INTRODUCTION

Welcome to your genetic report! This document is designed to provide a clear and easy-to-understand summary of the results from your Wellness Test. The insights you'll gain from learning about your genes will empower you to make informed decisions about your health and wellness, in partnership with your healthcare provider. Your genetic report will highlight how specific variations in your DNA may impact your risk for certain health conditions. These genetic variations, or variants, are simply differences in the DNA sequence that can be passed down from generation to generation. It's important to note that having a genetic variant does not mean that you will definitely develop a specific health condition. There are many factors that contribute to a person's overall health and well-being, and genetics is only one piece of the puzzle. Additionally, genetic variants can have varying effects based on ethnicity. Some variants may be more common in certain populations and their impact on health risks may be best understood in those groups. Having a family history of a specific health condition can also increase your risk for that condition, as families often share similar genetic variations. At this time, it's important to remember that our tests do not diagnose health conditions. Rather, they provide valuable insights and information that can help you and your healthcare provider develop a personalized plan for managing your health and reducing your risk for certain conditions. To learn more about how to interpret and use your genetic report, we recommend speaking with your healthcare provider and visiting our website at https://www.dantelabs.com/ and https://www.dantelabs.com/pages/faq for additional resources and information

LIMITATIONS AND OTHER IMPORTANT INFORMATION

- This test provides information on genetic risk based on analysis of specific genetic variants, but does not report on your complete genetic profile. This test does not report all genetic variants related to a particular disease or condition and the absence of a tested variant does not exclude the presence of other genetic variants that may be associated with the disease/condition.
- This test does not provide INDEL (Insertion/Deletion) mutation analysis. The analyzed mutations include SNP (Single Nucleotide Polymorphism).
- Other genetic risk tests may report different genetic variants for the same disease/condition, so you may get different results using another genetic risk test.
- Other factors such as environmental risk factors and lifestyle can influence your risk of developing a particular disease or health condition.
- This test does not replace visits to the doctor or other healthcare professionals. You should consult your doctor or other healthcare professionals if you have any questions or concerns about your test results or current health situation.
- You may want to talk to a genetic counselor, a certified clinical molecular geneticist or equivalent healthcare professional about your test results and to help answer any questions you may have. You can identify genetic counselors by visiting the National Society of Genetic Counselors website (https://www.nsgc.org).
- This test is not intended to diagnose any disease or condition, tell you anything about your current health situation, or be used to make medical decisions, including whether to take or how much medication to take.
- The laboratory may not have been able to process your saliva sample. In this case, Dante Labs will offer to send you another kit to collect a second sample for free. If Dante Labs' attempts to process the second sample are unsuccessful, Dante Labs will not send additional sample collection kits and you or the person who paid for the Service (if not you) will be entitled to a full refund of the amount paid to Dante Labs.
- This report has not been evaluated by the FDA. This product is not intended to diagnose, treat, cure or prevent any disease.
- For the full Terms of Service, visit the following website: https://www.dantelabs.com/pages/terms-of-service

INFORMATION FOR HEALTH CARE PROFESSIONALS

- This test is not intended to diagnose a disease, determine medical treatment, or tell the user anything about their current state of health.
- This test is intended to provide users with their genetic information to inform lifestyle decisions and conversations with their doctor or other health care professional.
- Any diagnostic or treatment decisions should be based on testing and/or other information that you determine to be appropriate for your patient.

QUICK SUMMARY

HEALTH AND WELLNESS

CONDITION NAME	RESULTS	MAIN MESSAGE
Weight gain	ⓘ	Flagged – Here are some tips to manage weight gain: • Eat a healthy and balanced diet with plenty of fruits, vegetables, whole grains, and lean protein. • Avoid sugary drinks and high-calorie snacks. • Exercise regularly: aim for at least 30 minutes of physical activity most days of the week. This can include walking, cycling, or participating in sports. • Get enough sleep: aim for 7-9 hours of sleep each night. Lack of sleep has been linked to weight gain. • Keep a food diary or use a tracking app to monitor what you eat and how much you exercise. • Avoid stress eating: practice stress management techniques such as deep breathing, meditation, or yoga. • Skipping meals can lead to overeating later on. Eat small, frequent meals throughout the day. • Drinking water before meals can help you feel full and avoid overeating.
Varicose veins	ⓘ	Flagged – Here are some steps you can take to manage and prevent varicose veins: • Exercise regularly: physical activity, such as walking, jogging, and cycling, can help improve blood circulation and prevent the development of varicose veins. • Excess weight places added pressure on your veins, making it more likely that you will develop varicose veins. Maintaining a healthy weight can help reduce your risk. • Apply topical creams based on chamomile and aloe, with a smoothing action, and of resveratrol and vitamin C, natural antioxidants. • Prolonged periods of standing or sitting can reduce blood flow and increase the risk of developing varicose veins. Try to take regular breaks and move around whenever possible. • Wear compression stockings: compression stockings can help improve blood circulation.
Photic sneeze	ⓘ	Flagged – Here are some tips to help reduce the frequency or impact of photic sneezing: • Avoid bright light: if you are prone to photic sneezing, try to avoid bright light, especially the sun, as much as possible. • Wear protective eyewear: sunglasses or a hat with a wide brim can help shield your eyes from bright light and reduce the frequency of photic sneezing. • Techniques such as deep breathing, meditation, and yoga can help calm you down and reduce stress levels, which can exacerbate photic sneezing. • Seek medical advice: if your photic sneezing is accompanied by other symptoms, such as headaches, eye discomfort, or vision changes, consider speaking to a healthcare professional for further evaluation. • Be patient: photic sneezing can be difficult to control, but finding ways to manage and reduce its frequency can improve your quality of life.

SLEEP WELLNESS

CONDITION NAME	RESULTS	MAIN MESSAGE
Restless legs syndrome	ⓘ	Flagged – Here are some tips to help manage Restless legs syndrome (RLS) symptoms: • Try to go to bed and wake up at the same time every day, including on weekends, to regulate your sleep patterns. • Physical activity can help improve circulation and reduce symptoms of RLS. • Avoid stimulants: caffeine, nicotine, and alcohol can worsen RLS symptoms, so it's best to limit or avoid these substances. • Applying heat or cold, such as a heating pad or ice pack, can temporarily relieve RLS symptoms. • Massaging your legs can help improve circulation and relieve RLS symptoms. • Techniques such as deep breathing, meditation, and yoga can help calm you down and reduce stress levels, which can exacerbate RLS symptoms. • Seek medical treatment: if your RLS symptoms are severe or impacting your daily life, consider speaking to a healthcare professional for further evaluation and treatment options.
Morning/Night chronotype	ⓘ	Flagged – Regardless of one's chronotype, it is essential to be able to sleep for a sufficient number of hours to keep one's psycho-physical health in optimal condition. • Try to go to bed and wake up at the same time every day, even on weekends. This will help regulate your body's internal clock. • Exposure to natural light during the day can help regulate your circadian rhythm and improve your sleep quality. Try to get outside in the morning, especially during the first hour after waking up. • Bright lights, especially blue light from electronic devices, can interfere with your body's production of melatonin, which is important for sleep. Avoid screens and bright lights for at least an hour before bed. • Create a relaxing sleep environment. • Practice relaxation techniques. • Consider using melatonin supplements. If you have trouble falling asleep at night, talk to your healthcare provider about whether melatonin supplements may be helpful for you.
Effect of caffeine on sleep	ⓘ	Flagged – In particularly sensitive individuals, caffeine can adversely affect the quality and duration of sleep. • If one is particularly sensitive to the stimulating effect of caffeine, it is advisable not to take any drink containing it for several hours before the usual bedtime.

MENTAL WELLNESS

CONDITION NAME	RESULTS	MAIN MESSAGE
Empathetic potential		Enhanced – Here are some tips to train your empathetic potential: • Practice active listening: pay attention to the words and nonverbal cues of the person speaking to you, and make an effort to understand their perspective. • Put yourself in other people's shoes: try to imagine how someone else might feel in a given situation and ask questions to gain a better understanding of their perspective. • Instead of assuming you know what someone else is feeling or thinking, ask questions and listen to their response. • Show a genuine interest in others by asking questions and engaging in conversation, and be open-minded and non-judgmental in your interactions with others. • Mindfulness can help you become more aware of your own thoughts and emotions, which can in turn help you better understand and relate to the emotions of others. Being able to manage your own emotions will allow you to better understand and respond to the emotions of others. • Engaging with people who have different backgrounds, experiences, and perspectives can broaden your understanding and increase your empathetic potential.

LIFESTYLE HABIT

CONDITION NAME	RESULTS	MAIN MESSAGE

KEY SUMMARY

The Summary provides an overview of the predicted risks for the patient. This information is based solely on genotype information and does not replace a doctor visit or a complete patient profile. Additionally, healthcare providers should consider family history, presenting symptoms, current prescriptions, and other factors before making any clinical or therapeutic decisions.

This icon means that we have not found one or more genetic variants.

This icon means that we have found one or more risk variants.

This icon means that we have found one or more genetic variants that provide an enhanced function.

RESULTS DETAILS

BONE MINERAL DENSITY (BMD)

RESULTS

Bone mineral density is a clinical parameter that measures the amount of minerals present in one cubic centimeter of bone. This parameter is a useful indicator of mechanical resistance to fractures: a bone with a low mineral density, in fact, is more fragile and therefore more prone to fractures. Decreases in bone mineral density are due to several factors: age, estrogen deficiency, insufficient intake of vitamin D or calcium are among them. We must not forget the role of osteoporosis, a condition that involves weakening of the bones and, therefore, greater susceptibility to trauma and fractures. rs3736228 of the LRP5 gene has been associated with reduced bone mineral density, especially in the lumbar spine and femoral neck. This makes people with the mutation more susceptible to osteoporotic fractures.

Normal – No presence of genetic variants detected.

BLOOD FLOW AND PREDISPOSITION TO HEADACHES

RESULTS

Headaches are a very common and, in most cases, benign condition. Headaches can arise from different cerebral compartments: blood and nerve vessels, meninges, muscle fibres and facial structures, which undergo stretching, constriction or dilation, giving the typical painful sensation of a headache. There is a primary form and a secondary form (resulting from other pathological conditions, such as vascular changes). In patients with this disorder, the diagnosis is usually made through a careful history and physical examination. Primary headache is not life-threatening but requires therapy for symptom management and appropriate follow-up of the subject. It appears that the IRAG1 gene (also called MRVI1) may affect the release of nitrogen monoxide (NO) and thus the contraction of blood vessels, a mechanism involved in the development of headache. In particular, the C allele of the rs4909945 polymorphism appears to be associated with a higher risk of headache onset.

Normal – No presence of genetic variants detected.

SWEATING AND BODY ODOR

RESULTS

Sweating is the physiological process by which the liquid (sweat) produced by the sweat glands scattered over the surface of our bodies is released. Sweat is composed of 99% water and 1% mineral salts. The purpose of the sweating process is to control and maintain a constant body temperature (thermoregulation). The amount of sweat produced can vary depending on a variety of factors, including: sporting activity, changes in mood (states of agitation, embarrassment or fear), menopause, consumption of alcohol, spicy foods or caffeine, drug therapies, changes in environmental temperature, stress, the presence of infections, fever and certain diseases. In a study conducted on a large population, it was found that individuals with the TT genotype for the rs17822931 polymorphism (in the ABCC11 gene) have a lower predisposition to produce sweat, when compared to those carrying the CC genotype. The TT genotype seems particularly frequent in Asian populations.

Normal – No presence of genetic variants detected.

WEIGHT GAIN

RESULTS

The way we use, store and eliminate (or metabolise) the fats we introduce into our diet has a huge impact on our health and the risk of certain diseases. Variants in the gene analysed increase the chances of developing obesity: polymorphisms in the FTO gene are associated with increased body mass index (BMI), body fat accumulation and obesity. Indeed, it appears that this gene is able to influence eating habits, food preferences, appetite and the feeling of satiety.

One or more genetic variants detected – See "Quick Summary" for recommendations.

VARIANTS FOUND

Gene	rsID	Genotype
FTO	rs9939609	AA
FTO	rs9930506	GG

HYPERTENSION

RESULTS

The term hypertension refers to an increase in blood pressure at rest and not occasional, beyond the limit of 90/140 mmHg. Hypertension is not a disease in itself, but an important risk factor for numerous other cardiovascular diseases such as heart attack, stroke, angina pectoris, etc. Hypentension differs into primary and secondary: the first form, which affects up to 95% of cases, has no known causes and is probably linked to alterations in the complex mechanism that regulates blood pressure. The second form, on the other hand, is the direct consequence of pathological conditions affecting other body areas such as the kidneys, adrenals, blood vessels and the heart itself. Hypertension mainly manifests with headaches, sensations of lightheadedness and dizziness, visual changes, tinnitus, epistaxis. The main risk factors underlying this condition include family history, age (primary hypertension is typical of the adult population), electrolyte and metabolic dysfunctions such as diabetes, overweight and incorrect lifestyle habits (smoking, alcohol, sedentary lifestyle). The rs1126742 of the CYP4A11 gene is associated with an increase in blood pressure in normotensive subjects, regardless of the dietary intake of salt.

Normal – No presence of genetic variants detected.

SKIN PIGMENTATION

RESULTS

Skin pigmentation is a strictly individual characteristic, dependent on genetic and environmental factors. The cells responsible for skin color are called melanocytes which, producing melanin, will give rise to the typical and individual skin pigmentation pattern. In particular, eumelanin is the dark pigment (black / brown), while pheomelanin is the light one (yellow / red). The coloring of skin and hair, therefore, will derive from the intracellular quantity of these pigments and their relative proportions. Melanogenesis (i.e. the production of melanin) is largely influenced by sun exposure which, as is known, increases the degree of darkening of the skin, although the different phototypes react differently to this exposure. Chronic exposure to UV rays, especially without sun protection, can lead, in the long term, to premature skin aging and an increased risk of the onset of skin tumors. The rs12203592 in the IRF4 gene is associated with a more severe degree of aging and a low level of skin pigmentation, poor tanning capacity and an increased risk of cancerous lesions.

Normal – No presence of genetic variants detected.

EFFECT OF APPETITE ON WAIST CIRCUMFERENCE

RESULTS

The trend towards overweight and obesity is a health emergency in industrialized countries, as it represents an important risk factor for cardiovascular accidents and metabolic disorders. Reducing calorie intake and increasing physical activity are the first line strategies to be implemented to lose weight. Genetic predisposition exerts an important effect in the regulation of body weight and in the subjective response to diets, given the interaction between genetics and nutrition. However, this should not overshadow environmental factors and incorrect lifestyle habits, which contribute equally (if not more) to the tendency to over-eat. The CLOCK gene is one of the regulators of the circadian rhythm, which "dictates the timing" of our biological functions, from sleep to appetite. Lipid metabolism is also affected by this mechanism, through the regulation of the enzymes involved in it; however, it has been shown that a high-fat diet can interfere with the circadian regulation of metabolic factors in peripheral tissues, altering the diurnal levels of glucose, insulin and leptin. The rs3749474 borne by the CLOCK gene can adversely affect lipid metabolism and caloric intake (resulting in a greater consumption of fat and therefore an increase in BMI) in subjects carrying the TT + CT haplotypes, but this same haplotype causes the subjective response (in terms of weight loss) to a diet with lipid restriction is greater than in wild type subjects. This could pave the way for a personalization of genotype-based weight loss programs.

Normal – No presence of genetic variants detected.

VARICOSE VEINS

RESULTS

Varicose veins represent one of the most common vascular disorders, mainly affecting the lower limbs and the female sex. Not to be mistaken for a "simple skin blemish", they are the result of a deformation of the venous walls, which will be tortuous and dilated. This condition results from an alteration of the venous valves, which are responsible for directing blood from the legs to the heart. With the reduction of this "force", therefore, it will tend to stagnate in the more sloping tissues, causing venous dilation. In addition to sex, several other factors contribute to the genesis of varicose veins: familiarity, standing too long, overweight, pregnancy and age. Varicose veins can give rise to bothersome symptoms such as pain, swelling and itching and can represent a risk factor for other pathological cardiovascular conditions.

One or more genetic variants detected – See "Quick Summary" for recommendations.

VARIANTS FOUND

Gene	rsID	Genotype
MTHFR	rs1801133	GA

DETOX CAPACITY

RESULTS

Metabolic detoxification processes are regulated by the expression of many genes that govern our body's ability to metabolise and then eliminate harmful or waste substances. Detoxification of the liver occurs in two phases: in phase I toxins are converted into intermediate metabolites, which can become even more reactive and potentially harmful. The enzymes involved in this phase belong mainly to a family called CYP450. In phase II, these intermediates are 'conjugated' (bound to other molecules) to make them more soluble and easier to excrete. Genetic variants in these systems impact on the body's detoxifying ability, exponentially increasing the risk of oxidative stress and a range of oxidative stress and a range of conditions such as atherosclerosis, reduced drug tolerance, neurodegenerative diseases and cancer. COMT and NQO1 gene allelic variants reduce the detoxifying power of these enzymes by altering metabolic detoxification processes.

Normal – No presence of genetic variants detected.

MORNINGNESS

RESULTS

Getting up early in the morning is an excellent habit that can be assumed and trained through a few simple measures. The benefits of being an early riser are many; in fact, there are benefits in mood and health in general, as well as higher productivity and a more efficient metabolism. Waking up early allows us to rest better during the night (by setting a correct sleep/wake cycle), to be clearer and more focused in tackling the day's activities, and to maintain a good organisation of one's tasks, completing them one at a time. Furthermore, it has been observed that people who have a tendency to get up early and who promote a good night's rest, suffer less from anxiety, stress or sleep-related problems. Sleeping too much or too little can have negative effects on one's psychophysical well-being, causing states of malaise and sadness. It appears that individuals carrying two A allele for the rs2653349 polymorphism are more likely, and find it easier, to wake up early in the morning.

Your genotype is not associated with the predisposition to morningness.

GENOTYPE FOUND

Gene	rsID	Genotype
HCRTR2	rs2653349	GG

OBSTRUCTIVE SLEEP APNEA

RESULTS

Obstructive sleep apnea, also known as obstructive sleep apnoea syndrome (OSAS), is a frequent respiratory disorder in men and women (particularly after menopause). The disorder is characterised by episodes of complete or partial obstruction of the upper airways during the time of rest. This results in an interruption of breathing, which can vary in intensity and duration, thus defining the different degrees of the condition. Other distinctive signs of the condition are daytime sleepiness, intense and prolonged snoring, fatigue and headaches upon waking.

Normal – No presence of genetic variants detected.

RESTLESS LEGS SYNDROME

RESULTS

Restless legs syndrome (RLS) is a neurological disorder, especially frequent in women and older people, that can significantly impact the quantity and quality of sleep. It is characterised by an uncontrollable need to move one's legs during the resting time, although it can also occur in other situations, for example when sitting for a long time or when driving. The symptoms of people with the syndrome also include irritability, fatigue, daytime sleepiness and attention problems. Generally, the first symptoms occur in adults and tend to worsen with age. Among the various underlying causes of the syndrome, genetics plays a major role in the risk of onset. In fact, genetic variants in the BTBD9 gene have been associated with predisposition to RLS.

One or more genetic variants detected – See "Quick Summary" for recommendations.

GENOTYPE FOUND

Gene	rsID	Genotype
BTBD9	rs3923809	AA

WORRIER VS WARRIER

RESULTS

At the biochemical level, the combative personality is associated with several enzymes including the one encoded by the COMT gene, which affects levels of neurotransmitters such as dopamine and serotonin. These neurotransmitters play a central role in determining our reactions and moods. People with the GG genotype for the rs4680 variant tend to be more likely to have a combative personality than the GA or AA genotype. They are also found to have lower dopamine levels, a higher pain threshold and a better stress response. In contrast, individuals carrying the AA genotype have higher dopamine levels in the prefrontal cortex, resulting in a lower pain threshold and greater vulnerability to stress, but also more efficient information processing and an advantage in memory and attention tasks.

Normal – No presence of genetic variants detected.

PANIC DISORDER

RESULTS

The term "panic disorder" refers to a condition characterized by sudden and repeated panic attacks, followed by periods in which there is constant apprehension of their repetition. The symptoms experienced during a panic attack are many and can be very distressing: a feeling of suffocation and shortness of breath, palpitations, sweating, chest pain, nausea, a sense of "instability", fear of dying and/or going crazy are some. among these and are not justified by a real danger. Despite the unpleasantness of these sensations, panic attacks have no health consequences, although they can be very psychologically debilitating due to their unpredictability: hence the constant anxiety of the next episode. The exact etiology of panic disorder is unknown, but genetic, psychological, and familiarity factors contribute to it. The CNR1 gene (cannabinoid receptor gene) and some of its variants, rs806368 and rs12720071, confer a greater susceptibility to panic disorder and the greater frequency of mutated alleles in affected subjects can be traced to the role of this gene in the dysregulation of the emotional state and in the 'anxiety.

Normal – No presence of genetic variants detected.

MISOPHONIA

RESULTS

Misophonia is a disorder characterised by an aversion to different types of sounds or auditory stimuli, emitted by people or things, that can provoke reactions of anxiety, anger or irritability in the person experiencing it. It is a true acoustic intolerance that occurs in people with normal hearing. At present, the cause of misophonia is unknown; however, it is thought that underlying the disorder may be an altered association between particular noises/sounds and emotional reactions. Among the various auditory stimuli capable of causing negative reactions in the subject are chewing noises. It has been observed that the two G allele of the rs2937573 polymorphism in the TENM2 gene increase the likelihood of being sensitive to chewing noise.

Your genotype is not associated with the predisposition to misophonia.

GENOTYPE FOUND

Gene	rsID	Genotype
TENM2	rs2937573	AA

PHOTIC SNEEZE

RESULTS

The photic sneezing reflex is a fairly common disorder; in fact, it occurs in 15-30% of the global population, with a higher frequency in Caucasian people and women. It is defined as the tendency to sneeze when moving from a dark situation to exposure to bright light, such as sunlight. Sneezing ceases as soon as the eyes adapt to the new light conditions. The exact mechanism behind it is not known, however, it appears that light is able to stimulate the different nerves involved in the sneezing reflex. To date, the cause of this condition, also known as ACHOO (Autosomal dominant Compelling Helio-Ophthalmic Outburst) syndrome, is unknown, although genetics is thought to play a key role in the risk of onset. In fact, there is a known association between certain genetic variants and a predisposition to the photic sneeze reflex.

One or more genetic variants detected – See "Quick Summary" for recommendations.

GENOTYPE FOUND

Gene	rsID	Genotype
near ZEB2	rs10427255	CC

MOTION SICKNESS

RESULTS

Motion sickness, or kinetosis, is a fairly common condition, however, it is more pronounced in children, pregnant women and migraine sufferers. It occurs when one is on any means of transport, making travelling particularly unpleasant. The underlying cause of the disorder is conflicting messages, sent to the brain, from the various organs involved in balance. This causes a state of general malaise, leading to the onset of symptoms such as cold sweats, nausea, dizziness, increased saliva production and loss of appetite.

Normal – No presence of genetic variants detected.

MEMORY ABILITIES

RESULTS

The term memory usually refers to man's ability to acquire, store, retain and retrieve information obtained through experience and to learn new information. There are different types of memory; we know short-term memory (which includes working memory) and long-term memory. They differ both in the amount of information that can be acquired and in the length of time the memory can be stored. Our ability to learn new information and remember previously acquired information is affected by many factors such as ageing, severe stress, vitamin deficiencies, alcohol abuse, drug therapies, head trauma and certain diseases. Genetics also plays a role in memory capacity; in particular, it appears that individuals carrying the T allele for the rs17070145 polymorphism have better episodic memory than individuals with the CC genotype.

Normal – No presence of genetic variants detected.

EMPATHETIC POTENTIAL

RESULTS

Empathy is defined as the ability to recognise the emotions and thoughts of others as one's own, literally putting oneself in the 'other's shoes'. This enables an understanding of the feelings and state of mind of others, thus laying the foundation for effective and fulfilling interpersonal communication. Empathy is a skill of fundamental importance on both a personal and social level. Currently, in psychology, empathy is divided into: emotional, relational, behavioural and cognitive empathy. It has been observed that individuals with the GG genotype for a polymorphism (rs53576) in the oxytocin receptor gene (OXTR) are more likely to be empathic and potentially optimistic people.

One or more genetic variants detected – See "Quick Summary" for recommendations.

VARIANTS FOUND

Gene	rsID	Genotype
OXTR	rs53576	GG

PREDISPOSITION TO EXCESSIVE ALCOHOL CONSUMPTION

RESULTS

Alcohol addiction, also known as "alcoholism", is the most severe form of alcohol problem and describes a strong, often uncontrollable desire to drink. Drinking plays an important role in the daily lives of alcohol addicted people, which could lead to them developing a physical tolerance or experiencing withdrawal symptoms if they stop. There are varying degrees of alcohol dependence and they don't always lead to excessive levels of alcoholism. If you find that you "need" to share a bottle of wine with your partner most nights of the week, or always have a few pints after work, just to relax, you are likely drinking at a level that could affect your health. long-term. You may also become addicted to alcohol. If you find it very difficult to enjoy or relax without a drink, you may have become psychologically addicted to alcohol. Physical addiction can also follow, meaning your body exhibits withdrawal symptoms, such as sweating, tremors, and nausea, when the blood alcohol level drops. People who are addicted to alcohol have higher rates of other psychiatric disorders than people in the general population, especially depression, anxiety, post-traumatic stress disorder, psychosis, and drug abuse. People often drink to try to reduce symptoms (sometimes known as "self-medication"), but in the long run, alcohol worsens these disorders because it interferes with the chemical balance in our brains. Subjects carrying the AUTS2 gene rs6943555 mutated A allele are more susceptible to increased alcohol consumption.

Normal – No presence of genetic variants detected.

ALCOHOL CRAVINGS

RESULTS

Intense cravings for alcohol are a fairly common phenomenon in people who regularly consume alcoholic beverages, and in people with a real addiction to alcohol. When not drinking, in addition to the strong desire for alcohol, one may also experience anxiety, agitation or discomfort; in some cases, a reduced heart rate is also present. The craving for alcohol is a subjective and physiological response; for its correct management, it is essential to learn to recognise and be able to control the underlying triggering factors. Individuals carrying the G allele for the rs1799971 polymorphism in the OPRM1 gene appear to have a higher risk of experiencing alcohol cravings when compared to individuals with the AA genotype.

Normal – No presence of genetic variants detected.

ALCOHOL FLUSH REACTION

RESULTS

Alcohol flush is a bodily reaction to alcohol intake, manifested by the appearance of red spots on the skin. It is an indicator of alcohol intolerance and is linked to alcohol metabolism in the liver. When alcohol is consumed, in fact, the enzyme alcohol dehydrogenase (ADH) transforms ethanol into acetaldehyde, a known carcinogenic compound, which the enzyme ALDH2 immediately converts into acetate, which is less toxic. The acetate, in turn, is broken down into carbon dioxide and water. These metabolic steps, however, do not take place in all people in the same way and with the same efficiency: acetaldehyde may accumulate in the blood, causing the typical alcohol flush reaction. Although this metabolic defect is not life-threatening, it can still be very annoying for affected individuals. Genetic variants in the ALDH2 gene are the cause of this condition, which is particularly prevalent in Asian populations.

Normal – No presence of genetic variants detected.

SLEEP DURATION

RESULTS

Sleep occupies an important portion of our life and its duration (as well as its quality) are extremely important for maintaining psychophysical well-being. Sleep disturbances or its inadequate duration are in fact related to the possible development of pathologies. Several factors contribute to the subjective characteristics of sleep and, among these, the genetic component is of great interest (the degree of inheritance of the duration of sleep, in fact, varies from 15 to 40%). The possible consequences of "little sleep" affect all systems of the body: in the brain, there may be a decrease in concentration/attention and a decreased decision-making capacity; in the heart, due to lack of relaxation at night (with a consequent decrease in blood pressure), hypertension can occur. In addition, sleep deprivation leads to mental stress and this can lead to increased food consumption (in particular, unhealthy food). The skin, libido, musculoskeletal system and immune defenses can also be affected. From this brief description it is clear the importance of a good restful sleep, the lack of which can lead to the development of chronic pathological conditions. The gene encoding the dopamine receptor (DRD2) and its variants (in particular rs17601612) have been associated with the duration of sleep, with the carriers of the mutated C allele being more susceptible to its poor duration.

Normal – No presence of genetic variants detected.

MORNING/NIGHT CHRONOTYPE

RESULTS

The term chronotype refers to the natural subjective tendency to carry out one's daily activities and to go to sleep / wake up at a certain time. It is closely related to one's circadian rhythm, which controls the sleep-wake cycle by regulating the production of melatonin. The chronotype not only controls this part of daily life, but affects every physiological aspect of one's body, from appetite to blood pressure, from body temperature to hormone secretion, etc. The circadian rhythm (which lasts 24 hours) is synchronized with the natural day/night cycle, in turn regulated by solar exposure. The control center of the circadian rhythm is located in the hypothalamus, whose photoreceptors respond to light/shadow stimuli coming from the outside; from the hypothalamus, then, will start the direct signals to the other parts of the central nervous system directly responsible for the physiological aspects connected to the circadian rhythms. The chronotype tends to be "normal" when a person falls asleep between 10pm and 12am, only to wake up 7 hours later. Individuals called "larks" tend to go to bed early and be more productive early in the day; on the contrary, the "owl" subjects are more active in the evening and therefore go to sleep later. The chronotype is influenced by genetic factors: in particular, there are several genes involved in its regulation; one of these, PER2, is associated with an evening chronotype.

One or more genetic variants detected – See "Quick Summary" for recommendations.

VARIANTS FOUND

Gene	rsID	Genotype
PER2	rs228697	GC

CAFFEINE CONSUMPTION

RESULTS

Caffeine is a natural chemical that we can consider a kind of 'drug': it can stimulate the central nervous system, increase the heart rate and can potentially raise the blood pressure. However, the reaction to caffeine is quite personal and is not only related to the amount ingested. It is metabolised in the liver by specific enzymes, such as the one encoded by the CYP1A2 gene. Genetic variants in this gene can influence the enzyme's activity, hence its speed and ability to metabolise caffeine. It appears that people with the TT genotype for the rs2472297 polymorphism are predisposed to higher caffeine consumption.

Normal – No presence of genetic variants detected.

EFFECT OF CAFFEINE ON SLEEP

RESULTS

Caffeine is one of the world's most popular psychostimulants, and its consumption (mainly in the form of coffee served in different ways according to a country's typical food culture) is both an opportunity for conviviality and a way to give oneself a boost when the need arises. Caffeine is a natural alkaloid with systemic effects: after its intake, it easily crosses the blood-brain barrier, temporarily blocking the feeling of tiredness; its cardiovascular effects, on the other hand, consist of increasing blood pressure and heart rate, but it is also able to stimulate gastric secretion and act on metabolism by inducing the breakdown of triglycerides. The amount of caffeine in various types of coffee varies, ranging from 60-80 mg of an espresso to 95-200 mg of an American coffee; cocoa also contains a certain amount of caffeine (100 mg/100 g), not to mention that contained in energy drinks (80 mg). The possible 'sources of exposure' to caffeine, therefore, are many, and several studies have also investigated its possible protective effect against the onset of neurodegenerative diseases such as Alzheimer's and Parkinson's. Caffeine is also known to negatively affect sleep, although its effects in this area are rather subjective. The C allele of rs5751876 in the ADORA2A gene appears to be more frequent in individuals who report sleep disturbances after caffeine intake.

One or more genetic variants detected – See "Quick Summary" for recommendations.

VARIANTS FOUND

Gene	rsID	Genotype
ADORA2A	rs5751876	CC

PREDISPOSITION TO EAT WHEN UNDER STRESS

RESULTS

Nervous hunger or emotional hunger is an expression that indicates the tendency to overeat in food consumption in times of stress, as a way of responding to negative emotions. This inclination, often governed by anxiety, can therefore lead people predisposed to use food (especially unhealthy food, rich in fats and sugars) as an escape valve to deal with the stressful events of daily life and work. The link that unites mental state to eating behavior is of a biological nature and involves the hypothalamus-pituitary-adrenal axis, through the release of hormones capable of acting on the gastro-intestinal system: hence a greater production of ghrelin, the hunger hormone, which in turn will induce excessive and uncontrolled consumption of food. Although food intake gives a momentary feeling of satisfaction, in the long run this eating behavior can lead to serious health consequences, as it is correlated with a greater risk of obesity and eating disorders such as bulimia and binge eating. Genetic predisposition plays an important role in the development of this trend: the MC4R gene, in particular, is one of the regulators of metabolic homeostasis and food intake. One of its variations, rs17782313, is related to mental stress and a greater predisposition to obesity in subjects carrying the mutant C allele.

Normal – No presence of genetic variants detected.

SMOKING CESSATION DELAYED

RESULTS

Tobacco smoking is one of the most important public health issues in the world and is responsible, according to the WHO, for the deaths of 6 million people / year. About 1/6 of these deaths are due to passive smoking, which is no less dangerous than active smoking. Although all smokers are aware of the risks they face in terms of health (tobacco smoking is known to cause various types of cancer and respiratory diseases), quitting smoking is an invincible challenge for many. Genetic predisposition and environmental factors play an important role in nicotine addiction, but also in the ability to stop this unhealthy habit. The genetic variant rs16969968 of the CHRNA5 gene (cholinergic nicotinic receptor) has been associated in numerous studies to "heavy smoking", ie to a greater number of cigarettes / day; but this SNP is also associated with an earlier age of lung cancer diagnosis and delayed smoking cessation times. In particular, subjects carrying the AA genotype stop smoking on average 4 years later than those carrying the low-risk GG genotype.
This area of public health can also become the object of the study of precision and personalized medicine: knowing the individual risk linked to genetics can in fact lead to targeted and therefore more effective clinical-pharmacological interventions.

Normal – No presence of genetic variants detected.

GENES ANALYZED IN THIS REPORT

ABCC11, ADORA2A, ALDH2, AUTS2, BTBD9, CHRNA5, CLOCK, CNR1, COMT, CYP1A1, CYP1B1, CYP4A11, DRD2, EDA2R, FTO, GPD2, HCRTR2, IRAG1, IRF4, KIBRA, LRP5, MC4R, MTHFR, NQO1, OPRM1, OXTR, PVRL3, TENM2, TNF

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GLOSSARY

ALLELE	An allele is a variant form of a gene that is located at a specific position (or genetic locus) on a specific chromosome. Humans have two alleles at each genetic locus, with one allele inherited from each parent.
CHROMOSOME	A chromosome is a condensed thread-like structure of DNA that carries hereditary information, or genes. Human cells have 22 chromosome pairs plus two sex chromosomes with a total of 46 per cell.
GENOME	A genome is an organisms' complete set of DNA, including all of its genes. Each genome contains all the information needed to build and maintain that organism. In humans, a copy of the entire genome—more than 3 billion DNA base pairs—is contained in all cells that have a nucleus.
GENOTYPE	A genotype is the genetic makeup of an individual organism. It may also refer to just a particular gene or set of genes carried by an individual. The genotype determines the phenotype, or observable traits of the organism.
ODDS RATIO	The odds ratio is a way of comparing whether the odds of a certain outcome is the same for two different groups. In this report, the odds ratio estimates the probability of a condition occurring in a group of people with a certain genetic variant compared to a group of people without that same variant. An odds ratio of 1 means that the two groups are equally likely to develop the condition. An odds ratio higher than 1 means that the people with the genetic variant are more likely to develop the condition, while an odds ratio of less than1 means that people with the variant are less likely to develop the condition.
PHENOTYPE	Phenotype is a description of an individuals' physical characteristics, including appearance, development and behavior. The phenotype is determined by the individual's genotype as well as environmental factors.
POPULATION ALLELE FREQUENCY	The allele frequency represents the incidence of a variant in a population. Alleles are variant forms of a gene that are located at the same position, or genetic locus, on a chromosome.
SNP	Single nucleotide polymorphisms, frequently called SNPs, are the most common type of genetic variation among people. A SNP is a variation in a single nucleotide that occurs at a specific position in the genome.