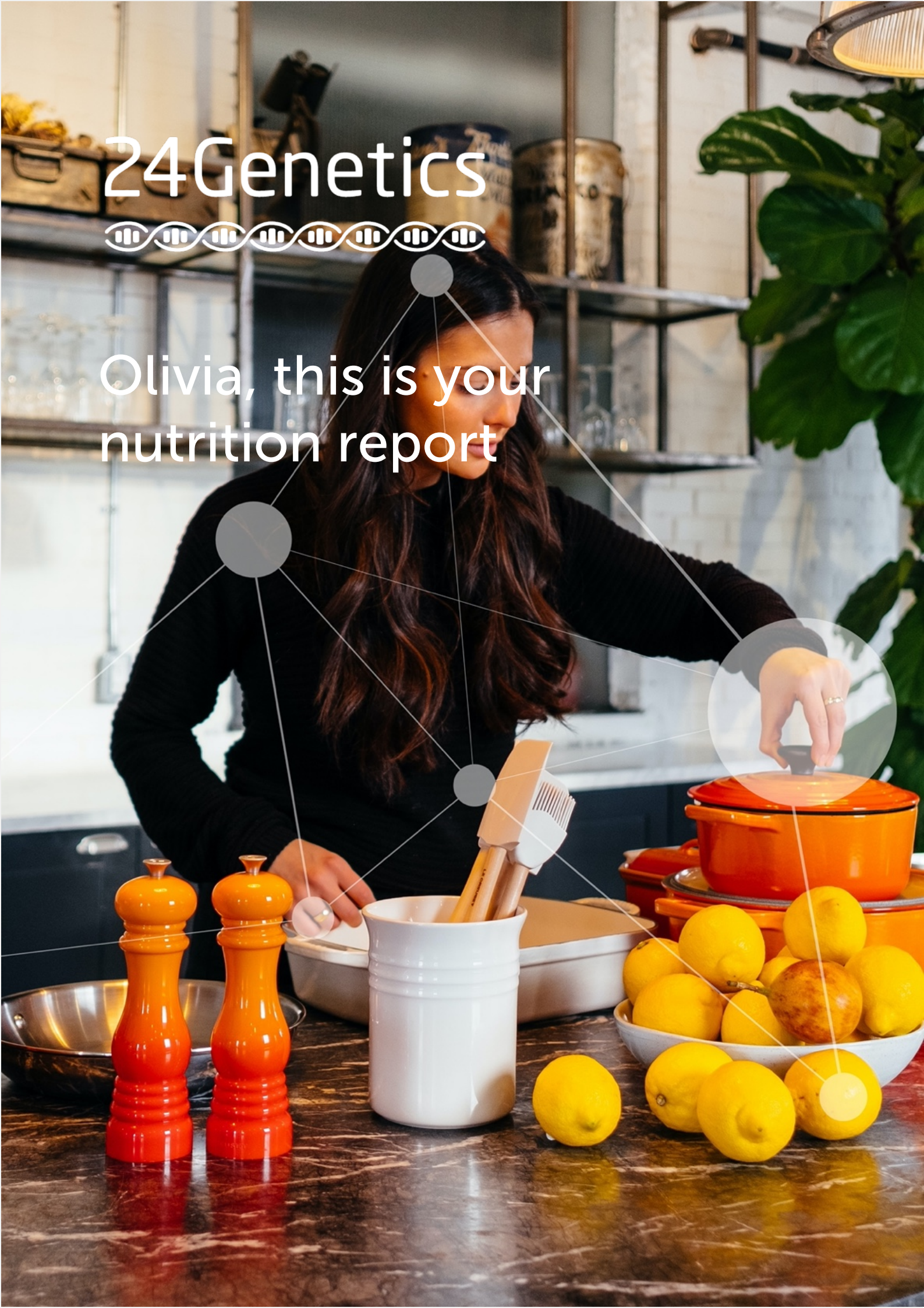
24Genetics
Olivia, this is your nutrition report

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1. Introduction

The following pages contain your nutrigenetic report based on an analysis of your DNA. In it you will find information on your genetic predispositions involving nutrition.

Below are some basic aspects to keep in mind before reading this report:

Process we use to obtain your personal report

The process we followed to compile your nutrition report involves:

- **Extracting** your DNA from the saliva sample you sent us.

- Transforming the biological data contained in the DNA into computer data. This process is called **sequencing**.

- Applying the **algorithms** developed exclusively by 24Genetics to this computer data, which yields your personal report. As you can see, we combine purely biological processes with computer processes in order to handle huge amounts of information with the utmost scientific rigour and offer these highly detailed reports.

As you can see, we combine purely biological processes with computer processes, so that, without losing an iota of scientific rigor, we can process huge amounts of information and offer you such detailed reports.

What's our algorithm like?

The 24Genetics algorithm relies on **analysing and studying thousands of publications** (called papers in the cientific community) that have been tested, validated and recognised by scientists internationally and that add value to our reports. Thanks to the reliability of our ancestry test, the first step in our genetic analysis is to **identify the gender and ancestry** of each individual. **We then apply only those studies that are suitable for each profile.** To obtain the genetic report for a European woman, for example, we do not use studies whose analysis population was exclusively male or Asian. At this point, we could apply a single study, but what we do is **combine a multitude of validated publications**. This way, we can apply all the available scientific knowledge to calculate different genetic predispositions.

By doing so, our results are **more accurate and reliable.**

Methodology

Our genetic reports are obtained based on three types of analysis methodologies:

- **GWAS** (Genome Wide Association Study). This is a type of study that compares DNA markers across the genome (complete genetic material of a person) of people with a disease or trait with those of people who do not have that disease or trait. It is a statistical study that takes into account a large number of genes that are not so directly associated with a predisposition but that, as a whole, offers a relevant conclusion.

- **Multivariate analysis**. In this case, our algorithm analyses a number of genetic variants or mutations of one or more genes that are more directly correlated with the predisposition.

- **Univariate analysis**. In this type of methodology, a single variant in a single gene determines predisposition due to its solid correlation with the genotype.

Each of the traits analysed in this report is based on one of these three methodologies.

The data and conclusions in this report, as well as the progress of scientific research in the field of genetics, may evolve over time. New mutations are constantly being discovered, and we are learning more about the ones we analyse here. At 24Genetics, we make a great effort to apply newly consolidated scientific discoveries to our reports.

What information do we offer?

The information in our reports involves **predispositions**. What do we mean by this? Let's consider an example. The likelihood of having high blood pressure depends on multiple factors, which can be grouped into two categories: **genetic and environmental.** Genetic factors indicate the propensity we have to suffer from hypertension. Then there are the so-called environmental factors, which include other relevant aspects such as diet, habits, stress level, where we live, climate, age, etc. Whether or not we eventually develop hypertension depends on a combination of both types of factors. And even if we have a genetic predisposition to suffer from it, if we maintain a healthy weight, control our salt intake, keep stress under control, exercise and so on, we may never develop it. Or vice versa.

Therefore, what our reports tell you are always genetic predispositions. By controlling environmental factors, you can help to prevent these predispositions from materialising.

What do you get from this genetic report?

This report contains a wealth of scientifically validated information about your predispositions, which tells you how your body works naturally and what aspects you should possibly pay attention to.

At 24Genetics, we always recommend you check with a health professional, doctor or nutritionist, who will use all his/her knowledge and experience to answer your questions, supplement this report with your health history and available family records, track the progress of a personalised diet, or prescribe additional diagnostic tests if deemed necessary to confirm the risk of one or more specific predispositions.

A basic concept: genetic variant.

In terms of genetic concepts, we want to share a basic one with you that appears in all the traits of our reports and that it is important for you to have at least a basic understanding of: genetic variant (also called a variation or mutation). A variant is a permanent change in the DNA sequence that comprises a gene, and is what defines an individual predisposition.

Therefore, in each of the features of this report, you will see information on the gene or genes affected in that trait. It is a variant in that gene or genes that determines certain people's different predispositions compared to others.

For example, in the case of the Longevity and Mediterranean Diet trait, it is the rs1801282 variant of the PPARG gene that can determine a predisposition to a longer life with the Mediterranean diet.

1.1. Structure of this report

In order to help you understand its contents, this report is organised into the following categories:

Diet and weight

It is normal for some people to lose weight while others do not despite having a similar diet and sports routine. For decades, genetics have been studying how our DNA influences the effectiveness of different types of diets, so this report will help you choose the best one for you. You will also find invaluable information on other aspects, such as your predisposition to emotional eating, to consuming sweets or snacking, and more. The goal is to make it easier for you to reach a healthy weight.

Pathologies and intolerances

We analyse a series of intolerances and pathologies related to food, and tell you if you have a genetic predisposition to suffer from them. This way, with help from a health professional, you can take the right steps to try to avoid them and enjoy better health.

Vitamins and minerals

The micronutrients that our body needs may be at abnormal levels, even with a healthy and balanced diet. Whether too high or too low, improper levels of vitamins and minerals have potential consequences, so by knowing your predispositions, you will know what you need to pay special attention to, and whether you need to confirm your levels through testing. This category contains detailed information on multiple vitamins and minerals and your genetic predisposition to have proper levels.

There are three related but different **biological processes** that can affect vitamin and mineral levels:

1.- **Absorption**: the body's capacity to extract micronutrients from the foods that contain them.

2.- **Storage**: refers to the ability to accumulate micronutrients in certain organs of the body.

3.- **Circulation**: also called circulating or blood level, that is, the amount of vitamins or minerals that travel in the bloodstream.

Biomarkers

Some physiological parameters, such as cholesterol or triglyceride levels, are influenced by your DNA, which determines your potential tendency to have abnormal levels. In this category, we inform you of your genetic predisposition and the possible consequences of having inadequate figures, so you can take appropriate measures under the supervision of a health professional (doctor or nutritionist)

Other

This category includes other traits, such as anxiety or addiction caused by caffeine, among others.

*** The information provided in this report is only valid for research, information, and educational purposes. Under no circumstances is it valid for clinical or diagnostic use.**

1.2. Frequently Asked Questions

What is nutrigenetics?

Nutrigenetics is the discipline that analyses the genetic variants in your DNA and that directly impact how you metabolise different molecules, as well as how you will respond to different diets. The best way to eat is by knowing your genetic tendencies to cholesterol, triglycerides, overweight, etc. Other data you can see in your report includes how well you absorb vitamins B12 or E.

What is this test based on?

Once a high level of consensus is reached, the most relevant scientific studies are published by international institutions and organisations. The complex algorithm developed by 24Genetics incorporates thousands of these genetic studies that have been recognised and accepted by the global scientific community. As a result, our reports are of the highest quality.

Based on my test results, should I make significant changes to my diet on my own?

You should not make any significant changes to your routine without first talking to a nutritionist, an expert geneticist or your doctor, who will have access to much more of your medical history. Our tests analyse part, but not all, of your body's genetic markers, so they offer informative, not diagnostic, results. They provide very valuable data on genetic predispositions, but there are many other factors that influence your health and nutrition. We thus always recommend that you consult with nutrition or health specialists or genetics professionals.

Are my genes the only thing that matters?

Our genes largely define who we are, but we and the environment can have a considerable effect on these genetic predispositions. Lifestyle, sport, diet and many other circumstances influence our body. Therefore, while genes are very important, their influence on your health, well-being and life in general is shared with many other factors.

Is a nutrigenetics test the same as a food intolerance test?

No, a genetic test has nothing to do with a food intolerance test, nor is it the same as a food allergy test. They are separate tests that provide different information. Genetic tests are much more complex and expensive than the tests mentioned above, and the genetic information they provide cannot be obtained in any other way.

2. Summary

Diet and weight

Effectiveness of the Mediterranean diet

Effectiveness of a low-fat diet

Predisposition to overweight

Ease of weight loss

Predisposition to emotional eating

Predisposition to consume sweets

Predisposition to fat intake

Appetite and a high-protein diet

The effectiveness of a low-carb diet

Effectiveness of a high-protein diet

Predisposition to early onset overweight in adults

Ease of weight loss in response to monounsaturated fats

Predisposition to snacking

Predisposition to carbohydrate intake

Appetite and hypocaloric diet

Pathologies and intolerances

Lactose intolerance

DAO deficiency and migraines

Type 2 diabetes

Hypertension due to salt consumption

Cavities

Coeliac disease

Type 1 diabetes

Hypothyroidism

Iron deficiency anaemia

Vitamins and minerals

Vitamin A - Carotenoid levels

Vitamin B6 levels

Vitamin B12 levels

Vitamin C levels

Vitamin K levels

Phosphorus levels

Magnesium levels

Vitamin A - Retinol levels

Vitamin B9 levels

Homocysteine levels

Vitamin D levels

Calcium levels

Iron levels

Zinc levels

Biomarkers

HDL cholesterol levels

Triglyceride levels

Omega-6 levels

LDL cholesterol levels

Triglyceride levels and the Mediterranean Diet

Other

Longevity and the Mediterranean diet

Caffeine and anxiety

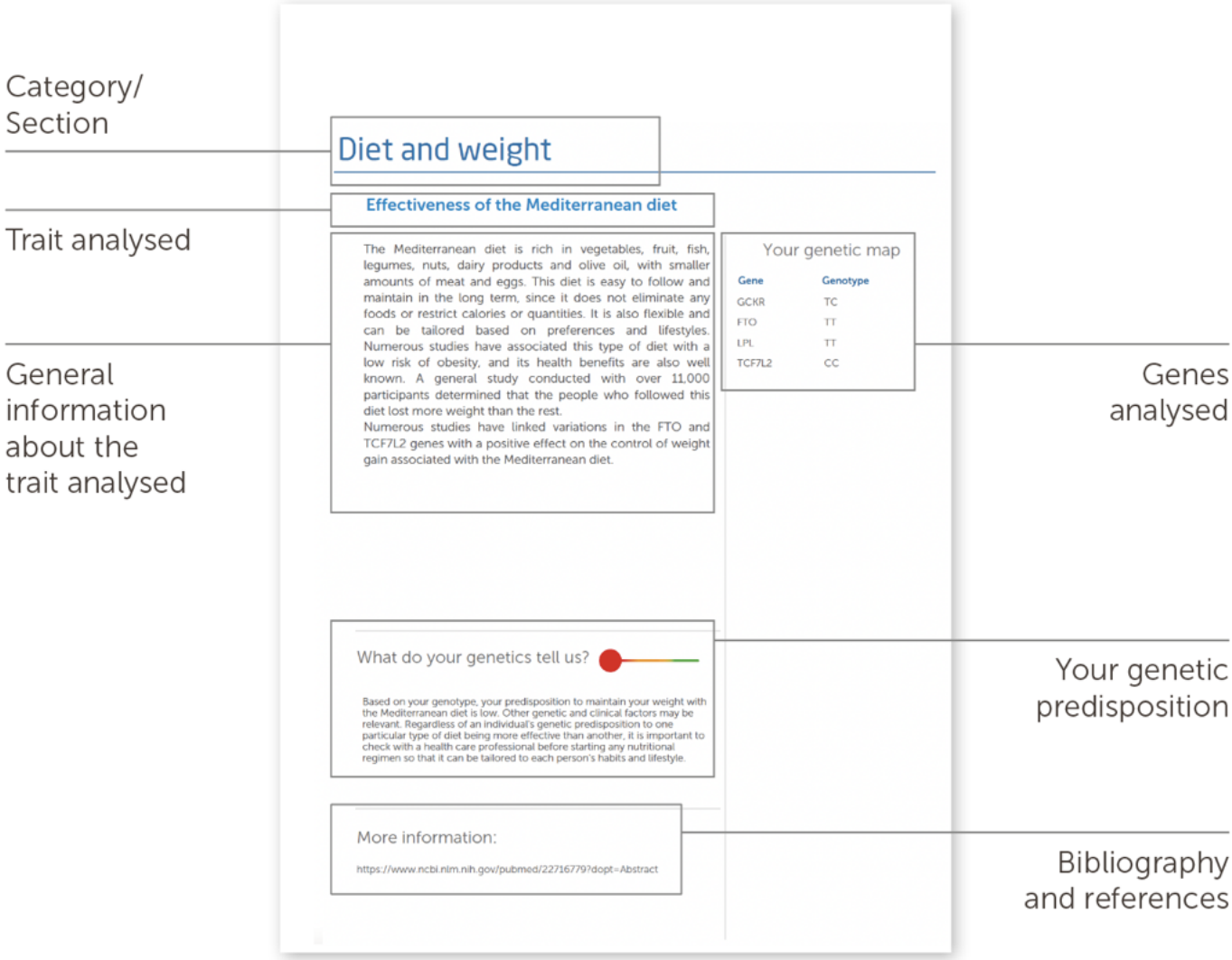
Caffeine and addiction

Caption:

Your analyzed genotype is favorable.
Your analyzed genotype is a little favorable.
Your analyzed genotype doesn't particularly affect you.
Your analyzed genotype is a little unfavorable.
Your analyzed genotype is unfavorable.

3. Genetic Results

3.1. What do the results show?



Diet and weight

Effectiveness of the Mediterranean diet

The Mediterranean diet is rich in vegetables, fruit, fish, legumes, nuts, dairy products and olive oil, with smaller amounts of meat and eggs. This diet is easy to follow and maintain in the long term, since it does not eliminate any foods or restrict calories or quantities. It is also flexible and can be tailored based on preferences and lifestyles. Numerous studies have associated this type of diet with a low risk of obesity, and its health benefits are also well known. A general study conducted with over 11,000 participants determined that the people who followed this diet lost more weight than the rest.
Numerous studies have linked variations in the FTO and TCF7L2 genes with a positive effect on the control of weight gain associated with the Mediterranean diet.

Your genetic map

Gene	Genotype
GCKR	TC
FTO	AT
LPL	TC
TCF7L2	TT

What do your genetics say?

Based on your genotype, your predisposition to maintain your weight with the Mediterranean diet is average. Other genetic and clinical factors may be relevant. Regardless of an individual's genetic predisposition to one particular type of diet being more effective than another, it is important to check with a health care professional before starting any nutritional regimen so that it can be tailored to each person's habits and lifestyle.

More information:

https://www.ncbi.nlm.nih.gov/pubmed/22716779?dopt=Abstract

Diet and weight

The effectiveness of a low-carb diet

A diet low in carbohydrates limits the intake of this type of macronutrient. Carbohydrates are the main source of energy in a diet and can be classified into two different types. Simple carbs provide immediate energy and are mainly found in sugars, such as those contained in fruits, while complex carbs, found in vegetables, cereals and legumes, provide a sustained source of energy throughout the day.
There are studies that indicate that genetics are, in part, responsible for how easy or hard it is to lose weight. In the specific case of a low-carb diet, it has been shown that variants in the FTO gene correlate with a greater predisposition to lose weight with this type of diet.

Your genetic map

Gene	Genotype
FTO	AT

What do your genetics say?

Based on your genotype, you have no special predisposition to lose weight with a low-carb diet. Other genetic and clinical factors may be relevant. Foods high in carbohydrates are some of the main sources of fibre, and a diet low in this substance can negatively affect intestinal health.

More information:

https://www.ncbi.nlm.nih.gov/pubmed/19726594?dopt=Abstract

Diet and weight

Effectiveness of a low-fat diet

A low-fat diet is one in which the total fat intake is below 20% of the daily caloric intake, although the WHO considers a fat intake of up to 30% as healthy. In addition, experts recommend reducing the intake of saturated fats, such as pork fat, butter, milk fat, meat, ice cream and cheese, and replacing them with unsaturated fats, such as olive or seed oil, avocados, peanut butter or nuts. One way to distinguish between saturated and unsaturated (healthier) fats is that the former are solid at room temperature, while unsaturated fats only solidify when cooled.
Several large-scale studies on weight loss have shown a correlation between a variant in the IRS1 gene and an enhanced response to a low-fat diet.

Your genetic map

Gene	Genotype
IRS1	CC

What do your genetics say?

Based on your genotype, you are predisposed to lose weight with a low-fat diet. Other genetic and clinical factors may be relevant. Regardless of an individual's genetic predisposition to one type of diet being more effective than another, it is important to check with a health care professional before starting any nutritional regimen so that it can be tailored to each person's habits and lifestyle.

More information:

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3171189/

Diet and weight

Effectiveness of a high-protein diet

A high-protein diet is based on the increased consumption of protein-rich foods, such as meat and eggs. Eating more protein helps to increase the feeling of satiety, as it affects the levels of ghrelin and other hormones that are responsible for regulating appetite. It is a very effective diet in terms of weight loss while minimising the loss of muscle mass, although it can cause a rebound effect, produce ketosis and have serious health consequences.
Not all metabolisms respond the same to a high-protein diet, and the FTO gene has been linked to its effectiveness.

Your genetic map

Gene	Genotype
FTO	TT

What do your genetics say?

Based on your genotype, your predisposition to respond well to a protein-rich diet is average. Other genetic and clinical factors may be relevant. Regardless of an individual's genetic predisposition to one type of diet being more effective than another, it is important to check with a health care professional before starting any nutritional regimen so that it can be tailored to each person's habits.

More information:

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3478519/

Diet and weight

Predisposition to overweight

The body mass index (BMI) is a number that is calculated based on a person's weight and height and is used to identify weight ranges that can lead to health problems. A BMI between 18.5 and 24.9 indicates a healthy weight, the excess weight range is from 25 to 29.9, and 30 and above indicates obesity, from moderate to very severe. The tendency to excess weight is a clear case of a combination of genetic and environmental factors. The environmental factors include mainly the type of diet and physical activity, but approximately 40 to 70% of the predisposition to excess weight is inherited.
Several studies have correlated the FTO gene with a predisposition to have a higher BMI.

Your genetic map

Gene	Genotype
FTO	CC

What do your genetics say?

Based on your genotype, your predisposition to overweight is average. Other genetic and clinical factors may be relevant. Since genetics cannot be changed, to maintain a healthy BMI it is important to follow proper habits under the supervision of a health professional. And remember that you can also see your predisposition to the effectiveness of different types of diets in other parts of this report.

More information:

https://www.ncbi.nlm.nih.gov/pubmed/18535549?dopt=Abstract

Diet and weight

Predisposition to early onset overweight in adults

As we have seen above, the body mass index (BMI) is a number calculated based on a person's weight and height and used to identify weight ranges that can lead to health problems. Healthy weight is considered to be between 18.5 and 24.9; excess weight corresponds to the range between 25 and 29.9; and over 30 is considered obesity, from moderate to very severe. The tendency to become excess weight sometimes develops early in adults, which has a genetic component. Several studies have correlated the FTO gene with a predisposition to early-onset excess weight.

Your genetic map

Gene	Genotype
FTO	AT

What do your genetics say?

Based on your genotype, you are predisposed to early onset overweight. Other genetic and clinical factors may be relevant. Since genetics cannot be changed, to maintain a healthy BMI it is important to follow proper habits under the supervision of a health professional. And remember that you can also see your predisposition to the effectiveness of different types of diets in other parts of this report.

More information:

https://www.ncbi.nlm.nih.gov/pubmed/22842737?dopt=Abstract

Diet and weight

Ease of weight loss

Weight loss is a goal for an ever-growing part of the population. Diet and physical activity obviously play a key role in achieving the goal of losing weight, but we often notice that other people achieve better results than us when following the same diet and exercise routine. Genetics has a lot to say about that. We know that between 40 and 70% of the tendency to obesity can be inherited, but genetics also influence how easy or hard it is to lose weight.
Several studies have shown that the CLOCK and PPM1K-DT genes influence how easy or hard it is for someone to lose weight.

Your genetic map

Gene	Genotype
TCF7L2	TT
PPARG	CC
CLOCK	AG
Intergenic	TC

What do your genetics say?

Based on your genotype, your predisposition to weight loss is average. Other genetic and clinical factors may be relevant. Some diseases can make it harder to lose weight. Always consult with a health care professional before starting a diet. And remember that you can also see your predisposition to the effectiveness of different types of diets in other parts of this report.

More information:

http://ajcn.nutrition.org/content/100/4/1188.long#F2

Diet and weight

Ease of weight loss in response to monounsaturated fats

Fats are an important part of a diet, and not all are bad. Monounsaturated fats are considered healthy dietary fats and are known for their anti-inflammatory properties and ability to reduce triglycerides and blood pressure. They are also healthy for the heart and beneficial for the skin, as they help to keep the epidermis properly hydrated. They can also facilitate weight loss and fat balance in some individuals, depending on their genetics. Monounsaturated fats are present in foods such as avocados, olives, nuts, olive oil and almonds.
Genetic variants in the PPARG gene have been associated with a lower weight in women who consume more than 13% of their daily calories in the form of monounsaturated fats.

Your genetic map

Gene	Genotype
PPARG	CC

What do your genetics say?

Based on your genotype, you are predisposed to lose weight by consuming monounsaturated fats. Other genetic and clinical factors may be relevant. Since genetics cannot be changed, to maintain a healthy BMI it is important to follow proper habits under the supervision of a health professional. And remember that you can see your predisposition to the effectiveness of different diets in other parts of this report.

More information:

https://www.ncbi.nlm.nih.gov/pubmed/14506127

Diet and weight

Predisposition to emotional eating

Emotional eating, or uncontrolled eating, is the tendency to eat more than normal as a result of certain emotions, such as stress, anxiety, anger, or certain social situations that create insecurity or discomfort. Sometimes, emotional eating can be brought about by the taste of the food or the pleasure caused by the act of eating itself.
Some studies indicate that certain variations in the TAS2R38 gene may cause some people, especially women, to be more likely to eat excessively when in a certain frame of mind.

Your genetic map

Gene	Genotype
TAS2R38	GG
MC4R	TC

What do your genetics say?

Based on your genotype, you are predisposed to emotional eating. Other genetic and clinical factors may be relevant. Doing relaxation and breathing exercises can help to bring emotional eating under control, although you may also require psychological assistance to identify the situation that causes that impulse and treat the root problem.

More information:

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2938875/

Diet and weight

Predisposition to snacking

Snacking is the impulsive need to eat certain amounts of food at frequent intervals. Snacking can be healthy or not, depending on the amount and type of food that is consumed. The tendency to snack is highly influenced by leptin, a hormone that affects the operation of the hypothalamus, which regulates appetite, satiety and energy use.
It has been shown that people with genetic variations in some genes, such as MC4R, and specifically the FTO gene in women, have a greater tendency to eat more without feeling satiated, and consequently to snack more frequently between meals.

Your genetic map

Gene	Genotype
MC4R	TC
FTO	TC

What do your genetics say?

Based on your genotype, you are predisposed to snacking. Other genetic and clinical factors may be relevant. Balanced foods that contain unsaturated fats, proteins, fibre and carbohydrates with a low glycaemic index, in small portions, can help satiate hunger and reduce total caloric intake, while junk food can have negative effects on health.

More information:

https://www.ncbi.nlm.nih.gov/pubmed/19153581?dopt=Abstract

Diet and weight

Predisposition to consume sweets

The sweet taste is mainly detected in the taste buds at the tip of the tongue, and the desire to eat sweet foods is usually influenced by culinary culture, habits and age. Foods with a high content of simple carbohydrates are perceived as sweet, but their excessive intake can lead to a risk of overweight, diabetes and cardiovascular disease.
However, genetics may also influence the desire to eat sweets, and changes in the FGF21/FUT1 intergenic region have been shown to predispose people to increased consumption.

Your genetic map

Gene	Genotype
FUT1	GG

What do your genetics say?

Based on your genotype, you are not predisposed to eat sweets. Other genetic and clinical factors may be relevant.

More information:

https://www.ncbi.nlm.nih.gov/pubmed/28467924?dopt=Abstract

Diet and weight

Predisposition to carbohydrate intake

Carbohydrates are sugars, starches and fibres, whose main purpose is to provide an instant source of energy for the proper development of brain activity, digestion and muscle movement. Natural sugars are found in natural fruits and juices, and starches are found in cereals and vegetables. All these products also contain fibre. By contrast, refined sugars, which have negative effects on health, are present in soft drinks, bottled juices, desserts, sweets, ice cream, sauces and ultra-processed foods. Excessively indulging in carbohydrates, especially refined sugars, is unhealthy because it can lead to weight gain and a risk of developing type 2 diabetes.
Several large-scale studies have found that people with certain variations in genes such as LOC105370491 and IZUMO1 have a greater urge for carbohydrates.

Your genetic map

Gene	Genotype
FTO	TC
LOC10537779	GG
LOC10537049	AG
IZUMO1	AA

What do your genetics say?

Based on this study, your predisposition is average. Other genetic and clinical factors may be relevant. Many foods, such as brown rice, quinoa, whole grain oats, carrots, broccoli, and others contain healthy carbohydrates without the negative effects of refined sugars.

More information:

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3652928/

Diet and weight

Predisposition to fat intake

Fat is a great source of energy that the body uses to produce nerve tissue and hormones, and to absorb fat-soluble vitamins, such as D, E or K, which are metabolised in the body in the same way as the lipids in the diet. However, excessive fat intake increases the risk of overweight, and therefore of cardiovascular disease.
Genetics are related to the tendency to consume fat in excess, and it has been specifically shown that carriers of mutations in the FGF21/FUT1 intergenic region exhibit a lower predisposition to consume fat.

Your genetic map

Gene	Genotype
FUT1	GG

What do your genetics say?

Based on your genotype, your predisposition to fat consumption is average. Other genetic and clinical factors may be relevant. It is essential to eat the right balance of fats. As a rule, saturated fats (butter, cheese, whole milk, cream, ice cream or fatty meats) should be replaced with unsaturated fats (olive or sunflower oil, oily fish, avocados and nuts).

More information:

https://www.ncbi.nlm.nih.gov/pubmed/28467924?dopt=Abstract

Diet and weight

Appetite and hypocaloric diet

Appetite is the psychological desire to eat. It differs from hunger, which is the physiological need to eat food. In other words, appetite has more of an emotional component, whereas hunger is more physical. Appetite regulation is a very complex mechanism in which the brain, digestive system, fat deposits, genetic, environmental and psychological factors, and food characteristics are all involved. A low-calorie diet is one that relies on daily calorie restriction, or the reduction of amounts in general, and not on restricting specific types of food.
A genetic study has demonstrated a correlation between a variant in the FTO gene and the decreased appetite associated with a hypocaloric diet.

Your genetic map

Gene	Genotype
FTO	AT

What do your genetics say?

Based on your genotype, a low-calorie diet has no influence on your appetite level. Other genetic and clinical factors may be relevant. Before starting any weight loss plan, we recommend you consult a health professional, who can supplement this report with diagnostic tests and a medical evaluation to design your personalised diet.

More information:

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3985215/pdf/ajcn9951126.pdf

Diet and weight

Appetite and a high-protein diet

Appetite is the psychological desire to eat. It differs from hunger, which is the physiological need to eat food. In other words, appetite has more of an emotional component, whereas hunger is more physical. Appetite regulation is a very complex mechanism in which the brain, digestive system, fat deposits, genetic, environmental and psychological factors, and food characteristics are all involved. A high-protein diet, also called a hyperproteic diet, is based on increasing the proportion of protein-rich foods such as meat and eggs.
A genetic study has demonstrated a correlation between a variant in the FTO gene and the decreased appetite associated with a high-protein diet.

Your genetic map

Gene	Genotype
FTO	AT

What do your genetics say?

Based on your genotype, a high-protein diet has no influence on your appetite level. Other genetic and clinical factors may be relevant. Before starting any weight loss plan, we recommend you consult a health professional, who can supplement this report with diagnostic tests and a medical evaluation to design your personalised diet.

More information:

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3985215/pdf/ajcn9951126.pdf

Pathologies and intolerances

Lactose intolerance

Lactose is the main naturally-occurring sugar in milk and dairy products. It consists of a glucose molecule and a galactose molecule, two simple sugars that the body uses to produce energy. The enzyme lactase is essential for breaking down lactose into glucose and galactose, a key step in certain immune and neuronal processes. Some people cannot produce enough lactase; as a result, they do not digest lactose, which ferments in the intestine, generating gas, digestive distress, abdominal distension, and/or diarrhoea.
There are genetic factors that play an important role in lactose absorption, such as the MCM6 gene, which is directly related to this process.

Your genetic map

Gene	Genotype
MCM6	AA

What do your genetics say?

Based on your genotype, you are predisposed to metabolise lactose easily. Other genetic and clinical factors may be relevant.

More information:

https://onlinelibrary.wiley.com/doi/full/10.1002/jbmr.83

Pathologies and intolerances

Coeliac disease

Coeliac disease is a systemic autoimmune disorder in which the body reacts to the presence of gluten, which is a protein found in wheat, rye, and barley, and, to a lesser extent, in other cereals. Over time, this reaction can damage the lining of the small intestine, preventing it from absorbing some nutrients and causing diarrhoea, fatigue, weight loss, swelling and anaemia.
Genetics influence this disease, as shown by the IL12A gene.

What do your genetics say?

Based on this study, your predisposition to have this disease is average.
Other genetic and clinical factors may be relevant.

More information:

www.ncbi.nlm.nih.gov/pubmed/20190752

Your genetic map

Gene	Genotype
LOC10537166	AA
PUS10	AG
Intergenic	CC
LINC01934	GG
ICOS	TC
Intergenic	AA
LPP	AC
BLTP1	AA
Intergenic	TT
TNFAIP3	AG
ATXN2	CC
PTPN2	AA
MMEL1	AG
RUNX3	AG
MROH3P	TC
PLEK	TC
ARHGAP31	TG
BACH2	AC
ZMIZ1	AG
ETS1	TC
LOC10537108	CC
ICOSLG	TT
CD247	AA
FRMD4B	CC
MYNN	CC
ELMO1	GG
DLEU1	CC
WNT3	TT
YDJC	CC
Intergenic	TC

Pathologies and intolerances

DAO deficiency and migraines

Diamine oxidase (DAO) is the enzyme responsible for reducing histamine, which is a molecule the body uses to respond to substances it considers harmful. With a DAO deficiency, histamine builds up, causing allergies and bothersome symptoms, which can be worsened by eating foods that contain high levels of histamine, such as tomatoes, fish preserves, processed sauces, dairy products and other foods. One of the best-known consequences of DAO deficiency is migraines, but dizziness, irritable bowel syndrome, Crohn's disease, stomach pain, nausea and/or vomiting, abnormal blood pressure and arrhythmias can also occur.
The AOC1 gene is responsible for producing the DAO enzyme, and several studies confirm that mutations in this gene create a propensity for this process to malfunction, with the consequent generation of reduced levels of DAO.

Your genetic map

Gene	Genotype
AOC1	GG
AOC1	CC

What do your genetics say?

Based on your genotype, your predisposition to have reduced DAO enzyme activity is average. Other genetic and clinical factors may be relevant.

More information:

https://pubmed.ncbi.nlm.nih.gov/21488903/

Pathologies and intolerances

Type 1 diabetes

Diabetes means your blood glucose, or blood sugar, levels are too high. With type-1 diabetes, your pancreas does not make insulin. Insulin is a hormone that helps your cells get energy from glucose. Without insulin, too much glucose remains in your blood. Over time, high blood glucose can lead to serious problems with your heart, eyes, kidneys, nerves, and gums and teeth.

Type-1 diabetes happens most often in children and young adults, but can appear at any age.

Your genetic map

Gene	Genotype
BACH2	GG
LINC02656	AA
CTSH	TC
C1QTNF6	AA
PHTF1	CC
CTLA4	AA
IL2RA	CC
NAA25	AA
ERBB3	GG
CLEC16A	AA
PTPN2	TT

What do your genetics say?

According to this study, you are more likely to suffer from this disease than most of the population.

More information:

www.ncbi.nlm.nih.gov/pubmed/18978792

Pathologies and intolerances

Type 2 diabetes

Type 2 diabetes mellitus (DM2), or type 2 diabetes, is a chronic autoimmune disease that is characterized by the body's resistance to metabolise insulin and/or by the incorrect functioning of the pancreas, which secretes less insulin than the body needs. Since insulin is the hormone that regulates blood glucose levels, this pathology leads to hyperglycaemia, which can cause serious health complications, such as blindness, myocardial infarction, stroke, kidney failure or partial amputations. The classic symptoms are constant hunger, excessive thirst, and frequent urination.
Genetics influence the predisposition to this disease, as shown by the POU5F1 and LOC107986166 genes, which are directly correlated with it, although the interaction of environmental factors is also required. Obesity is thought to be one of its main causes.

What do your genetics say?

Based on this study, your predisposition to this disease is similar to that of the majority of the population. Other genetic and clinical factors may be relevant.

More information:

www.ncbi.nlm.nih.gov/pubmed/24509480

Your genetic map

Gene	Genotype
Intergenic	TT
FAF1	GG
POU5F1	CC
LOC10798616	TC
ARL15	AA
MPHOSPH9	GG
PLEKHA1	TC
LINC00824	TC
LOC10798659	CC
ETV1	AG
C6orf173	AA
TCF7L2	TT
CDKAL1	AG
GRB14	AA
TLE4	AA
CDC123	TC
ARAP1	AC
KCNQ1	GG
JAZF1	AG
KCNJ11	TT
ST6GAL1	TC
MTNR1B	CC
HNF4A	AG
RPSAP52	CC
LOC10537027	AG
AP3S2	AC
FTO	TT
GLIS3	GG
IGF2BP2	TT
PPARG	CC
HNF1B	AG

Pathologies and intolerances

Hypothyroidism

The thyroid is an endocrine gland in the shape of a butterfly that is located in the neck. It produces hormones that control the rhythm of many bodily activities, such as how fast you burn calories or how fast your heart beats. Hypothyroidism is a dysfunction in which the thyroid does not produce enough of its hormones to satisfy the body's needs. The best known consequence of this pathology is weight gain due to a slower metabolism, but other common symptoms include fatigue, intolerance to cold, depression, decreased memory and ability to concentrate, dry skin, dry and brittle hair, pale skin, persistent constipation and excessive drowsiness.
Studies have shown a relationship between the PTPN22 and SH2B3 genes and an increased risk of hypothyroidism.

Your genetic map

Gene	Genotype
INSR	TG
Intergenic	AA
LINC00327	GG
Intergenic	AG
MTF1	TT
PDE8B	AG
ZBTB10	TC
ZNF804B	TT
PTCSC2	TT
VAV3	TT
SH2B3	CC
PHTF1	CC
Intergenic	CC

What do your genetics say?

Based on this study, your predisposition to this disease is similar to that of the majority of the population. Other genetic and clinical factors may be relevant.

More information:

www.ncbi.nlm.nih.gov/pubmed/22493691

Pathologies and intolerances

Hypertension due to salt consumption

Blood pressure is the force that the blood exerts against the walls of the blood vessels along the circulatory system. Hypertension is a chronic condition in which the pressure in blood vessels is persistently high, which can damage them. Sodium, the main component of salt, is directly related to the risk of hypertension, although other factors such as age, physical activity and fat consumption also influence it. The most common consequence of hypertension, along with other pathologies, is the greater propensity to suffer from cardiovascular diseases, such as heart attack or stroke.
At the genetic level, hypertension caused by salt consumption has a high heritability index. Several studies have shown that the ADD1, AGT and AGTR1 genes are related to an increased risk of this pathology, while the SLC4A5 gene has a protective effect.

Your genetic map

Gene	Genotype
AGT	AG
AGTR1	AA
ADD1	TG
SLC4A5	CC

What do your genetics say?

Based on your genotype, your predisposition to hypertension as a result of salt intake is average. Other genetic and clinical factors may be relevant.
The habits to prevent hypertension are well known: keep an adequate BMI, exercise, lower your salt intake, limit alcohol, tobacco, and caffeine, and reduce stress. However, it is important to have a health professional keep track of it.

More information:

https://link.springer.com/article/10.1007%2Fs11010-020-03983-5

Pathologies and intolerances

Iron deficiency anaemia

Anaemia is a condition in which the body does not have enough healthy red blood cells needed to carry nutrients to the body's tissues. Iron plays an important role in the production of red blood cells, and not having the right levels can cause anaemia, called iron deficiency anaemia, which is in fact the most common type. However, it should be noted that having low levels of iron does not necessarily lead to anaemia.
Certain genes have been linked to the development of anaemia; specifically, the HFE, HBS1L-MYB and HIST1H2BJ genes have a protective effect against this disease in women.

Your genetic map

Gene	Genotype
LOC10537801	AG
HFE	AG
HIST1H2BJ	CC

What do your genetics say?

Based on your genotype, you have a low predisposition to have iron deficiency anaemia. Other genetic and clinical factors may be relevant.

More information:

https://www.ncbi.nlm.nih.gov/pubmed/26460247?dopt=Abstract

Pathologies and intolerances

Cavities

Tooth decay is one of the most widespread dental diseases in the world, which led the World Health Organization (WHO) to declare its care and prevention as a priority for this millennium. Cavities are damaged areas on the surface of teeth that develop into openings or holes, and occur when certain bacteria secrete acids that attack the enamel. This damage can range from small holes to tooth loss. Their causes can range from eating processed foods or sugary beverages, to improper dental hygiene.
Recent studies have correlated the TAS1R2 gene with a greater predisposition to tooth decay.

Your genetic map

Gene	Genotype
TAS1R2	GG

What do your genetics say?

Based on your genotype, your predisposition to tooth decay is above average. Other genetic and clinical factors may be relevant. As we all know, brushing after meals, eating fruits and vegetables, and limiting foods high in sugar all help to maintain dental health. In addition, you should visit a dentist for periodic check-ups and professional cleanings.

More information:

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4534477/

Vitamins and minerals

Vitamin A - Carotenoid levels

Carotenoids, also called tetraterpenoids, are vitamin A provitamins in the form of yellow, orange, and red organic pigments, and are produced by plants, algae, and various bacteria and fungi. They have an antioxidant and anti-inflammatory function, are fat-soluble and are stored in the fatty tissues of animals.
Studies have shown that PKD1L2 gene, among others, is directly related to circulating carotenoid levels.

Your genetic map

Gene	Genotype
PKD1L2	AG
PKD1L2	TG
ND	TG

What do your genetics say?

Based on this study, your predisposition to have normal levels is average. Other genetic and clinical factors may be relevant. Pumpkins, carrots, corn, tomatoes, salmon, lobster and prawns are all rich in carotenoids, hence their characteristic colour. Their consumption increases the levels of this provitamin.

More information:

www.ncbi.nlm.nih.gov/pubmed/19185284

Vitamins and minerals

Vitamin A - Retinol levels

Retinol, a compound popularly known for its application in the world of cosmetics, is a precursor of vitamin A. It plays an important role in storing this vitamin, which has multiple functions: it is important for growth and development, for maintaining the immune system and for good vision. It behaves like a hormone and is an important growth factor for epithelial and other cells.
Genetic factors, such as those involved in the FFAR4 gene, play an essential role in the circulation of vitamin A in the blood.

Your genetic map

Gene	Genotype
TTR	AC
FFAR4	CC

What do your genetics say?

Based on this study, your predisposition to have normal levels is average. Other genetic and clinical factors may be relevant. Retinol and, by extension, all retinoids, are found in foods of animal origin: meat, fish, seafood, dairy products, eggs, and others.

More information:

www.ncbi.nlm.nih.gov/pubmed/21878437

Vitamins and minerals

Vitamin B6 levels

Vitamin B6 (pyridoxine) is a water-soluble vitamin that is involved in numerous essential processes, such as protein metabolism, the proper functioning of the nervous system, the production of haemoglobin and maintaining proper homocysteine levels. It is found naturally in foods such as peas, whole grains, meat, eggs, and fish. Most people get enough vitamin B6 with a balanced diet, and vitamin B6 deficiency is rare. However, even slight imbalances in the levels of this vitamin can lead to various symptoms: nerve inflammation, irritability, depression, dermatitis, cracked and painful lips, swollen mouth and tongue, or confusion.
Numerous studies have linked the NBPF3 gene with reduced levels of vitamin B6, possibly due to the increased degradation of this vitamin in the blood.

Your genetic map

Gene	Genotype
NBPF3	TC

What do your genetics say?

Based on your genotype, you are predisposed to have adequate levels of vitamin B6. Other genetic and clinical factors may be relevant.

More information:

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2667971/

Vitamins and minerals

Vitamin B9 levels

Vitamin B9 (folate) is a water-soluble vitamin that is essential in processes such as DNA synthesis, cell repair, protein metabolism and proper brain function. It is naturally present in foods such as leafy green vegetables, peas, lentils, fruits, cereals and other foods. Folic acid is an artificial (synthetic) folate contained in supplements and added to fortified foods. Vitamin B9 deficiencies are associated with anaemia, high homocysteine levels, increased risk of heart disease, complications during pregnancy, increased risk of cancer, and cognitive dysfunction in old age.
Genetic studies have shown that the MTHFR gene is associated with low levels of vitamin B9 in the blood and an increase in homocysteine, a substance that, at high levels, is linked to cardiovascular disease.

Your genetic map

Gene	Genotype
MTHFR	AG
MTHFR	TT

What do your genetics say?

Based on your genotype, you are not predisposed to have a vitamin B9 deficiency. Other genetic and clinical factors may be relevant.

More information:

https://www.ncbi.nlm.nih.gov/pubmed/17115185

Vitamins and minerals

Vitamin B12 levels

Vitamin B12 (cobalamin) is a water-soluble vitamin that plays an important role in the functioning of the brain, the nervous system and the digestive system, and it is an essential component in the synthesis and regulation of DNA and for the metabolism of fatty acids and amino acids. It is produced by bacteria and is found naturally in foods of animal origin: meat, fish, eggs and dairy products. Excess vitamin B12 can cause blurred vision, vomiting, diarrhoea and gastric disorders, blood clots, and damage to the liver and kidneys.
Various genetic studies have identified that the FUT2 gene is associated with excess blood concentrations of vitamin B12 in women.

Your genetic map

Gene	Genotype
FUT2	AG

What do your genetics say?

Based on your genotype, you are predisposed to have average levels of vitamin B12. Other genetic and clinical factors may be relevant.

More information:

https://www.ncbi.nlm.nih.gov/pubmed/18776911?dopt=Abstract

Vitamins and minerals

Homocysteine levels

Homocysteine is an amino acid present in the body whose metabolism is linked to that of some B vitamins, mainly B6, B9 and B12. When there is a deficiency in any of these vitamins, the levels of homocysteine in the blood increase, which can result in cardiovascular diseases, such as myocardial infarction or stroke. It has also been shown that people with high levels of homocysteine in the blood often have other associated risk factors, such as hypertension or high cholesterol.
Several studies have shown a link between the MTHFR gene and the propensity to have abnormal levels of homocysteine.

Your genetic map

Gene	Genotype
MTHFR	TT
MTHFR	AG

What do your genetics say?

Based on your genotype, you are predisposed to have normal levels of homocysteine. Other genetic and clinical factors may be relevant.

More information:

https://www.ncbi.nlm.nih.gov/pubmed/22890010?dopt=Abstract

Vitamins and minerals

Vitamin C levels

Vitamin C (ascorbic acid) is a water-soluble vitamin that is critical for life processes, such as the functioning of the immune system, the production of red blood cells, and the maintenance of connective tissue, blood vessels, bones, teeth and gums. It is a powerful antioxidant and is involved in iron absorption. A severe deficiency can cause scurvy, which leads to anaemia, bleeding gums, bruising and poor wound healing. Some foods rich in vitamin C include kiwis, lemons, oranges, red pepper, watermelon, strawberries, broccoli and other vegetables.
A recent study in about 15,000 people found that a variant of the SLC23A1 gene is associated with low levels of vitamin C in the blood.

Your genetic map

Gene	Genotype
SLC23A1	CC

What do your genetics say?

Based on your genotype, you are not predisposed to have low levels of vitamin C. Other genetic and clinical factors may be relevant. The best way to maintain adequate levels of vitamin C is to eat a balanced diet that contains a variety of foods. Smokers and pregnant or breastfeeding women may need to increase their daily intake of vitamin C.

More information:

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3605792/

Vitamins and minerals

Vitamin D levels

Vitamin D (calcidiol or calcifediol) is a fat-soluble vitamin that is important in the absorption and use of calcium, for maintaining good bone and muscle health, and for the proper functioning of the immune, endocrine and cardiovascular systems. It is synthesised in the skin after exposure to sunlight, which transforms it to its active form. Recently, an increase in cases of vitamin D deficiency has been identified in developed countries mainly due to lifestyle, the use of sunscreens and environmental conditions (pollution, geographic location).
Numerous studies have identified variations in the GC gene related to vitamin D deficiency.

Your genetic map

Gene	Genotype
GC	TC
GC	TT

What do your genetics say?

Based on your genotype, you are not predisposed to vitamin D deficiency. Other genetic and clinical factors may be relevant. Exposure to sunlight is crucial to a person's vitamin D levels because there are few dietary sources of this vitamin.

More information:

https://www.ncbi.nlm.nih.gov/pubmedhealth/PMH0065716/

Vitamins and minerals

Vitamin K levels

Vitamin K (phytomenadione) is a fat-soluble vitamin. Known as the clotting vitamin, it is essential to ensure proper blood clotting and bone health. In addition, numerous studies have shown that it contributes to longer life. Low levels of vitamin K increase the risk of bleeding, calcification of blood vessels, and bone fracture. This vitamin is obtained from the diet, but a portion is obtained from our own bodies, since the intestinal microbiota is able to synthesise it. The destruction of the microbiota from excess medication, such as antibiotics, or alcoholism, for example, can reduce the amount of vitamin K in the body.
Genetic variations, as with the VKORC1 gene, have been described that are associated with abnormally low levels of vitamin K.

Your genetic map

Gene	Genotype
VKORC1	TC

What do your genetics say?

Based on your genotype, your predisposition to have low levels of vitamin K is average. Other genetic and clinical factors may be relevant.

More information:

https://www.ncbi.nlm.nih.gov/pubmed/19436136?dopt=Abstract

Vitamins and minerals

Calcium levels

Calcium is the most abundant mineral in the human body and a fundamental element in the development of bones and teeth, blood clotting, sending and receiving nerve signals, muscle contraction and relaxation and regulating heart rate. The human body does not produce calcium, so it must be ingested through foods such as milk, yogurt, cheese, broccoli, kale or fish. Very high calcium levels can affect kidney function, lead to nervous system problems, disorientation, dementia, or even coma. By contrast, the main consequence of calcium deficiency is the loss of bone mass and the risk of osteoporosis, but it can also cause cramps in the back and legs, cause confusion, lack of memory, delirium, depression and hallucinations.
Studies have shown that the LINC00709 and CASR genes are related to the level of calcium in blood.

Your genetic map

Gene	Genotype
CASR	GG
DGKD	GG
GCKR	TC
LINC00709	TC
CARS1	AG
LOC10537017	AG
CYP24A1	AA
WDR81	CC

What do your genetics say?

Based on this study, your predisposition to have normal levels is average.
Other genetic and clinical factors may be relevant.

More information:

www.ncbi.nlm.nih.gov/pubmed/24068962

Vitamins and minerals

Phosphorus levels

Phosphorus is a mineral that is found in our body's cells and plays an important role in how the body metabolises carbohydrates and fats. The main function of phosphorus is in bone and tooth formation, but it is also needed to produce proteins to grow, maintain and repair cells and tissues. Phosphorus is found in foods such as sardines, yogurt, meat and others. Low levels of this mineral usually do not produce symptoms, unless the deficit is very severe, in which case it may cause respiratory problems, confusion, irritability or coma. On the other hand, high levels may be indicative of kidney disease or hypoparathyroidism.
Multiple studies have shown a relationship between the FERRY3, PDE7B and IP6K3 genes to the predisposition to have abnormal levels of phosphorus in the blood.

Your genetic map

Gene	Genotype
Intergenic	TT
CSTA	AA
IP6K3	CC
PDE7B	TT
FERRY3	TT

What do your genetics say?

Based on this study, your predisposition to have normal levels is average.
Other genetic and clinical factors may be relevant.

More information:

www.ncbi.nlm.nih.gov/pubmed/20558539

Vitamins and minerals

Iron levels

Iron is an essential mineral for many bodily functions. For example, it is a basic component in the proper functioning of antioxidant enzymes. The absorption, transport and storage of iron are closely regulated by metabolism, because it is an essential but potentially toxic element. Iron deficiency is the most common nutritional dysfunction in the world. Symptoms include fatigue, rapid heart rate and palpitations. Children, women of childbearing age and vegetarians or vegans are at high risk of iron deficiency.
It has been proven that the TMPRSS6 gene affects the correct function of iron storage in women.

Your genetic map

Gene	Genotype
TMPRSS6	AA
TF	AG

What do your genetics say?

Based on your genotype, you are predisposed to have low levels of iron. Other genetic and clinical factors may be relevant. The recommended amounts of iron can be obtained by consuming a variety of foods, such as lean meats, seafood, poultry, cereals, some legumes, spinach, nuts, and seeds, such as chia.

More information:

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5839608/

Vitamins and minerals

Magnesium levels

Magnesium is an essential mineral in human nutrition. It is very important in many bodily processes, such as the regulation of blood sugar levels, the control of blood pressure or the proper functioning of the muscles and nervous system. In short, magnesium is needed for more than 300 biochemical reactions in the body. It is found in nuts, seeds such as pumpkin or chia, beans, green vegetables, cocoa and dark chocolate, and oily fish. Excess magnesium in the blood can cause stomach upset, nausea, vomiting, and diarrhoea. Conversely, a deficit could bring about mood swings, anxiety, depression, or intestinal symptoms, such as constipation.
Numerous studies have linked the MUC1 and LOC100129455 genes with a predisposition to have altered levels of magnesium in the blood.

Your genetic map

Gene	Genotype
MUC1	TC
SHROOM3	GG
Intergenic	AA
LOC10192833	TT
LOC10012945	GG
MECOM	AG

What do your genetics say?

Based on this study, your predisposition to have normal levels is average.
Other genetic and clinical factors may be relevant.

More information:

www.ncbi.nlm.nih.gov/pubmed/20700443

Vitamins and minerals

Zinc levels

Zinc is a fundamental trace element in the body in the right concentration. Not having the minimum level is harmful, but very high levels can be toxic. Low levels of zinc can slow the growth rate of infants and children, slow sexual development in adolescents, and cause impotence in men. Other symptoms such as diarrhoea, nausea, vomiting, and loss of appetite are associated with zinc levels that are either too high or too low. Zinc is obtained mainly through the diet, from foods such as red meats, poultry, oysters and other seafood, nuts, whole grains, dairy products, and others.
However, genetics also play a role in blood zinc levels. Specifically, the CA3 gene has been shown to influence zinc levels.

Your genetic map

Gene	Genotype
CA1	AG
ND	TT
PPCDC	TT
NBDY	TC

What do your genetics say?

Based on this study, your predisposition to have normal levels is average.
Other genetic and clinical factors may be relevant.

More information:

https://www.ncbi.nlm.nih.gov/pubmed/23720494

Biomarkers

HDL cholesterol levels

Cholesterol is a waxy, fat-like substance found in every cell in the body. HDL cholesterol is a lipoprotein (lipids need to bind to proteins in order to move in the blood), which is usually called "good" cholesterol because it carries cholesterol from other organs to the liver, which removes it from the body. Low HDL levels are directly related to the risk of coronary heart disease.
Variants in the LOC105372112, LIPC and many other genes have been correlated with abnormally high or low levels of HDL in the blood.

Your genetic map

Gene	Genotype
ZPR1	GC
LOC144233	AG
SCARB1	AG
LOC10537211	TC
GALNT2	GG
TTC39B	TC
APOC1	AA
RAB11B	TT
NUTF2	GG
LIPC	GG
ABCA1	CC
LIPC	TC
CETP	CC
FADS2	AG
LPL	AG
LOC10192863	CC

What do your genetics say?

Based on your genotype, you are predisposed to have normal levels of HDL cholesterol. Other genetic and clinical factors may be relevant. Several factors help to raise good cholesterol, such as physical activity and increased consumption of monounsaturated fats (olives or nuts) and polyunsaturated fats (tuna, mackerel, salmon and sardines; or vegetable products, such as olive, soybean, canola, flaxseed and chia oils).

More information:

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2794863/

Biomarkers

LDL cholesterol levels

LDL cholesterol is a lipoprotein that can be dangerous if present in high levels, and is thus called "bad" cholesterol. LDL cholesterol can form plaque and build up on the walls of the arteries, which can narrow them and make them less flexible, increasing the risk of cardiovascular disease (infarction, atherosclerosis, or angina pectoris).
Genetic variants in the PCSK9, LDLR, APOC1 and other genes have been associated with abnormal levels of LDL cholesterol in the blood.

Your genetic map

Gene	Genotype
ABCG8	CC
LDLR	TG
LOC10272496	CC
APOB	CC
APOC1	AA
HMGCR	TC
FADS1	TT
Intergenic	CG
CELSR2	GG
PCSK9	TC
SUGP1	TT

What do your genetics say?

Based on your genotype, you are predisposed to have average levels of LDL cholesterol. Other genetic and clinical factors may be relevant. To help maintain adequate LDL levels, you should consume skim milk, limit your intake of butter and fatty meats, and avoid lunch meats, fried foods and mass-produced pastries. The most advisable cooking methods are baking, steaming and grilling.

More information:

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2794863/

Biomarkers

Triglyceride levels

Triglycerides are the most common type of fat in the body. They come from foods such as butter, some oils, and other fats. However, they can also come from the calories we eat through any other type of food, but that the body does not use and stores in fat cells instead. High triglyceride levels are often also associated with conditions such as lack of exercise, excessive consumption of alcohol, tobacco, or refined carbohydrates, and being overweight. Its most common consequence is an increased risk of cardiovascular disease (heart attack, stroke, atherosclerosis) or type II diabetes.
Genetic research has shown a correlation between certain mutations in the APOC1, FADS1, GCKR and other genes and a predisposition to have high levels of triglycerides.

Your genetic map

Gene	Genotype
GCKR	TC
SCARB1	AG
APOC1	AA
FADS1	TT

What do your genetics say?

Based on your genotype, your predisposition to high triglyceride levels is similar to that of the majority of the population. Other genetic and clinical factors may be relevant. To maintain adequate triglyceride levels, you should eat a balanced diet, limit your consumption of fats and carbohydrates, not smoke, limit your consumption of alcohol, and exercise to burn off the calories ingested.

More information:

https://www.ncbi.nlm.nih.gov/pubmed/20352598?dopt=Abstract

Biomarkers

Triglyceride levels and the Mediterranean Diet

Triglycerides are the most common type of fat in the body. They come from foods such as butter, some oils, and other fats. However, they can also come from the calories we eat through any other type of food, but that the body does not use and stores in fat cells instead. The most common consequence of high triglycerides is an increased risk of cardiovascular disease (heart attack, stroke, atherosclerosis) or type II diabetes.
Genetic research has shown a correlation between certain genetic mutations, such as in the LPL gene, and the predisposition that the Mediterranean diet will influence triglyceride levels.

Your genetic map

Gene	Genotype
LPL	TC

What do your genetics say?

Based on your genotype, you are not predisposed to have abnormal triglyceride levels with the Mediterranean diet. Other genetic and clinical factors may be relevant. To maintain adequate triglyceride levels, you should eat a balanced diet, limit your consumption of fats and carbohydrates, not smoke, limit your consumption of alcohol, and exercise to consume the calories ingested.

More information:

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4848687/

Biomarkers

Omega-6 levels

Omega-6 are essential fatty acids that are crucial for certain bodily functions, but the body does not generate them, meaning it must obtain them through diet. They play a crucial role in brain function and normal growth and development. They also help to stimulate hair and skin growth, maintain bone health, regulate metabolism and maintain the reproductive system. They are found mainly in nuts, cereals, vegetable oils, avocados and eggs. Excess omega-6 in the blood can contribute to the onset of inflammatory diseases, while low levels can cause dermal disorders, such as eczema or hair loss, liver dysfunctions or kidney disorders.
Large-scale studies have shown that certain variants of the ELOVL2 gene cause people who carry that variant to have abnormal levels of omega-6.

Your genetic map

Gene	Genotype
PDXDC1	AA
TMEM258	TC
IL23R	TT
Intergenic	GG
FADS1	TC
FADS2	CC
PDXDC1	GG
Intergenic	CC
FADS1	TT
PDXDC1	AG
TMEM39A	CC
PDXDC1	GC
ELOVL2	CC

What do your genetics say?

Based on this study, your predisposition to have normal levels is average.
Other genetic and clinical factors may be relevant.

More information:

www.ncbi.nlm.nih.gov/pubmed/24823311

Other

Longevity and the Mediterranean diet

Telomeres (a name of Greek origin meaning "final part") are the ends of chromosomes, akin to the plastic tips of shoelaces, whose main function is to protect the genetic material that carries the rest of the chromosome. As our cells divide in order to multiply and thus regenerate the tissues and organs in the body, telomeres shorten over time. This shortening is thus highly associated with the aging process and, consequently, with the time remaining before death. In other words, the shortening of telomeres has a direct relationship with longevity.
Studies have shown that people with mutations in the PPARG gene get an extra benefit from the Mediterranean diet that protects them against telomere shortening.

Your genetic map

Gene	Genotype
PPARG	CC

What do your genetics say?

Based on your genotype, you have no special predisposition to live longer with the Mediterranean diet. Other genetic and clinical factors may be relevant.

More information:

https://www.ahajournals.org/doi/full/10.1161/circgenetics.114.000635

Other

Caffeine and addiction

Coffee is one of the most consumed beverages in the world. Due to the large number of people who drink it, there is a great interest in analysing its effects. As a result, the biochemistry of coffee has been extensively documented and we know that as the unroasted green bean is processed, it undergoes chemical changes en route to becoming the coffee we drink. The type of bean, the degree of roasting and the preparation method all influence its biochemical make-up. Roasted coffee has potentially therapeutic, antioxidant, anti-inflammatory, antifibrotic and anticancer effects, although it can also lead to addiction and/or be associated with a greater predisposition to start smoking, increased adiposity or higher fasting insulin and glucose levels, along with other effects.
The GCKR and ABCG2 genes, among others, have been associated with a greater tendency, and possible addiction, to caffeine consumption.

Your genetic map

Gene	Genotype
GCKR	TC
ABCG2	AA
LOC10192760	CC
POR	AG
ND	AG
Intergenic	CC
EFCAB5	GG
MLXIPL	TT

What do your genetics say?

Based on this study, your predisposition is average. Other genetic and clinical factors may be relevant. For healthy adults, the U.S. Food and Drug Administration (FDA) has indicated that 400 milligrams a day of coffee (4 to 5 cups) is not generally related to adverse or dangerous effects.

More information:

http://www.ncbi.nlm.nih.gov/pubmed/25288136

Other

Caffeine and anxiety

Caffeine is an alkaloid of the xanthine group. This solid, crystalline, white and bitter-tasting substance acts as a psychoactive drug to stimulate the central nervous system.
In addition to this and other effects, caffeine is also related to anxiety, which is described as a feeling of restlessness, nervousness, worry, fear, or panic about what may happen. This process is triggered by neuronal receptors, called adenosine receptors, that are located in the brain and are closely related to activities such as sleep and neuronal activity.
Recent studies have discovered a relationship between a genetic variant in the ADORA2A gene and caffeine-induced anxiety.

Your genetic map

Gene	Genotype
ADORA2A	CC

What do your genetics say?

Based on your genotype, your predisposition to caffeine-influenced anxiety is average. Other genetic and clinical factors may be relevant. Even though, as noted earlier, caffeine is related to anxiety, sometimes increased caffeine consumption seems to dampen this effect on anxiety as the individual becomes accustomed to its components.

More information:

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3055635/pdf/npp201071a.pdf

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