic Capacity or VO2 max Genetic variations in transport and utilization of oxygen during exercise Learn More		
		
		
Muscle Power Genetic variations in muscle power Learn More		
		
		

<p>Cardiac Output Genetic variations in cardiac output with exercise Learn More</p>		<p>Genetic variations in cardiac output with exercise</p>
<p>Lung Function Genetic variations in lung capacity and function Learn More</p>		<p>Genetic variations in lung capacity and function</p>
<p>Lactate Accumulation during Training Genetic variations in lactate accumulation during training Learn More</p>		<p>Genetic variations in lactate accumulation during training</p>
<p>HDL Cholesterol Levels with Exercise Genetic variations in HDL cholesterol levels with exercise Learn More</p>		<p>Genetic variations in HDL cholesterol levels with exercise</p>

Insulin Sensitivity with Exercise Genetic variations in insulin sensitivity with exercise Learn More	⚠️	
Resting Metabolic Rate or RMR Genetic variations in RMR Learn More	⚠️	
Achilles Tendinopathy Genetic variations in risk for AT Learn More	⚠️	
Exercise Induced Muscle Damage Genetic variations in risk for exercise induced muscle damage Learn More	⚠️	
Ligament Injury Genetic variations in risk for ligament injury Learn More	✅	

Pain Tolerance Genetic variations in pain tolerance Learn More		
		
Fatigue Genetic variations in fatigue onset Learn More		
		
Handgrip Strength Genetic variations in handgrip strength Learn More		
		
Joint Strength and Flexibility Genetic variations in joint strength and flexibility Learn More		
		



ENDURANCE

Average: Likely to be average at endurance activities

The ability of the body to sustain prolonged rhythmic exercise is termed endurance. Cardiovascular endurance refers to the heart's ability to fuel the body with oxygen, and muscular endurance refers to the muscles' ability to work continuously. Certain genes like

Recommendations:

- People with your genetic type may perform average in endurance activities.
- You can improve your endurance potential by increasing your VO2max through endurance training exercises.
- Consider aerobic exercises like skipping, running, cycling, brisk walking, skating, NS swimming. Do long runs at a slow and sustainable pace; many people try to run their long run too fast and struggle to finish strong. Go slow and focus on covering the distance.

Genes Analyzed: ADRB2, TPK1, PPARGC1A, ADRB1, ACTN3, PPARG, CKM, HIF1A, PPARG, GABPB1, HFE, AGTR2, RBFOX1, KDR (VEGFR2), VEGFA, UCP2, BDKRB2, SLC2A4, CLSTN2, ADRB3, NRF1, TSHR, COL5A1, NFATC4, NFIA-AS2, NFE2L2, PPARGC1B

Number of Gene Markers Found: 28

Number of Gene Markers Analyzed:34



AEROBIC CAPACITY OR VO2 MAX

Good: Likely to have good aerobic capacity

Aerobic capacity (VO2 max) or the maximal oxygen uptake is the ability of the body to maximally transport and utilize oxygen during physical activity. Muscles need more oxygen during exercise to produce more energy. This is the reason why there is a progressive increase in breathing when the intensity of exercise increases. By improving aerobic

Recommendations:

- People with your genetic type may have good transport and utilization of oxygen during exercise.

Genes Analyzed: ADRB2, VEGFA, PPARGC1A, ADRB1, NRF1, MYLIP, GABPB1, PPARA, NFIA-AS2, IL6, MYBPC3, HFE, CPQ, CAMK1D, BAHD1

Number of Gene Markers Found: 15

Number of Gene Markers Analyzed:17



MUSCLE POWER

Good: Likely to be good at power-based activities

Muscle power is defined in fitness and sports as the ability to exert maximum force in a minimum time. It is an important aspect of performance as it takes into account both strength and speed. Type II or fast-twitch muscle fibers allow us to perform rapid, high-intensity movements. The ability of blood vessels to constrict and make oxygen utilization more

Recommendations:

- People with your genetic type may have a tendency to perform better in power-based activities, such as sprinting or weightlifting, which require fast bursts of muscle power.

Genes Analyzed: ADRB2, TPK1, RC3H1, ZNF423, ACTN3, PPARA, SLC16A1 (MCT1), DMD, CKM, HIF1A, ARHGEF28, MED4, MTR, MPRIP, NOS3, HSD17B14, IP6K3, MTHFR, CREM, AGT, MTRR, AGTR2, FOCAD, COTL1, NRG1, UCP2, GABRR1, IL6, CALCR, CLSTN2, CACNG1, IGF1, WAPL, AMPD1, PPARGC1B, PPARG, EPAS1

Number of Gene Markers Found: 38

Number of Gene Markers Analyzed:43



CARDIAC OUTPUT

Average: Likely to have average cardiac output

Cardiac output refers to the amount of blood pumped out per ventricle each minute. It is the product of heart rate and stroke volume. An optimal cardiac output is needed for a continuous supply of oxygen and nutrients to all the organs. The cardiac output may rise to 3

Recommendations:

- People with your genetic type may have an average cardiac output and may require more

Genes Analyzed: ADRB2

Number of Gene Markers Found: 1

Number of Gene Markers Analyzed:1



LACTATE ACCUMULATION DURING TRAINING

Higher: Likely to have higher lactate accumulation

Lactate accumulation occurs when the body produces more lactate than it can burn and use as energy. This usually occurs after strenuous exercise. This can lead to exercise-induced or exercise-related hyperlactatemia. This can be beneficial in cases where people adopt lactate

Recommendations:

- People with your genetic type show a slower lactate clearing potential.
- Include training programs that are a combination of high volume, maximal steady-state, and interval workouts, which have the most pronounced effect on lactate threshold improvement.
- Consume foods rich in vitamin B (such as leafy green vegetables, cereals, peas and beans, fish, beef, poultry, eggs, and dairy products), magnesium (such as pumpkin, sesame, and

Genes Analyzed: SLC16A1 (MCT1)

Number of Gene Markers Found: 1

Number of Gene Markers Analyzed:1



HDL CHOLESTEROL LEVELS WITH EXERCISE

Lower: Likely to have less increase in HDL levels

Levels of HDL cholesterol or good cholesterol can be increased through physical activity. HDL cholesterol removes other harmful types of cholesterol from the blood and reduces the risk of developing cardiovascular issues. Improving the exercise routine and increasing the intensity of workouts can help boost HDL cholesterol levels. Research shows that the

Recommendations:

- People with your genetic type may experience less increase in the HDL cholesterol levels with exercise. This means that exercising may have no added benefit in increasing your HDL levels.
- As exercising may not help your HDL levels, you can focus on other methods of increasing your HDL levels, which is important for maintaining heart health.
- Increase the use of extra-virgin olive oil in your diet as it can increase the levels of HDL cholesterol in your body.

Genes Analyzed: ACADS, PPARD

Number of Gene Markers Found: 2

Number of Gene Markers Analyzed:2

Disclaimer

Xcode provides genetic assessment services for research or investigational use, and Xcode's reports should be interpreted or used exclusively by professional practitioners, including but not limited to certified physicians, dietitians, nutritionists, sports therapists, and others in similar professions ("Professional Practitioners"). Xcode does not provide any direct medical advice to individual patients. Only a qualified medical practitioner can provide relevant medical or healthcare advice, diagnosis, or treatment based on this report. Genetic information must always be considered in conjunction with other information about your health, such as lifestyle, family history, risk factors, biomedical data, diet, nutrition, and physical activity, among other factors. A single gene mutation is not the only factor that influences health conditions or outcomes; several other factors like environment and lifestyle may influence the health outcome. You are responsible for ascertaining that your Professional Practitioner is qualified to consider the genetic information indicated in this report in conjunction with all other information made available to them about you, including your family health history, lifestyle, bio-medical data, and any other information that you may provide to the Professional Practitioner. Xcode shall not be held responsible for any misinterpretation of this report by your Professional Practitioner or any matter arising out of this report.

Only full genome sequences are exhaustive. All other forms of genetic tests only provide a limited subset of genetic information relevant to specific conditions. Since this report is not generated by conducting a whole genome sequence test, the results reported are limited to a specific set of mutations known to be associated with specific conditions. Genetic information is also subject to revision based on the latest advances in scientific research. Therefore the interpretation of results reported herein may vary or be altered subject to ongoing research. Sometimes, the interpretations may vary from company to company based on which studies are being given a higher preference compared to others.

Xcode's role is limited to providing genetic test results and a broad set of recommendations. More detailed recommendations that may be specific to you are to be made by qualified Professional Practitioners only. General guidelines provided in our report are for information purposes only and are meant to aid your Professional Practitioner in rendering the relevant professional or medical advice and treatment. While assessing your genetic parameters and providing the report and recommendations, we do not consider your past or existing health conditions and any medication you took (either in the past or currently), even if you may have provided us with such information. Our report and recommendations are to be acted upon in consultation with a medical or other health and wellness professional practitioner.

Your reliance upon the report is solely at your discretion. As with all health and medical-related matters, you should exercise adequate care using the information provided in this report or on our website. Xcode disclaims any responsibility for any errors and omissions by you or other persons either during the collection of DNA samples or delivery of the DNA sample to Xcode. We make no warranties of any kind, either express or implied, including, without limitation, the implied warranties of merchantability, fitness for a particular purpose, accuracy and non-infringement. The information in this report is for Research Use Only (RUO) or Investigational Use Only (IUO), meant to assist in further clinical diagnosis or treatment by Professional Practitioners.



This is a sample report intended for illustrative purposes only. Some content and data have been changed. To purchase the full report, please visit www.xcode.life