

The
WellnessTM Gene
DNA OPTIMIZED HEALTH



ATHLETIC
AND
SPORTS PERFORMANCE

Powered By  Slim



Personal Info

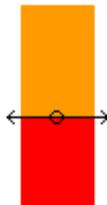
First Name	Sample report
Last Name	20April2012
Gender	?
Date of Birth	00-Dec-0000
Date Sample Taken	20-Apr-2012
Date Sample Received	20-Apr-2012
Date Report Issued	20-Apr-2012

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Results

SPORT PERFORMANCE - ENDURANCE CAPACITY



GENERAL CONCLUSION

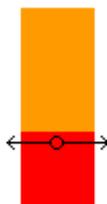
This overall genetic profile has NOT been associated with increased endurance capacity.

Executive Summary

The following nutritional supplements from the genecouture nutraceutical series are recommended:

ENDURANCE (N7)
 OXYGEN BOOSTER (N5)
 SPORT PERFORMANCE (N9)

SPORT PERFORMANCE - MUSCLE PERFORMANCE



GENERAL CONCLUSION

This overall genetic profile has NOT been associated with increased muscle performance.



Executive Summary

The following nutritional supplements from the genecouture nutraceutical series are recommended:

MUSCLE BUILDER (N8)
SPORT PERFORMANCE (N9)

SUSCEPTIBILITY TO INJURIES - TENDONS



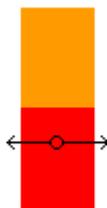
GENERAL CONCLUSION

This overall genetic profile has been associated with increased susceptibility of athletes to tendinopathies.

Executive Summary

Consult a Sports or Team Physician.
Maintain normal body weight or BMI < 24.9.
Undergo a Pematography.
Utilize customized insoles.
Look for reduced flexibility or reduced range of motion upon waking up in the morning.
If involved in both aerobic training & weight lifting, perform aerobic workout first.
Flexibility exercises must be performed AFTER warm up and after end of training session.
Increase warm up volume & intensity in cold environmental conditions.
Increase speed or jump height gradually during warm up.
Be aware of muscle, joint or bone injuries.
Assure complete recovery before assuming high intensity training.
Massage calf muscles & Achilles tendons after training.
Utilize ice pads (10-20min).

SUSCEPTIBILITY TO INJURIES - BONES



GENERAL CONCLUSION

This overall genetic profile has been associated with impaired use of Vitamin D and reduced absorption of calcium.
It can have a negative effect on bones health, regarding the Bone Mineral Density and may contribute to increased risk for bone fractures.

Executive Summary

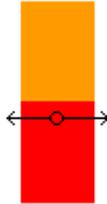
Consult a Sports or Team Physician.
Maintain normal body weight or BMI < 24.9.
Regular exercise is strongly recommended.
Undergo a Pematography.
Utilize customized insoles.
Bone density evaluation is recommended
Evaluate regularly Vitamin D, Calcium, & Phosphorus blood concentration.
If you are smoking it is strongly recommended to quit.
Cautious exposure to sunlight (15min, 3-4 times every week) is recommended.

Increase intake of Calcium.
 Increase intake of and Vitamin D.
 Limit intake of caffeine.

The following nutritional supplement from the genecouture nutraceutical series is recommended:

OPTIMUM BONES & JOINTS MIX (N6)

BODY MASS INDEX (BMI)



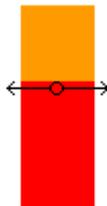
GENERAL CONCLUSION

This overall genetic profile regarding the body composition has been associated with increased fat accumulation, which can be related to conditions like elevated glucose levels and blood pressure.

Executive Summary

Reduce your body weight in case you are overweight.
 Maintain normal body weight or BMI < 24.9.
 If you are smoking it is strongly recommended to quit.
 Regular exercise is strongly recommended. Emphasize duration rather than intensity.
 Increase intake of ω -3 fatty acids.
 Increase intake of dietary fiber.
 Limit intake of saturated fat.
 Limit intake of sugar.
 Limit intake of salt.
 If you are drinking, limit alcohol consumption.

NUTRIGENOMICS - LIPID METABOLISM



GENERAL CONCLUSION

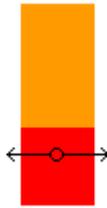
This overall genetic profile has been associated with higher risk for disruptions in lipids metabolism, which can result to elevated lipids in blood circulation.

Executive Summary

Regular check up of total cholesterol, HDL cholesterol, LDL-cholesterol, triglycerides, HDL-C, and total cholesterol/HDL cholesterol ratio, glucose levels is strongly recommended.
 Reduce your body weight in case you are overweight.
 Maintain normal body weight or BMI < 24.9.
 If you are smoking it is strongly recommended to quit.
 Regular exercise is strongly recommended. Emphasize duration rather than intensity.
 Increase intake of ω -3 fatty acids.
 Increase intake of dietary fiber.
 Limit intake of saturated fat.
 Limit intake of sugar.
 If you are drinking, limit alcohol consumption.

The following nutritional supplement from the genecouture nutraceutical series is recommended:

NUTRIGENOMICS - FOLIC ACID METABOLISM



GENERAL CONCLUSION

This overall genetic profile has been associated with impaired homocysteine removal, which can have toxic effects in cells. Individuals are more likely to deal with disruptions in Vitamin B complex metabolism that will increase their needs for this Vitamin.

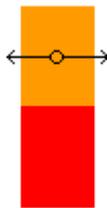
Executive Summary

Have a regular check up of homocysteine levels and folic acid.
 Increase intake of folic acid.
 Increase intake of Vitamins B6 and B12.

The following nutritional supplement from the genecouture nutraceutical series is recommended:

OPTIMUM FRUIT & VEGETABLE MIX (N3)

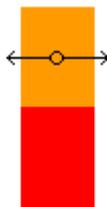
NUTRIGENOMICS - IRON ABSORPTION & STORAGE



GENERAL CONCLUSION

This overall genetic profile has been NOT been associated with higher risk for iron overload.

NUTRIGENOMICS - INFLAMMATORY RESPONSE



GENERAL CONCLUSION

This overall genetic profile has NOT been associated with increased susceptibility of individuals to inflammatory conditions.

NUTRIGENOMICS - ANTIOXIDATION ABILITY

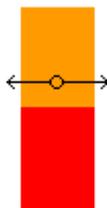


GENERAL CONCLUSION



This overall genetic profile has been associated with satisfactory anti-oxidant protection.

NUTRIGENOMICS - DETOXIFICATION ABILITY

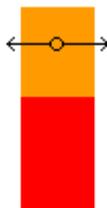


GENERAL CONCLUSION



This overall genetic profile has been associated with satisfactory detoxification ability.

NUTRIGENOMICS - SALT SENSITIVE HYPERTENSION

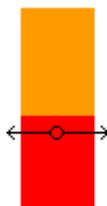


GENERAL CONCLUSION



This overall genetic profile has NOT been associated with increased risk for hypertension, after salt intake through diet.

NUTRIGENOMICS - ALCOHOL METABOLISM



GENERAL CONCLUSION



This overall genetic profile has been associated with slow metabolism of alcohol. Individuals, is more likely to find alcohol pleasant and be prone to increased alcohol consumption.

NUTRIGENOMICS - CAFFEINE METABOLISM

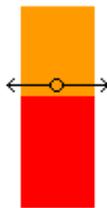


GENERAL CONCLUSION



This overall genetic profile has been associated with fast caffeine metabolism. Coffee has normal or even in cases reduced stimulating effects. Individuals are more tolerant to caffeine consumption.

NUTRIGENOMICS - GLUTEN TOLERANCE



GENERAL CONCLUSION



This overall genetic profile has NOT been associated with increased risk for Gluten Intolerance (Celiac Disease).

INTRODUCTION

Predictive Genomics for Athletic Performance

The Athletic Performance Predictive Genomics Test analyses genes for certain mutations associated with athletic performance, all documented in scientific literature.

It aims at detecting genetic factors that can affect to an important degree the performance of individuals in sports events: Gene mutations which are important for endurance capacity and muscle performance of athletes and others affecting their susceptibility to injuries. Since the diet of athletes is a significant factor for their performance, the test panel contains also genetic factors which affect their nutritional needs.

Test results are a precious tool for the athletes and professionals involved in the athletes' preparation. They can be indicative of certain athletes' needs regarding the training and nutritional program. Based on the genetic make up of the athletes appropriate guidelines can be provided.

The test is also a useful tool in the hands of the general population who are not involved professionally in sports. It can be a guide that will help them to improve their physical condition in a more efficient way, suited to their needs. The genetic profile of an individual can contribute to the right decision regarding the sport choice, which is of important value in the case of children.

Explore your genes and improve your athletic performance!

GLOSSARY

- **Apoptosis** is the programmed death of cells. It is a mechanism of the organism to maintain a relative constant and normal number of cells. It also includes a cascade of biological processes that result to the death of a cell, when it is seriously damaged or infected by a virus.
- **Adipocyte** is the main type of cells that compose adipose tissue and are also known as fat cells, or lipocytes. Their main function is to store energy in the form of fat.
- **Allele** is one member of the pair that makes up a gene. Genes come in pairs and each allele is an alternative form of the gene.
- **Amino acids** are components of proteins. Some are synthesized by the body (nonessential amino acids) and others must be obtained through diet (essential amino acids).
- **Antioxidant** is a substance that can protect the cells from damages caused by conditions of oxidative stress.
- **β (beta)-pancreatic cells** are a type of cells in pancreas which are responsible for the production and secretion of insulin.
- **BMD (Bone Mineral Density)** is a measure of bone density. BMD test is used to define loss of bone mass and detect osteoporosis.
- **BMI (Body Mass Index)** is a statistical measurement, used to estimate whether individuals have normal body weight. It compares weight and height based on the mathematic formula: $BMI = \frac{\text{mass (kg)}}{\text{height}^2(\text{m}^2)}$
- **Carcinogen** is an agent (substance or radiation) that is involved in the development of cancer. Carcinogens can cause serious damage either to the DNA or the metabolic functions of cells.
- **Detoxification** is the process of removing or inactivating toxic substances from the body. It is crucial for cells to maintain their ability to detoxify themselves from substances, which have the potential to cause serious damages.
- **DNA** is a large molecule found in the nucleus of the cell. It contains the essential genetic information for the function of living organisms and has a significant role in the development of all traits that define our individuality. Its molecular structure in place has the shape of a double spiral, called double helix.
- **DNA sequence** is a succession of nucleotides in the DNA molecule.
- **DNA testing** utilizes techniques that enable scientists to define the DNA sequence or detect certain nucleotides at specific positions of the DNA.
- **Carbohydrate** is a compound of carbon, hydrogen and oxygen. It is an important source of energy found in food.

- **Cell** is the smallest functioning unit in the structure of an organism. It is enclosed by a membrane and contains a nucleus and organelles with certain functions (mitochondria, lysosomes, ribosomes).
- **Cell cycle** is the series of events that result to cell division and cell proliferation. A process very important for development, growth, wound healing.
- **Cholesterol** is a waxy, fat-like substance essential for the structure of cell membrane. It is also a component of certain hormones and some Vitamins and is transported with lipoproteins through blood circulation.
- **Chromosome** is a rod-shaped compound of DNA and proteins found in a cell nucleus. The structure serves the DNA package in the nucleus and the control of DNA functions. A human body cell normally contains 46 chromosomes arranged in 23 pairs.
- **Chromatin** is the combination of DNA and proteins which when condensed makes up chromosomes.
- **Enzyme** is a protein that controls biochemical reactions, resulting to either production or inactivation of substances in cells.
- **Genes represent** small segments of the DNA molecule which are the structural units of heredity in all living organisms. They contain the genetic information which can be used by cells. The human genome contains approximately 30,000 genes, which are located at specific positions on chromosomes.
- **Genetic** profile results from analysis of several genes in the DNA of an individual. It can be informative for the genetic tendencies of individuals regarding the trait under consideration.
- **Genotype** describes the constitution of gene (the type of the gene). It refers each time to a specific gene under investigation, describing the alleles that the gene contains. It often refers to the pair of the nucleotides found at a specific position of the DNA sequence.
- **Genome** is the total genetic material of a cell. It is the full complement of genetic information that an organism inherits from parents.
- **Glucose** is a very important carbohydrate in biological systems. It is used by cells as a source of energy and is also an intermediate of metabolism.
- **HDL (High Density Lipoprotein)** transports lipids through blood circulation. Due to its ability to remove cholesterol from arteries to liver and prevent serious damages, it is also called "good cholesterol".
- **Homeostasis** is a state of equilibrium (balance) or the tendency to reach equilibrium. It is the ability of a living organism to regulate its internal environment in order to maintain a stable condition.
- **Homocysteine** is an amino acid, important for the production of another amino acid called Cysteine. Homocysteine metabolism and maintenance of normal levels is crucial for the health, as elevated homocysteine levels in blood associate primarily with problems of the cardiovascular system.
- **HR max (Heart Rate max)** is the maximal number of heartbeats per unit of time. It should be estimated by specialized medical staff before an individual begins an exercise training program.
- **HR reserve (Heart Rate reserve)** describes the difference between a person's HR max and resting Heart rate (heart beats during resting). It is used in some cases of measuring the intensity of physical exercise.
- **Immune response** is the response of the immune system: the mechanism activated to defend against foreign harmful substances that come into the body, pathogens, and tumor cells.

- **Inflammation** is a process by which the body activates certain types of cells to protect us from infections and substances recognized as foreign.
- **Insulin** is a hormone produced in pancreas. It causes cells of fat tissue, liver and muscle to take up glucose from blood and use it as energy source.
- **LDL (Low Density Lipoprotein)** transports lipids through blood circulation. LDL is often called "bad cholesterol" as elevated LDL levels are harmful for the cardiovascular system.
- **Lipid** is a molecule naturally produced in the body with the main role of energy storage. Certain types of lipids are obtained through diet from fats contained in food. With lipid metabolism, the body synthesizes or degrades the fats to produce lipids with the essential characteristics. Triglycerides and fatty acids belong to lipids.
- **Lipoprotein** is a compound of lipid and protein which transport lipids (fats) and cholesterol around the body through blood circulation. HDL, LDL, and VLDL belong to lipoproteins.
- **Metabolism** is a group of chemical reactions that take place in a living organism to maintain life, develop and reproduce. It includes the processes of constructing components of cells (anabolism) and breaking down compounds (catabolism) to produce energy.
- **Molecule** is the smallest part of a chemical compound which can exist independently. It consists of one or more atoms held together by chemical forces.
- **Mutagen** is an agent which can cause a change in the genetic material of an organism.
- **Mutation** is a change in the genetic material of an organism. Regarding human cells, mutation refers to a change in the sequence of the DNA. Mutations are responsible to a significant degree for the variability of characteristics observed in the human population. Mutations can be beneficial, harmful or even neutral, having no effect. They result to different forms of alleles in genes, and are often called polymorphisms. The effect of mutations is often affected by environmental factors.
- **Nucleotides** are the structural molecules of the genetic material. In DNA each nucleotide is represented by a letter, which can be A, T, C, or G, each defined by the base that the nucleotide contains (Adenine, Thymine, Cytosine, or Guanine). When they are joined together and based on their succession, nucleotides define certain genetic information.
- **Oxidative stress** is caused in cells due to their reduced ability to fight against oxidative factors, which are substances like peroxides and free radicals. These can be either by-products of normal functions of cells or can be produced by environmental toxic substances when they enter the body. In both cases they can have toxic effects as they can damage seriously the components of cells (proteins, lipids, DNA).
- **Pharmacogenomics** is the field of Pharmacology and Genetics, which investigates how the DNA of individuals affects their response to drugs. Based on DNA testing, it aims to identify which drugs have increased efficacy or cause reduced toxicity to an individual.
- **Predictive genomics** is the field of Medicine which identifies mutations in the DNA of an individual in order to predict the likelihood of this individual to develop certain characteristics, abilities or conditions.
- **Proteins** are molecules made of amino acids. They are essential parts of organisms and take part in energy metabolism.
- **Vitamin** is a compound necessary for an organism to function properly. A compound is characterized as Vitamin, when it is essential to be provided by diet as it cannot be synthesized in adequate amounts by an

organism.

- **VLDL (Very Low Density Lipoprotein)** transport lipids through blood circulation.
- **VO2 max** is the maximal oxygen consumption, describing the amount of oxygen transported and used during physical exercise of individuals. It is an important factor for the physical fitness.
- **Xenobiotic** is a chemical which can be found in an organism but it is not normally produced by it nor obtained by diet. Drugs and antibiotics are examples of xenobiotics.

HOW TO READ THE REPORT

In the following pages you will find personal information about your genetic profile. The genes are analyzed independently of sex and age.

Some genes may be analyzed for more than one condition or trait, as one gene can have an important effect on various biological systems.

For some genes, more than one mutation (polymorphism) may be analyzed. You will be able to see the genes analyzed and the results (genotype) of the analysis.

What is the effect of each genotype?

The influence of each genotype is described in colored circles. Based on the color of the circle for each type of the gene, you can see whether a certain genotype shows an increased, an average or a reduced risk always compared to the risk of general population.



The red circle means increased risk.



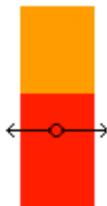
The yellow circle means average (risk of general population).



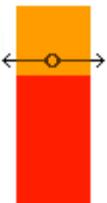
One green circle means reduced risk.

How is your genetic profile evaluated?

The conclusion for your genetic profile in a category is shown at the beginning of the report with a “bar” chart. The region with the **red color** represents the region of **increased risk**, whereas the region with **orange color** represents the region that is **NOT** associated with **increased risk**.

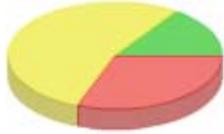


The **lower** this line is found in **red** region the **higher is the risk**.



The **higher** this line is found in **orange** region the **lower is the risk**.

The “pie” chart compares for each category the proportion of genotypes with negative, neutral and positive effect.



The red part represents the proportion of negative genotypes, the yellow part represents the proportion of neutral genotypes and the green part represents the positive genotypes.

The general conclusion for each gene category is drawn according to the importance of each negative genotype. This means that even if there are more green circles or yellow than the red ones, the conclusion for the specific section of the test may show increased risk. The term "increased risk" is compared to the relative risk of general population.

When a type of a gene or a genetic profile is associated with a certain ability or risk, this does not mean that the trait under investigation will be certainly manifested.

Information obtained from DNA testing are informative to an important degree for the tendencies of individuals but are neither descriptive nor predict with certainty what will eventually happen.

The company focuses mainly on traits and conditions for which environmental factors play a significant role, so that the possible genetic disadvantages can be to a degree modifiable.

The information supplied to you does not confirm or replace any medical diagnosis or status conferred by a health care professional, a Doctor or a Genetic counsellor.

When feasible, appropriate guidelines will follow according to your genetic profile for the category under investigation. The guidelines may be in cases provided based on the particular genotype of a gene.

Specific medical advice will not be provided, and the company urges you to consult with a qualified physician for diagnosis and for answers to your personal questions.

SPORT PERFORMANCE - ENDURANCE CAPACITY

Gene	Biological effect	Genotype	
CK-MM	Energy consumption in muscles	CC	

Individuals who have this type of gene have a significant disadvantage concerning the high levels energy they need to spend during intensive exercise. The 'load' on their muscles after training is significant increased.

Training guidelines

Negative polymorphism for athletes of endurance sport and mixed ability (aerobic and anaerobic)

Athletes with this gene are better in sports that require speed or strength. They should apply the guidelines which are appropriate for their genetic profile.

Medical guidelines

Athletes with this type of gene have sensitivity in muscle fatigue and/or muscle injuries after intensive exercise, due to increased levels of the enzyme called Creatine Kinase (CK).

Maintain body fat within normal limits.

Maintain BMI <24.9.

Avoid eccentric activities.

Check CK-MM levels in the next 24, 48, 72 hours after very prolong (<2h) or very intense exercise or when the athlete feels unusual muscle fatigue-if abnormal check for myotonic dystrophy.

Nutritional guidelines

Athletes with this type of gene have increased needs for protein quality and quantity, due to the high levels of energy they spend during intense exercise.

Consume foods that are rich in essential amino acids such as egg whites, whey protein, casein, or even beef, fish, or poultry protein.

Athletes who perform strenuous exercises, weight and/or poymetric training should increase intake on the upper limit of the recommended amount for the type of sports they are involved in. Also they should increase protein quality,

especially after training when tissue regeneration and repair takes place.

Athletes involved in hard endurance exercise, cross training with intense strength training or in strength training should increase the daily protein intake to 1.8-2.0g/d/kg BW.

Athletes who perform less intense aerobic activities or for strength training aiming at improving general strength and muscle tone, 1.2-1.5g/d/kg BW protein is recommended.

BDKRB2	Skeletal Muscle Metabolic Efficiency	GGGGACGGGGAC	
This type of the gene is associated with reduced performance in sports requiring endurance.			
CHRM2	Heart Rate Recovery	GG	
This type of the gene is associated with reduced heart rate recovery after intense exercise. Individuals have a disadvantage especially when performing sports that require endurance.			
EPOR	Erythroblast Proliferation & Differentiation O2 Supply to Tissues	GG	
This type of the gene has no effect on the endurance capacity, which is in normal levels. Training guidelines			
This type of the gene is not favourable for athletes of endurance sports. Regarding this gene, athletes have normal levels of oxygen supply to muscle tissues When exposed to high altitude (>1800m) for training or when exposed to regular acute hypoxic training: examine this polymorphism in a more general context along with other genes that may affect erythropoietin release (e.g HIF-1a) to better evaluate the expected effects and the degree of adaptation to such treatments.			
HBB	Cardio-Respiratory Adaptation to Training	CG	
This type of the gene is associated with normal (average) ability to improve the endurance performance by training. Training guidelines			
Individuals who have this type of the gene may require increased energy supplies to become more competitive. Carbohydrate overloading may be more important for these individuals especially in events lasting more than 2 hours. Examine substrate and energy utilization during long distance running and re-evaluate the energy needs. There might be a need for greater carbohydrate replenishment during the long races.			
HBB	Cardio-Respiratory Adaptation to Training	CT	
This type of the gene is associated with normal (average) ability to improve the endurance performance by training. Training guidelines			
Individuals who have this type of the gene may require increased energy supplies to become more competitive. Carbohydrate overloading may be more important for these individuals especially in events lasting more than 2 hours. Examine substrate and energy utilization during long distance running and re-evaluate the energy needs. There might be a need for greater carbohydrate replenishment during the long races.			
HIF-1	Angiogenesis & Erythropoiesis O2 Supply to Tissues Basal Metabolic Rate Rate of Recovery	CC	

This type of the gene has no effect on endurance capacity which is at normal levels.
The following nutritional supplement from the genecouture nutraceutical series is recommended:

SPORT PERFORMANCE (N9)

PPARD	Lipid & Carbohydrate Metabolism	AA	
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This type of the gene has no effect to endurance capacity, which is within normal (average) levels.

VEGF	Angiogenesis O ₂ Supply to Tissues	AG	
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This type of the gene is beneficial for the endurance capacity of individuals, since the muscles are provided with highly increased oxygen supplies.

VEGF	Angiogenesis O ₂ Supply to Tissues	AC	
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This type of the gene is beneficial for the endurance capacity of individuals, since the muscles are provided with highly increased oxygen supplies.

VEGF	Angiogenesis O ₂ Supply to Tissues	GC	
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This type of the gene is beneficial for the endurance capacity of individuals, since the muscles are provided with highly increased oxygen supplies.

ACE	Blood Pressure regulation Muscle performance Lipids & Glucose levels	INSDEL	
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This type of gene is associated with an increase of endurance abilities. The rate of energy production permits the muscles to perform better in activities with longer duration.

Training guidelines

Athletes of speed-strength sports develop endurance through interval training in VO₂max.

Perform exercises on low intense with many repeats.

More effort is needed from athletes to develop their muscle strength.

This gene type is associated with increased muscle injuries when the athlete has high levels of Creatinin Kinase (CK) in serum.

Be cautious during high intense exercises and when increase the training frequency.

Medical guidelines

Regular checkups of urine osmolarity, sweat rate and plasma Na, K, and Cl concentrations in the morning and immediately after competition.

Nutritional guidelines

Total daily protein intake 1,8-2,0g/d/kg BW.

ACTN3	Rapid Muscle Contraction	TT	
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Individuals with this type of gene perform better in sports that require endurance. Their muscles contract slowly and have a good response in activities of long duration.

Training guidelines

Develop in training sports techniques for energy saving.

NOS3	Vasodilation O2 Supply to Tissues	TG	
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This type of the gene is associated with increased oxygen supplies to muscles. Endurance capacity can be importantly developed in athletes.

Training guidelines

Increase carefully the training loads.

Take time to focus on physical or technical activities in which the athletes lack.

PPARg-C1	Energy Generation	GG	
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This type of gene is associated with significant increased levels of energy production. Individuals tend to have high VO2max and lean body mass. Athletes have the advantage of increased endurance capacity.

Conclusion

This overall genetic profile has NOT been associated with increased endurance capacity.

SPORT PERFORMANCE - MUSCLE PERFORMANCE

Gene	Biological effect	Genotype	
ACTN3	Rapid Muscle Contraction	TT	

Individuals who have this type of gene have a significant disadvantage in sports that require speed and/or strength.

Training guidelines

Develop in training sports techniques for energy saving.

ACE	Blood Pressure regulation Muscle performance Lipids & Glucose levels	INSDEL	
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This gene type is associated with increased muscle injuries when the athlete has high levels of Creatinin Kinase (CK) in serum.

Training guidelines

Athletes of speed-strength sports develop endurance through interval training in VO2max.

Perform exercises on low intense with many repeats.

More effort is needed from athletes to develop their muscle strength.

This gene type is associated with increased muscle injuries when the athlete has high levels of Creatinin Kinase (CK) in serum.

Be cautious during high intense exercises and when increase the training frequency.

Medical guidelines

Regular checkups of urine osmolarity, sweat rate and plasma Na, K, and Cl concentrations in the morning and immediately after competition.

Nutritional guidelines

Total daily protein intake 1,8-2,0g/d/kg BW.

Supplements

Protein supplements to increase muscle growth.

HIF-1	Angiogenesis & Erythropoiesis O2 Supply to Tissues Basal Metabolic Rate Rate of Recovery	CC	
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This type of the gene has no effect on muscle performance which is at normal levels. The following nutritional supplement from the genecouture nutraceutical series is recommended:

SPORT PERFORMANCE (N9)

MCT-1	Lactic Acid Clearance Muscle Fatigue	TA	
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Individuals with this type of gene have average levels of lactic acid removal. They are sensitive to muscles fatigue and cramps after intensive exercise and are prone to muscle injuries. Training guidelines

Increase lactic acid removal by increasing training intensity to moderate or high levels at least twice every week. Perform aerobic exercises at intensities which are optimal for faster lactic acid removal, e.g. jogging at intensity between 55-60% of VO2max or cycling between 30-45% of VO2max. Take longer intervals during intensive training in relation to athletes with different genotype. After injuries, prolong time to full rehabilitation.

Nutritional guidelines

High alkaline diet is recommended.

NOS3	Vasodilation O2 Supply to Tissues	TG	
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This type of the gene is associated with increased muscle performance. Muscle strength can be importantly developed in athletes. The gene contributes to increased energy production resulting to decreased body fat. Training guidelines

Increase carefully the training loads. Take time to focus on physical or technical activities in which the athletes lack.

AMPD1	Muscle Performance	GG	
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Individuals who have this type of gene have significant increased levels of the enzyme. They have increased muscle performance, independently from the sport they perform. Training guidelines

Athletes have increased abilities when exercising their muscles. Increase intensity/volume of training in shorter time of training.

DIO1	Thyroid Hormone Regulation Muscle Strength	TC	
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Individuals who have this type of gene have high levels of IGF-1, which is an important factor for body growth. They have increased lean body mass and increased muscle strength.

Training guidelines

Athletes have increased ability of uptake and are suitable for sports which require strength.
 Increase the training frequency.
 Short time of rehabilitation after intense exercise is recommended.

Conclusion

This overall genetic profile has NOT been associated with increased muscle performance.

SUSCEPTIBILITY TO INJURIES - TENDONS

Gene	Biological effect	Genotype	
MMP3	Collagen -Connective tissue degradation Wound repair	GG	

Athletes who have this type of the gene are highly susceptible to Achilles tendinopathy.
 The risk is further increased for individuals who have the defective type of COL5A1.

COL5A1	Collagen formation in cartilage, bone, skin, connective tissue	TC	
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This type of the gene is associated with an increased risk of developing tendinopathies, like Achilles tendon injuries, which are damages occurred frequently to athletes. When an individual has also the defective gene MMP3, the risk is higher, due to negative interactions of these proteins.

COL1A1	Collagen formation in cartilage, bone, skin connective tissue	GG	
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Conclusion

This overall genetic profile has been associated with increased susceptibility of athletes to tendinopathies.

SUSCEPTIBILITY TO INJURIES - BONES

Gene	Biological effect	Genotype	
VDR	Regulation of collagen formation Bone formation and replacement Connective tissue degradation	GG	

This type of the gene is associated with impaired use of Vitamin D and reduced absorption of calcium.
 This is associated with a negative effect on bones health, regarding the Bone Mineral Density and may contribute to increased risk for fractures.

VDR	Regulation of collagen formation Bone formation and replacement Connective	TT	
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	tissue degradation		
<p>This type of the gene is associated with impaired use of Vitamin D and reduced absorption of calcium. This is associated with a negative effect on bones health, regarding the Bone Mineral Density and may contribute to increased risk for fractures.</p>			
VDR	Regulation of collagen formation Bone formation and replacement Connective tissue degradation	TT	
Conclusion			
<p>This overall genetic profile has been associated with impaired use of Vitamin D and reduced absorption of calcium. It can have a negative effect on bones health, regarding the Bone Mineral Density and may contribute to increased risk for bone fractures.</p>			
PSYCHOLOGICAL APTITUDE			
Gene	Biological effect	Genotype	
BDNF	Neuron Growth Differentiation & Survival Synapse Formation Motivation to Exercise Energy balance	GA	
SUBSTANCE ABUSE			
Gene	Biological effect	Genotype	
UGT2B17	Testosterone Metabolism	INSDEL	
BODY MASS INDEX (BMI)			
Gene	Biological effect	Genotype	
ADRA2A	Lipolysis regulation	CC	
<p>Individuals who have this type of the gene tend to have an increase in glucose levels, indicating an increase in fat storage and increased blood pressure. With appropriate exercise and nutritional guidelines athletes can maintain or increase the muscle mass and subsequently reduce the fat mass.</p>			
ADRB1	Energy Expenditure Lipolysis Regulation Blood Pressure Regulation	GA	
<p>Individuals who have this type of the gene have reduced metabolism of lipids. Regarding athletes this has a limited influence on body composition. Following the appropriate guidelines athletes can maintain or increase the muscle mass and subsequently reduce the fat mass.</p>			

ADRB1	Energy Expenditure Lipolysis Regulation Blood Pressure Regulation	CC	
ADRB2	Lipolysis Regulation Thermo genesis Drug Response	GG	
ADRB2	Lipolysis Regulation Thermo genesis Drug Response	CG	

Conclusion

This overall genetic profile regarding the body composition has been associated with increased fat accumulation, which can be related to conditions like elevated glucose levels and blood pressure.

NUTRIGENOMICS - LIPID METABOLISM

Gene	Biological effect	Genotype	
APOE	Cholesterol Level Regulation	E4E4	
This type of the gene is associated with impaired lipid metabolism and a significant increase of lipids in blood, in particular triglycerides and cholesterol.			
APOA5	Lipid Metabolism	GG	
Individuals who have this type of the gene have impaired lipid metabolism and significant increased levels of lipids in blood, especially triglycerides.			
APOC3	Triglyceride Metabolism	GG	
This type of the gene is associated with impaired lipid metabolism and significant increased levels of triglycerides in blood.			
CETP	Cholesterol Metabolism HDL Metabolism	TC	
This type of the gene is associated with impaired cholesterol metabolism and reduced levels of HDL.			
LIPC	Lipid Metabolism	AG	
This type of the gene is associated with impaired lipid metabolism when the intake of animal fat is high.			
LPL	Lipoprotein Metabolism Triglyceride Metabolism	CC	
This type of the gene is associated with increased levels of VLDL and triglycerides in blood, especially when animal fat intake is high.			
PON1	HDL synthesis	AT	

This type of the gene is disadvantageous regarding lipid metabolism, as it is associated with increased levels of blood LDL (Low Density Lipoprotein) and reduced levels of blood HDL (High Density Lipoprotein).

PON1	HDL synthesis	GA	
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This type of the gene is disadvantageous regarding lipid metabolism, as it is associated with increased levels of blood LDL (Low Density Lipoprotein) and reduced levels of blood HDL (High Density Lipoprotein).

APOA5	Lipid Metabolism	AA	
APOB	Lipid Metabolism	GG	
APOC3	Triglyceride Metabolism	TT	
FABP2	Intestinal absorption of fatty acids Lipid metabolism	GG	
GJA4 (CX37)	Lipid metabolism	CC	
HMGCR	Lipid metabolism	CC	
APOA1	Lipid Metabolism	GG	
CETP	Cholesterol Metabolism HDL Metabolism	GG	

Conclusion

This overall genetic profile has been associated with higher risk for disruptions in lipids metabolism, which can result to elevated lipids in blood circulation.

NUTRIGENOMICS - FOLIC ACID METABOLISM

Gene	Biological effect	Genotype	
COMT	Homocysteine Metabolism	AA	
This type of the gene is associated with significant reduced inactivation of the hormones called catechol-estrogens. It is also involved in defective Homocysteine removal.			
MTRR	Folic Acid Metabolism Vitamin B12 Metabolism	GG	
This type of the gene is defective regarding folic acid metabolism and is associated with increased levels of Homocysteine, especially when individuals follow a diet poor in Vitamin B complex.			
TCN2	Homocysteine concentration	GG	

This type of the gene is associated with increased levels of Homocysteine, especially when individuals follow a diet poor in Vitamin B-Complex.

MTHFR	DNA Synthesis & Repair Folic Acid Metabolism Homocysteine Metabolism	AC	
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This type of the gene is associated with reduced function of the investigated factor. This results to defective metabolism of folic acid and increased levels of Homocysteine, especially when individuals follow a diet poor in Vitamins B-complex (folic acid, B6, B12).

MTHFR	DNA Synthesis & Repair Folic Acid Metabolism Homocysteine Metabolism	CT	
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This type of the gene is associated with reduced function of the investigated factor. This results to defective metabolism of folic acid and increased levels of Homocysteine, especially when individuals follow a diet poor in Vitamins B-complex (folic acid, B6, B12).

MTR	Folic Acid Metabolism Homocysteine Metabolism	AA	
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This type of the gene is associated with defective folic acid metabolism and is associated with increased Homocysteine levels, especially when individuals follow a diet poor in Vitamin B Complex (B6, B9, B12).

CBS	Homocysteine Removal Vitamin B6 Metabolism	AG	
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Conclusion

This overall genetic profile has been associated with impaired homocysteine removal, which can have toxic effects in cells. Individuals are more likely to deal with disruptions in Vitamin B complex metabolism that will increase their needs for this Vitamin.

NUTRIGENOMICS - IRON ABSORPTION & STORAGE

Gene	Biological effect	Genotype	
HFE	Iron Absorption & Storage Hereditary Haemochromatosis	GC	

This type of the gene is associated with a disability to reduce iron absorption, when iron levels in body are increased. Consequently, individuals deal with the risk for iron overload and a condition called Haemochromatosis. Iron is stored in the body as ferritin, which breaks down to hemosiderin. Iron overload results to high levels of Hemosiderin, which are toxic for tissues.

Individuals with increased risk for Haemochromatosis have reduced risk to exhibit footstrike haemolysis after daily intensive exercise.

HFE	Iron Absorption & Storage Hereditary Haemochromatosis	AA	
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HFE	Iron Absorption & Storage Hereditary Haemochromatosis	GG	
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Conclusion

This overall genetic profile has been NOT been associated with higher risk for iron overload.

NUTRIGENOMICS - INFLAMMATORY RESPONSE

Gene	Biological effect	Genotype	
IL6	Inflammatory Response Bone Recycling Glucose usage	GG	

This type of the gene is associated with increased levels of the inflammation factor IL-6. Individuals have increased susceptibility to inflammatory conditions.

CRP	Inflammatory Response	TC	
TNF-a	Inflammatory response Insulin response	GG	

Conclusion

This overall genetic profile has NOT been associated with increased susceptibility of individuals to inflammatory conditions.

NUTRIGENOMICS - ANTIOXIDATION ABILITY

Gene	Biological effect	Genotype	
SOD2-MnSOD	Free radical removal Anti-oxidative ability	CT	

This type of the gene is associated with reduced anti-oxidant function of the investigated factor. Reduced protection from free radicals can result to damages in cells.

UCP2	Free radical removal Anti-oxidative ability	CT	
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This type of the gene is associated with reduced anti-oxidant function of the investigated factor. Individuals, especially those following a diet poor in anti-oxidants, have a risk for increased damages in cells.
This type of the gene is also associated with impaired energy metabolism and insulin resistance.

CAT	Free radical removal Anti-oxidative ability	GG	
GPX1	Cellular Aging Detoxification Anti-oxidative ability	CC	
SELS	Free radical removal Anti-oxidative ability	CC	

SOD2-MnSOD	Free radical removal Anti-oxidative ability	TT	
SOD3	Free radical removal Anti-oxidative ability	CC	

Conclusion

This overall genetic profile has been associated with satisfactory anti-oxidant protection.

NUTRIGENOMICS - DETOXIFICATION ABILITY

Gene	Biological effect	Genotype	
GSTT1	Detoxification Xenobiotics-carcinogens- mutagens Environmental pollutants	DELDEL	

The investigated detoxifying agent is absent and protection from toxins relies on other enzymes. Individuals, especially those consuming a diet poor in anti-oxidants, have increased risk for serious cell damage. This risk is further increased when the defective types of genes GSTM1 and GSTP1 are present.

The negative effects of this gene can be diminished by applying appropriate lifestyle and nutritional guidelines, especially increase of anti-oxidant intake.

EPHX1	Detoxification Xenobiotics carcinogens- mutagens Environmental pollutants	TT	
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This type of the gene is associated with reduced protection from environmental pollutants, especially from substances found in traffic emissions, tobacco smoke and grilled meat. Individuals, especially those consuming a diet poor in anti-oxidants, deal with an increased risk for conditions related to oxidative damages to cells.

GSTP1	Detoxification Xenobiotics-carcinogens- mutagens Environmental pollutants	GA	
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This type of the gene is associated with reduced function of the investigated detoxifying factor. Individuals, especially those who follow a diet poor in anti-oxidants, have increased risk for cell damage.

This risk is further increased when the defective types of genes GSTM1 and GSTT1 are present.

The negative effects of this gene can be diminished by applying appropriate lifestyle and nutritional guidelines, especially increase of anti-oxidant intake.

GSTM1	Detoxification Xenobiotics-carcinogens- mutagens Environmental pollutants	INS_	
GSTP1	Detoxification Xenobiotics-carcinogens- mutagens Environmental pollutants	CC	
NQO1	Cellular aging Detoxification	CC	

EPHX1	Detoxification Xenobiotics carcinogens- mutagens Environmental pollutants	AA	
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Conclusion

This overall genetic profile has been associated with satisfactory detoxification ability.

NUTRIGENOMICS - SALT SENSITIVE HYPERTENSION

Gene	Biological effect	Genotype	
AGTR1	Regulation of lipogenesis Blood pressure regulation	AC	

This type of the gene is associated with abnormalities in blood pressure regulation. Individuals have increased risk for hypertension.

CYP11B2	Renal Sodium Resorption Regulation of blood pressure	TC	
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This type of the gene is associated with disruption in sodium balance, due to increased sodium reabsorption in kidneys caused by aldosterone. Individuals have increased risk for disruption in blood pressure regulation and particularly for hypertension.

ACE	Blood Pressure regulation Muscle performance Lipids & Glucose levels	INSDEL	
ADD1	Sodium Retention in Cells Blood Pressure regulation	GG	
AGT	Regulation of blood pressure Electrolyte balance	CC	
AGT	Regulation of blood pressure Electrolyte balance	TT	

Conclusion

This overall genetic profile has NOT been associated with increased risk for hypertension, after salt intake through diet.

NUTRIGENOMICS - ALCOHOL METABOLISM

Gene	Biological effect	Genotype	
ADH1B- ADH2-(ADH2-2)	Alcohol metabolism Acetaldehyde clearance levels	GG	

This type of the gene is associated with slow activity of the enzyme responsible for the alcohol metabolism. Individuals are prone to increased alcohol consumption.

ALDH2	Alcohol metabolism Acetaldehyde clearance levels	GG	
OPRM1	Alcohol cravings	AA	
ADH4	Alcohol metabolism Acetaldehyde clearance levels	AC	
ADH1C-ADH3	Alcohol metabolism Acetaldehyde clearance levels HDL levels	CC	

Conclusion

This overall genetic profile has been associated with slow metabolism of alcohol. Individuals, is more likely to find alcohol pleasant and be prone to increased alcohol consumption.

NUTRIGENOMICS - CAFFEINE METABOLISM

Gene	Biological effect	Genotype	
CYP1A2-1C	Caffeine metabolism	GG	
CYP1A2-1F	Caffeine metabolism	AA	

Conclusion

This overall genetic profile has been associated with fast caffeine metabolism. Coffee has normal or even in cases reduced stimulating effects. Individuals are more tolerant to caffeine consumption.

NUTRIGENOMICS - LACTOSE TOLERANCE

Gene	Biological effect	Genotype	
MCM6	Lactose Metabolism	TT	

This type of the gene is associated with the condition of lactose intolerance. It is more likely that individuals with this gene variant are incapable of metabolizing lactose properly in the small intestine, due to the inactivation of lactase. After consumption of milk and dairy products in general, lactose will pass to colon, where it will be fermented by enteric bacteria. Possible abdominal symptoms include cramps, bloating and flatulence.

NUTRIGENOMICS - GLUTEN TOLERANCE

Gene	Biological effect	Genotype	
IL21	Regulation of Immune Response	GG	

This type of the gene has been associated with importantly increased risk for Gluten Intolerance (Celiac Disease).

IL18RAP	Immune Response Pro-Inflammatory Cytokine	AA	
This type of the gene has been associated with increased risk for Gluten Intolerance (Celiac Disease).			
LPP	Cell Shape and Motility Immune Response	TG	
This type of the gene has been associated with importantly increased risk for Gluten Intolerance (Celiac Disease).			
RGS1	Immune Response B-cells activation & proliferation	TT	
This type of the gene has been associated with increased risk for Gluten Intolerance (Celiac Disease).			
SH2B3	Immune Response Activation of T-cells	CT	
This type of the gene has been associated with increased risk for Gluten Intolerance (Celiac Disease).			
CCR3	Migration of immune system cells	CC	
HLA-DQ	Antigen Presenting Molecule Immune Response	GG	
IL12A	Immune Response Growth factor for T and Natural Killer cells	AA	
TAGAP	Immune Response T-cells activation	GG	
Conclusion			
This overall genetic profile has NOT been associated with increased risk for Gluten Intolerance (Celiac Disease).			

GENERAL CONCLUSION

SPORT PERFORMANCE - ENDURANCE CAPACITY

This overall genetic profile has NOT been associated with increased endurance capacity.

SPORT PERFORMANCE - MUSCLE PERFORMANCE

This overall genetic profile has NOT been associated with increased muscle performance.

SUSCEPTIBILITY TO INJURIES - TENDONS

This overall genetic profile has been associated with increased susceptibility of athletes to tendinopathies.

Medical guidelines

Consult a Sports or Team Physician.

Maintain normal body weight or BMI < 24.9.

Undergo a Pelmatography.

Utilize customized insoles.

Avoid wearing brand new shoes in hard surface.

Look for reduced flexibility or reduced range of motion upon waking up in the morning.

Avoid very hard or very soft surfaces or training in artificial grass.

Use grass trail instead of a sidewalk.

Soft beach sand running not recommended.

If involved in both aerobic training & weight lifting, perform aerobic workout first.

Avoid training uphill or excessive plyometric training or excessive speed training.

Excessive stiffness of the posterior leg muscles (e.g. hamstrings or calf muscles) can increase the load on the tendons.

Flexibility exercises must be performed AFTER warm up.

Massage leg muscles, especially calf muscles.

Increase warm up volume & intensity in cold environmental conditions.

Increase speed or jump height gradually during warm up.

The day after game or high intensity training or hard surface training reduce load on tendons using non-weight bearing activities swimming - biking.

Be aware of muscle, joint or bone injuries.

Assure complete recovery before assuming high intensity training.

Encourage team medical staff to check tendons for any unusual finding, soreness, swelling, cracking or pain.

Massage calf muscles & Achilles tendons after training.

Utilize ice pads (10-20min).

SUSCEPTIBILITY TO INJURIES - BONES

This overall genetic profile has been associated with impaired use of Vitamin D and reduced absorption of calcium. It can have a negative effect on bones health, regarding the Bone Mineral Density and may contribute to increased risk for bone fractures.

Medical guidelines

Consult a Sports or Team Physician, bring the results of this DNA profiling to his attention.

Maintain normal body weight or BMI < 24.9.

Undergo Pelmatography.

Utilize customized insoles.

Bone density evaluation is recommended.

Evaluate regularly Vitamin D, Calcium, & Phosphorus blood concentration.

If you are smoking it is strongly recommended to quit.

Weight-bearing exercises are more beneficial.

Increased exposure to sunlight (15min, 3-4 times every week).

Nutritional guidelines

Increase intake of foods rich in Vitamin D. Good sources include oily fish, eggs, fortified foods such as margarine, breakfast cereal or powdered milk.

Liver and liver products are also good sources of vitamin D but they are also rich in vitamin A, so you may avoid using them very often.

Increase intake of foods rich in Calcium by consuming dairy foods such as yogurt, milk, egg, cheese (yellow, ricotta, cheddar, mozzarella, feta cheese etc), milk shakes, and pudding.

Nondairy foods also contain calcium.

Good sources of nondairy foods are Salmon, sardines, spinach, okra, broccoli, peas, sesame seeds, almonds, and tofu.

Calcium-fortified foods include: Calcium-fortified breakfast cereal, calcium-fortified orange juice, instant oatmeal.

Reduce caffeine intake (less than 3 cups /day).

BODY MASS INDEX (BMI)

This overall genetic profile regarding the body composition has been associated with increased fat accumulation, which can be related to conditions like elevated glucose levels and blood pressure.

Medical guidelines

Reduction of body weight if overweight.

Maintain normal body weight or BMI < 24.9.

If you are smoking it is strongly recommended to quit.

*Increase aerobic activity (30-60min, 3-6 days/week), using large muscle activities, at 50-80% of HRmax or 40-70% of HR reserve or 40-70% of VO2max, 700kcal/week as an initial goal).

Increase aerobic exercise (40-60min, or 2 sessions of 20-30min daily for 3-7 days/week), using large muscle activities, at 40-70% of VO2max, minimum 1000-1200kcal/week as an initial goal), optimal goal 2000-3500kcal/week.

Emphasize duration rather than intensity

* ACSM Exercise Management for Person with Chronic Disease and Disabilities

Nutritional guidelines

If you are drinking, limit alcohol consumption. Limit alcohol to no more than 1 oz/day of ethanol, 10oz of wine, 20oz of beer or 2oz of whiskey for men.

Reduce sodium intake to no more than 2.4g/d (1 tsp per day including the salt we add and salt in the ready-to eat food) and avoid canned foods.

Maintain adequate K, Mg, Ca intake.

Reduce dietary saturated fats and cholesterol.

Use olive oil.

Fat intake should not account for more than 20-25% of total calories. Prefer ω -3 fatty acids (foods like salmon, sardines etc) - and consume fish at least twice every week.

Reduce saturated fat (animal fat)- intake must be limited to a maximum of 5-7% of total calories.

Use only olive oil for cooking.

Limit cholesterol intake to 150mg / day or less.

Reduce consumption of sugars or concentrated sweets such as sugar, syrup, jam, crackers, pies, cakes, donuts, sodas, chocolate, fruit punches, pastries, raisin, grapes, pears, apples, watermelon, banana etc.

Use whole grain cereal rather than spaghetti or rice.

Consume seeds and nuts.

Consume garlic.

NUTRIGENOMICS - LIPID METABOLISM

This overall genetic profile has been associated with higher risk for disruptions in lipids metabolism, which can result to elevated lipids in blood circulation.

Medical guidelines

Regular check up of total cholesterol, HDL cholesterol, LDL-cholesterol, triglycerides, HDL-C, and total cholesterol/HDL cholesterol ratio, glucose levels.

Reduction of body weight if overweight.

Maintain normal body weight or BMI < 24.9.

If you are smoking it is strongly recommended to quit.

*Increase aerobic activity (40-60min, or 2 sessions of 20-30min daily for 3-7 days/week), using large muscle activities, at 40-70% of VO₂max, minimum 1000-1200kcal/week as an initial goal, optimal goal 2000-3500kcal/week.

Emphasize duration rather than intensity.

* ACSM Exercise Management for Person with Chronic Disease and Disabilities

Nutritional guidelines

Fat intake should not account for more than 20-25% of total calories. Prefer ω -3 fatty acids (foods like salmon, sardines etc) - and consume fish at least twice every week.

Reduce saturated fat (animal fat) intake must be limited to a maximum of 5-7% of total calories.

Use only olive oil for cooking.

Limit cholesterol intake to 150mg / day or less.

Reduce consumption of sugars or concentrated sweets such as sugar, syrup, jam, crackers, pies, cakes, donuts, sodas, chocolate, fruit punches, pastries, raisin, grapes, pears, apples, watermelon, banana etc.

Use whole grain cereal rather than spaghetti or rice.

Consume seeds and nuts.

Consume garlic.

Moderate alcohol intake (1-2gl of wine/day).

NUTRIGENOMICS - FOLIC ACID METABOLISM

This overall genetic profile has been associated with impaired homocysteine removal, which can have toxic effects in cells. Individuals are more likely to deal with disruptions in Vitamin B complex metabolism that will increase their needs for this Vitamin.

Medical guidelines

Have a regular check up of homocysteine levels and folic acid.

Nutritional guidelines

Increase dietary intake of foods high in folic acid such as liver, green leafy vegetables (e.g. spinach, broccoli, asparagus, whole wheat products, avocado, legumes, and citrus fruits).

Also increase dietary intake of foods high in Vit B6 and B12 such as yeast extracts, long grain rice, seeds, egg yolk, beef, and seafood and dairy products.

NUTRIGENOMICS - ALCOHOL METABOLISM

This overall genetic profile has been associated with slow metabolism of alcohol. Individuals, is more likely to find alcohol pleasant and be prone to increased alcohol consumption.

NUTRIGENOMICS - LACTOSE TOLERANCE

This type of the gene is associated with the condition of lactose intolerance. It is more likely that individuals with this gene variant are incapable of metabolizing lactose properly in the small intestine, due to the inactivation of lactase. After consumption of milk and dairy products in general, lactose will pass to colon, where it will be fermented by enteric bacteria. Possible abdominal symptoms include cramps, bloating and flatulence. Medical guidelines

Bring the results of this DNA profiling to your Doctor's attention, especially if you experience unpleasant symptoms after consuming milk and other dairy products, like abdominal cramps, bloating and diarrhea.
Consult a Gastroenterologist.

Recommended clinical evaluations

Blood test-Lactose intolerance test
Hydrogen Breath test
Stool acidity test

Nutritional guidelines

Consume lactose-reduced or lactose-free products.
Restrict or avoid drinking milk. Drink less milk more often. Sip small servings of milk – 2 to 4 ounces (59 to 118 milliliters) at a time.
Save milk for mealtimes. Drink milk with other foods.
Experiment with other dairy products. For example you may be able to tolerate cultured milk products, such as yogurt.

Be careful when consuming foods with 'hidden' lactose like some prepared foods, such as cereal, instant soups, salad dressings, milk chocolate and baking mixes.

Also many medicines contain very small amounts of lactose, affecting only people with severe lactose intolerance. In case you restrict dairy products, increased consumption of other foods rich in Calcium is recommended, like broccoli, leafy greens, canned salmon, almonds, oranges, certain kinds of tofu, soya milk, calcium-fortified breads juices.

Executive Summary

SPORT PERFORMANCE - ENDURANCE CAPACITY

The following nutritional supplements from the genecouture nutraceutical series are recommended:

ENDURANCE (N7)
OXYGEN BOOSTER (N5)
SPORT PERFORMANCE (N9)

SPORT PERFORMANCE - MUSCLE PERFORMANCE

The following nutritional supplements from the genecouture nutraceutical series are recommended:

MUSCLE BUILDER (N8)
SPORT PERFORMANCE (N9)

SUSCEPTIBILITY TO INJURIES - TENDONS

Consult a Sports or Team Physician.
Maintain normal body weight or BMI < 24.9.
Undergo a Pematography.
Utilize customized insoles.
Look for reduced flexibility or reduced range of motion upon waking up in the morning.
If involved in both aerobic training & weight lifting, perform aerobic workout first.
Flexibility exercises must be performed AFTER warm up and after end of training session.
Increase warm up volume & intensity in cold environmental conditions.
Increase speed or jump height gradually during warm up.
Be aware of muscle, joint or bone injuries.

Assure complete recovery before assuming high intensity training.
Massage calf muscles & Achilles tendons after training.
Utilize ice pads (10-20min).

SUSCEPTIBILITY TO INJURIES - BONES

Consult a Sports or Team Physician.
Maintain normal body weight or BMI < 24.9.
Regular exercise is strongly recommended.
Undergo a Pematography.
Utilize customized insoles.
Bone density evaluation is recommended
Evaluate regularly Vitamin D, Calcium, & Phosphorus blood concentration.
If you are smoking it is strongly recommended to quit.
Cautious exposure to sunlight (15min, 3-4 times every week) is recommended.
Increase intake of Calcium.
Increase intake of and Vitamin D.
Limit intake of caffeine.

The following nutritional supplement from the genecouture nutraceutical series is recommended:

OPTIMUM BONES & JOINTS MIX (N6)

BODY MASS INDEX (BMI)

Reduce your body weight in case you are overweight.
Maintain normal body weight or BMI < 24.9.
If you are smoking it is strongly recommended to quit.
Regular exercise is strongly recommended. Emphasize duration rather than intensity.
Increase intake of ω -3 fatty acids.
Increase intake of dietary fiber.
Limit intake of saturated fat.
Limit intake of sugar.
Limit intake of salt.
If you are drinking, limit alcohol consumption.

NUTRIGENOMICS - LIPID METABOLISM

Regular check up of total cholesterol, HDL cholesterol, LDL-cholesterol, triglycerides, HDL-C, and total cholesterol/HDL cholesterol ratio, glucose levels is strongly recommended.
Reduce your body weight in case you are overweight.
Maintain normal body weight or BMI < 24.9.
If you are smoking it is strongly recommended to quit.
Regular exercise is strongly recommended. Emphasize duration rather than intensity.
Increase intake of ω -3 fatty acids.
Increase intake of dietary fiber.
Limit intake of saturated fat.
Limit intake of sugar.
If you are drinking, limit alcohol consumption.

The following nutritional supplement from the genecouture nutraceutical series is recommended:

POLYUNSATURATED FATTY ACIDS (N2)