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- > With extracts from a full report.
- > Customisable content
- > Upto 76 Pages of report
- > Full online practitioner portal
- > Questionnaire matched results

Optimal Health Pro Report

Created for: **Demo 12**

Date: **04/07/2019**

Practitioner: **Demo Partner**



Demo 12

Age	41	Sex	F
Height	168 cm	Weight	70 kg
BMI	25	Exercise	Twice a week
Smoke		Alcohol	Occasional

In order to prepare this report, myDNAhealth has analysed your DNA along with the answers you provided in the questionnaires. This combined approach highlights genetic and lifestyle risk factors which may impact your gene expression, in other words, whether the risk potential is being realised through your diet and lifestyle choices. As you read through your results, please remember that your genes are just your tendency and not your health destiny. Nutritional and lifestyle changes are what make the crucial difference.

Please also be aware that **this report does not diagnose any health conditions or provide medical advice**. Consult with a healthcare or nutritional professional before making any major dietary changes or if you have any other concerns about your results.

How to read your report

In the sections that follow, we have listed potential risk areas where you need to be fairly vigilant when it comes to lifestyle choices. You will see three possible risk scores **Typical**, **Moderate** or **Elevated**. Remember, your genes are merely the potential you have and may not be expressing themselves all the time. It is best to adopt healthy eating and exercise habits that will support your overall risk potential.

Everyone has some potential genetic risks, however, whether they are expressing or not is the true determining factor as to whether they need continued support or not. Don't treat the individual genetic variants, rather support yourself holistically using sleep, stress management, exercise and good nutrition from a range of healthy foods for overall health. If you think you may need some extra support from supplements, please remember to always consult a nutrition or healthcare practitioner, who will assess your overall risk alongside your DNA results and will be able to provide you with the qualified, expert advice.

We are very happy that you joined myDNAhealth and we trust that you benefit greatly.

Yours sincerely,
myDNAhealth Clinician Team



Legend ● Good ● Moderate ● Severe

APOE Genotypes ●

Stress ●

Burnout ●

Propensity to Higher BMI ●

Inflammation ●

Cholesterol Insights ●

Toxicity ●

Hemochromatosis Risk ●

Oestrogen Imbalance ●

Cholesterol Lowering Foods Response ●

Sleep ●

Appetite Regulation ●

Blood Sugar Balance ●

Saturated Fat Balance ●

Omega 3|6 Balance ●

Methylation Cycle Balance ●

Antioxidant Needs ●

Celiac Risk ●

Nutritional Requirements and Sensitivities

Lactose Intolerance ●

Caffeine Metabolism ●

Vitamin D ●

Recommended Diet: Reduced Carbohydrate Eating Plan

Recommended Exercise: Aerobic (Cardiovascular)



Sleep - Typical

Your Result

Your overall score indicates that you are not predisposed to experience poor sleep patterns. To determine the risk score, we have assessed your genetic variants (CLOCK) and sleep questionnaire results.

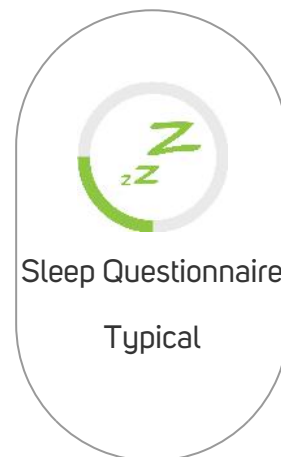
Your Genetic Variants



Clock

The TT genotype has shown to be more likely to have an earlier sleep-wake timing (morning) preference, associated with a tendency to start their activities early in the day.

The **Circadian Locomotor Output Cycles Kaput** (CLOCK) gene is a key part of our internal body clock. Our 24-hour natural circadian rhythms directly influence our sleep patterns. This includes the amount of sleep we get and our preferences for sleep-wake timings. Morning types or so-called larks, naturally prefer to wake earlier and tend to be more productive in morning, as opposed to evening types, often referred to as owls, who prefer to get things done later in the day and into the evening.



Lifestyle Interventions

What to do

Tips for better sleep

If you do start experiencing interrupted sleep patterns then you may find these tips helpful. What you eat, drink and do can have a huge impact on the quality and pattern of your sleep - and not just in the time before bed. Think of your sleep as just one component in your 24-hour cycle of wake and rest; to get the most out of it you need to control what you eat and drink and when.

The list of suggestions for better sleep is not meant to be implemented in its entirety. Instead pick three or four changes to implement to help improve your sleep quality.

Make sure you are not over-stimulated before bed

- Avoid alcohol (wine, beer, and hard liquor) within 3 hours of bedtime.
 - Avoid caffeine-containing beverages or foods after 2 pm; if sensitive to caffeine, avoid it after 12 noon.
- Read the labels of everything you eat and drink!

- Similarly, aerobic exercise can elevate your alertness for several hours, so you should ideally exercise before 6pm or at least 3 hours before bedtime.
- decongestant cold medicines at night.
- Some medications may have stimulating effects. Consult your pharmacist and doctor to determine whether any of them might be contributing to sleep problems. Do not discontinue them without permission from your doctor.

Sleep planning and preparation

- Plan your sleep by putting it into your schedule; plan for 8½ to 9 hours in bed.
- As much as possible, go to sleep and wake up at the same time each day. This will help train your biological clock.
- Begin prepping for bedtime 30 minutes before getting in bed.
- Avoid getting in bed after 11 pm as late-hour sleep is not as helpful as earlier sleep.
- Avoid late afternoon or evening naps.
- Avoid naps longer than 45 minutes unless you are sick or quite sleep deprived.
- Avoid large meals or spicy foods before bed.
- Finish all eating 3 hours prior to going to sleep. This allows your digestion to get underway and metabolism to return to baseline.

Relax the brain before bed time

- Have a wind-down routine before retiring for the night. Consider stretching, meditation, enjoy a face cleansing ritual before bed and write down any concerns or tasks for the next day on a piece of paper and leave it next to your bed.
- Try a hot salt/soda aromatherapy bath which can help raise your body temperature before sleep to induce sleep. A hot bath also relaxes muscles and reduces tension. For example, add 1-2 cups Epson salts, ½ to 1 cup baking soda and 10 drops lavender oil.

Bright light / blue light

- Our internal body clock works best if it is reset in the morning by light exposure so get outdoors in the morning.
- Consider reading a good neutral book under low light to help with falling asleep.
- If using a tablet or phone for reading, make sure they are in the night-time setting and brightness is as low as possible. Research shows that the blue light from electronic screens including smart phones and televisions can confuse our natural biological clock leading to a reduction in sleep quantity and quality.

Sleep environment

- Consider where you sleep, including bed/bedding, light, noise and temperature.
- Turn down the light in the bathroom and in rooms you are in 15 minutes before going to bed.
- Decrease the light in your bedroom by using a dimmer or a reading light with a dimmer.



Saturated Fat Balance - Elevated

Your Result

Your score indicates that this is an area that needs dietary support in order to reduce risks associated with impaired saturated fat metabolism and changes in blood triglyceride levels. To determine the risk score, we have assessed your genetic variants including APOA2 and APOA5 alongside the dietary fat intake questionnaire to indicate if you may be over consuming certain fats.

Consumption of fats, particularly saturated fat has historically been associated with poor cardiovascular outcomes and obesity. From this, earlier nutritional guidelines regarding dietary fat intake often included generic advice to consume a low-fat diet. However, current research and understanding has advanced to discover that not all fats are created equal and that you may process fats in slightly different ways according to your genetic variations and dietary choices. Saturated fat can be recognised by their characteristic of being solid at room temperature. Examples include, animal fat such as beef, lamb, chicken, pork and dairy products, plus it is also present in some plant foods such as coconut, palm oil and peanuts.

Your Genetic Variants



ApoA2

Those who carry two copies (CC) of the APOA2 genetic variant are at increased risk of weight gain particularly visceral adipose tissue (also known as visceral obesity), if they consume a diet high in saturated fats.

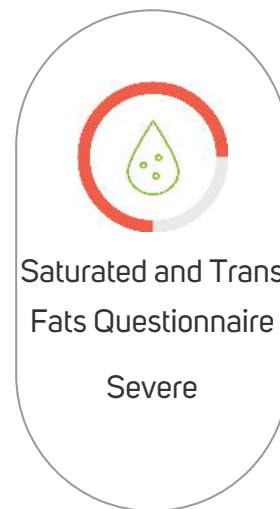
The **APOA2 gene** encodes Apolipoprotein A-II, a protein which is an important part of High-Density Lipoprotein (HDL) cholesterol (which is sometimes known as our 'good' cholesterol). A variant in this gene has been associated with reduced ability to produce Apolipoprotein A-II which has effects on saturated fat metabolism.



ApoA5

G allele carriers have been associated as having higher average fasting triglyceride levels. Research has shown benefits of eating a diet containing whole grains and legumes plus reductions of omega 6 intake.

The **APOA5 gene** encodes the Apolipoprotein A5 which is part of our triglyceride (fat) metabolism. A variant in this gene has been associated with changes in blood triglyceride levels related to the diet we choose.



Saturated and Trans
Fats Questionnaire
Severe



Omega 3/6 Imbalance - Moderate

Your Result

Your overall score indicates a risk for essential fatty acid imbalance due to increased or decreased enzyme function responsible for omega-3 (FADS1) and omega-6 (FADS2) metabolism in the body. To determine the score we analysed your genetic variants alongside the dietary fat intake questionnaire and essential fatty acids deficiency checker questionnaire.

The ratio of omega-3 fatty acids to omega-6 fatty acids is important to balance. This is due to the fact that omega-6 fatty acids help generate pro-inflammatory chemicals. While these can aid the immune system to an extent, far too many of them can lead to chronic inflammation, which can in turn increase a person's susceptibility to disease. On the flip side, omega-3 fatty acids help to generate anti-inflammatory chemicals which can help to dampen chronic inflammatory messages.

Your Genetic Variants



FADS1

CT allele indicates a reduced D5D enzyme activity responsible for omega-3 metabolism and therefore a higher need for alpha linolenic acid and omega 3 EPA and DHA.

FADS1 gene encodes for the delta-5-desaturase (D5D) enzyme responsible for omega-3 metabolism. A genetic variant is associated with a reduced D5D enzyme activity which indicates an impaired omega-3 pathway. Research has indicated that reduced D5D activity is related to inflammatory states such as obesity and insulin resistance and thus the variants contribute to this risk.



FADS2

CT allele indicates an increased D6D enzyme activity which may impact downstream production of certain omega 6 fats leading to heightened inflammatory state. Carriers may consider reducing omega-6 dietary sources.

FADS2 gene encodes for the D6D activity in omega-6 enzyme. Increased D6D enzyme activity has been correlated to inflammatory states and a decreased need for omega 6.



Essential Fatty
Acids Deficiency
Questionnaire

Typical



Omega 3/6 Balance
Questionnaire

Severe



Blood Sugar Imbalance - Elevated

Your Result

Your overall score indicates this is an area that needs dietary and lifestyle support to provide future protection against developing blood sugar dysregulation conditions such as hyperglycaemia and insulin resistance.

To determine the risk score, we have assessed your genetic variants including ADIPOQ, GCKR, PPARG and TCF7L2 alongside questionnaire to indicate if you may be symptomatic.

Your Genetic Variants



ADIPOQ

CC Allele shows no association with increased risk of insulin resistance

Our fat storage (known as adipose tissue) also functions to release important hormone signals to the body. Adiponectin is one such hormone and one of its roles is making sure our tissues are sensitive to insulin. This allows muscles to burn fatty acids and to take up glucose from the bloodstream. A genetic variant of the **adiponectin coding gene ADIPOQ** has been associated with changes in this mechanism leading to insulin resistance.



GCKR

Your result indicates you have a moderate propensity for increased fasting blood glucose.

Glucokinase is a key enzyme involved in regulating how the liver either stores glucose as glycogen or uses glucose for energy. **GCKR** is a gene which produces an important regulatory protein for this pathway, helping to control the fate of glucose. A variant of the GCKR gene has been associated with changes in blood glucose and associated insulin levels.



PPARG

Carriers of the G variant have been associated with improved insulin sensitivity and being at reduced risk of developing type 2 diabetes. This beneficial effect is thought to be removed in overweight individuals.

PPARG gene encodes a transcription factor (peroxisome proliferator-



Blood Sugar
Sensitivity
Questionnaire
Moderate



Inflammation - Elevated

Your Result

We have assessed your client's genetic variants including IL6 Receptor (cytokine), TNF alpha (cytokine involved in systemic inflammation) and MnSOD. It is important to note that genetics alone do not affect response or susceptibility to inflammatory conditions, but also a person's environmental factors that also regulate gene transcription. These environmental factors can be diet, infection, pollution, sleep and stress.

Your client has the genetic predisposition for inflammation, and according to their inflammation questionnaire result, they may be experiencing symptoms of inflammation. This indicates your client's body is reacting or overreacting, to something.

Lifestyle/nutrition intervention: Try to avoid or limit foods that inflame as much as possible: shop-bought processed products, fried foods, and potential allergies or irritating substances such as alcohol. Replace with anti-inflammatory foods in their diet such as olive oil, green leafy vegetables (spinach, kale, collards etc.), nuts (like almonds and walnuts), fatty fish (like salmon, mackerel, tuna, and sardines) and colourful fruits (blueberries, cherries, oranges etc.). In addition, consider supportive nutrients such as omega-3, vitamin E, polyphenols (flavonoids), ascorbic acid (vitamin C) and curcumin.

Functional test to consider: Organic Acid Testing

Your Genetic Variants



IL6R

Carriers of the C allele may have a reduced immune response to an inflammatory diet and lifestyle. This may decrease chronic inflammatory markers and risk of immune-mediated inflammatory disease such as chronic heart disease. Research suggests it is important to optimise this benefit by engaging in lifestyle decisions to moderate the inflammatory component of diet such as high sugar intake

IL6R gene encodes the receptor for interleukin 6, a cytokine signalling molecule which has important roles in regulation of our immune-mediated inflammatory response. A variant in this gene has been associated with a change in the biological activity of IL6 leading to changes in our chronic inflammatory response.



Inflammation
Questionnaire
Moderate



Waist/Hip Ratio
Moderate



Detoxification - Elevated

Your Result

Your overall score indicates you may be at increased risk of having impaired detoxification pathways. To determine the risk score, we have assessed your genetic variants and gene deletions including CYP1A1, CYP1A2, COMT, NQO1, GSTM1 and GSTT1 alongside the toxicity and sleep questionnaires to determine if your lifestyle is supporting or hindering the detoxification pathways.

Your Genetic Variants



CYP1A1

The AA genotype is not associated with increased CYP1A1 activity. No impact.

Cytochrome P-450 1A1 (CYP1A1) gene encodes a member of the Phase 1 Cytochrome P-450 family of enzymes. These enzymes are responsible for the first step (Phase I) of the breakdown of substances which need to be removed from the body known as detoxification.

CYP1A1 is involved in the conversion of environmental procarcinogens such as poly-aromatic hydrocarbons (PAHs) sources of which include smoking, wood smoke, vehicle fumes and charred meats (barbeque). This first step of the removal of PAHs metabolises PAHs into an intermediate more active form which allows the Phase II of detoxification to excrete these substances from the body.

A genetic variant of CYP1A1 gene has been identified which speeds up the conversion of PAHs to more active intermediates which can cause their build up if the body is unable to keep up the pace of its phase II excretion pathways.



CYP1A2

AA allele is associated with a fast metaboliser meaning you will be able to break down and get rid of caffeine more quickly from your system.

Cytochrome P-450 1A2 (CYP1A2) gene encodes a member of the Phase 1 Cytochrome P-450 family of enzymes. These enzymes are responsible for the first step (Phase I) of the breakdown of substances which need to be removed from the body known as detoxification. One well known substrate of CYP1A2 is caffeine and a genetic variation in this gene



Sleep Questionnaire

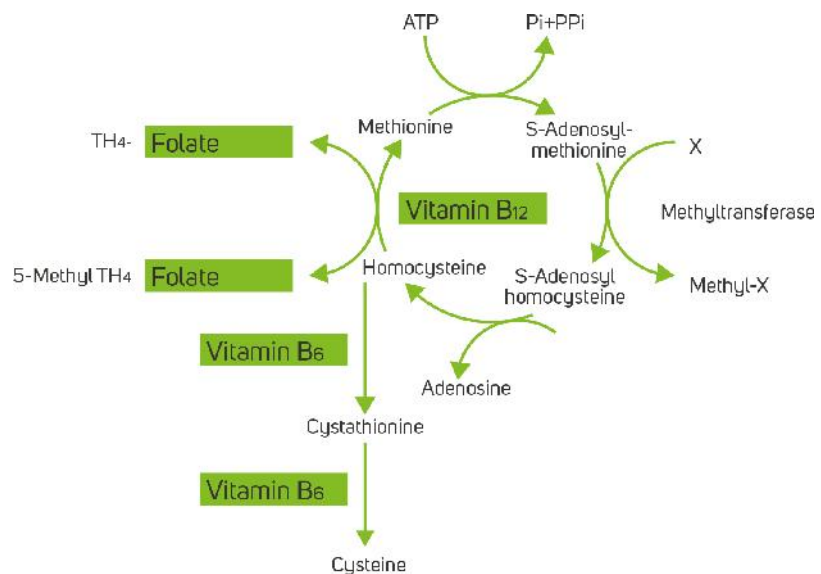
Typical



Toxicity
Questionnaire

Moderate

Folate and methionine cycle metabolisms are inter-linked, and low folate/high homocysteine levels have been associated with many diseases including various cardiovascular (CVD) complications, renal diseases, and neurodegenerative disorders. Environmental factors such as diet, chemical or drug exposure, sleep and stress can also play a role in hampering methylation.



Impact of methylation cycle imbalance

Methylation cycle imbalance may contribute to health issues, including;

- Cardiovascular disease
- Diabetes
- Chronic fatigue syndrome
- Increased susceptibility to stress
- Free radical damage (premature ageing)
- Build-up of toxins, hormones and heavy metals
- Mood disorders presenting as depression or anxiety
- High histamine-related conditions such as hayfever and hives
- Autoimmune conditions such as MS, psoriasis and Rheumatoid Arthritis
- Oestrogen-related hormonal disorders, including PCOS, fibroids and PMS
- Pregnancy-related disorders such as unexplained miscarriage and infertility



APOE3:4 genotype - Elevated

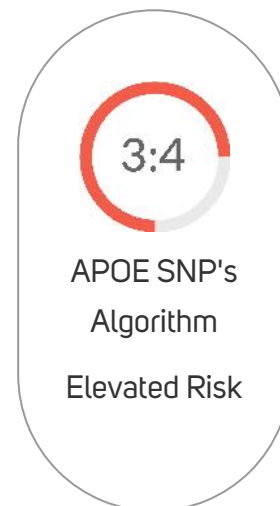
Your Result

You have the APoE4 genetic variant which is associated with late-onset Alzheimer's disease and cardio vascular health conditions.

Everyone inherits two APoE genes, one from each parent. Therefore it is possible for you to have one of the following six combinations or genotypes, E2/E2 (1%), E2/E3 (11%), E2/E4 (2%), E3/E3 (61%), E3/E4 (23%), E4/E4 (2%), with the figures in brackets indicating approximately what proportion of the UK population have the combinations.

Important! This test does not diagnose Alzheimer's disease or any other health conditions. Many factors, including genetics, can influence a person's chances of developing the condition. This test includes the most common genetic variant associated with late-onset Alzheimer's disease.

Important! Please talk to a healthcare professional if any of these conditions runs in your family, you think you might have one of these conditions, or you have any concerns about your results.



Lifestyle Interventions

What to do

Suggested lifestyle and dietary interventions

To help reduce this risk, it's very important for you to make some lifestyle changes.

- You should minimise sugar consumption, remove trans fats and limit saturated fat intake and focus on eating healthy fats.
- Try to increase antioxidants which can be obtained from the diet, and the recommendation is to eat at least five portions of colourful fruit and vegetables per day.
- Try to reduce inflammation and toxins including those found in cigarettes and alcohol.
- Eat plenty of green leafy vegetables.
- Include whole grains as part of a healthy balanced diet.

More Information

Biological explanation

The APOE gene contains instructions for making a protein called apolipoprotein E. This protein helps control the levels of cholesterol and fats in the blood. It is not known exactly how the E4 variant increases the risk of late-onset Alzheimer's disease.



Your Result: Aerobic Exercise

According to your results, you are genetically better suited for aerobic/ cardio exercises and you may enjoy this type of exercise more.

Aerobic or Cardiovascular exercise is endurance or aerobic and simply means that you are involved in an activity that raises your heart rate to a level that you are working, but can still talk i.e. in your "target heart rate zone".

Cardiovascular exercise (endurance or aerobic)

Cardiovascular refers to the ability of your heart, lungs and organs to consume, transport and utilise oxygen. The maximum volume of oxygen your body can consume and use is your VO₂max. When you exercise regularly, you can increase your cardiovascular fitness as your heart becomes more efficient at pumping blood and oxygen to the body and the body becomes more efficient at using the oxygen.

Genetically you may be suited for aerobic exercise which is sometimes known as "cardio". This type of exercise requires pumping of oxygenated blood by the heart to deliver oxygen to working muscles. Aerobic exercise stimulates the heart rate and breathing rate to increase in a way that can be sustained for the exercise session.

Examples of aerobic exercises include cardio machines, spinning, running, swimming, walking, hiking, aerobics classes, dancing, cross country skiing, and kickboxing. There are many other types.

Benefits of cardiovascular exercise

- Helps you sleep better and reduces stress
- You burn calories and lose weight
- Makes your heart strong so it does not have to work so hard to pump blood
- It increases lung capacity
- It decreases the risk of heart attack, high cholesterol, high blood pressure, and diabetes
- Makes you feel good

You need cardiovascular exercise if you want to get your weight under control and get your stress to a tolerable level.

How to be more active

Try to get a weekly total of at least 150 minutes of moderate aerobic activity or 75 minutes of vigorous aerobic activity or a combination of the two over at least three days per week in sessions of least 10 minutes each.



Your Recommended Diet: Reduced Carbohydrate Eating Plan

Our nutritionist has recommended a Reduced Carbohydrate dietary approach due to your genetic predisposition for impaired sugar metabolism. The dietary guidelines are designed to help you remove added sugars and refined carbohydrates from the diet in order to maintain an even blood sugar level. In addition, ensure adequate intake of protein alongside the lower 'sugary' carbohydrates at meal times.

Your overall results also shows that you may become sensitive to some fats. You can lower your risk through adopting a healthy fat eating lifestyle with exercise.

Your genetic profile and clinical questionnaire indicate that you over-absorb sugar and struggle to metabolise sugars correctly, resulting in weight gain. You particularly have the genetic profile that does not do well on refined carbohydrates (bread, pasta, pizza, cakes, etc). Continued over-consumption of sugar, sweet foods and refined carbohydrates can result in worsening weight gain and eventual heart problems and sugar diabetes.

Your recommended diet is a reduced carbohydrate eating plan as you are predisposed to have a high blood sugar level, which leaves you susceptible to premature sugar damage of the body. By cutting out the high-sugar carbohydrate foods and eating low-sugar carbohydrates, proteins and healthy fats, you should be able to move towards optimal wellness for you.

The information below will provide you with the dietary guidelines, which include foods to eliminate in your diet.

Good vs Bad Carbs explained

Carbohydrates or 'carbs' are one of three essential macronutrients (the other two are fats and proteins) and usually are the body's favoured energy source, providing fuel for everyday activities. However, not all carbohydrates are created equal. Carb intake has become controversial these days and there is a lot of information available, much of which splits carbs into good and bad. Let's have a look at these carbs and their health effects which will allow you to make good choices.

"Good" or whole carbs are foods which are minimally processed and packed with natural vitamins and minerals. Sources include vegetables (squash, spinach, broccoli, cauliflower), legumes (such as beans and lentils) and fruit (lower sugar fruits like apples, pears, berries).

"Bad" or refined carbs are from foods like white bread, sugary fruits (peaches), sugar and sweets, pack lots of calories and have little nutritional value. They play havoc with blood sugar levels and result in the body storing them as fat.