Results Overview

AHSG and body fat

You carry genes linked to slightly lower fetuin-A levels, which can protect against fat build-up.

Moderately Higher Risk

Sleep and weight gain risk

You carry gene variants that may disrupt your circadian rhythms and increase your risk of weight gain with poor sleep.

Higher Risk

Fat metabolism (β-oxidation)

You have gene variants linked to reduced fat burning and slower weight loss when following a low-calorie diet.

Higher Risk

Compulsive overeating (FAAH)

You do not carry FAAH gene variants associated with increased overeating risk and high-fat food cravings.

Lower Risk

BDNF, memory and overeating

Your genetics are not linked to poorer memory of recent meals or increased overeating risk.

Lower Risk

Oxytocin and overeating (OXTR)

You carry gene variants which are associated with an increased risk of overeating in response to negative emotions.

Higher Risk

Obesity risk (FTO)

You carry some FTO gene variants that are linked to weight gain and increased obesity risk.

Moderately Higher Risk

Fat taste sensitivity (CD36)

You carry gene variants linked to moderately-reduced fatty acid taste sensitivity, which can increase your risk of weight gain.

Moderately Higher Risk

Sex hormones and visceral fat

You are currently at low risk of gaining visceral fat.

Lower Risk

MC4R and obesity

You do not carry any MC4R gene mutations that alter your appetite or obesity risk.

Average Risk

Carbohydrate intake and weight loss

You may be more likely to lose weight when following a calorie-restricted low-carb/high-fat diet.

Low carb responder

Gut inflammation risk

You carry an above average number of gene variants linked to gut inflammation and inflammatory bowel disease.

Higher genetic risk

Saturated fat response

You do not carry two copies of the APOA2 gene variant linked to weight gain with high (>22g/day) saturated fat intake.

Lower Risk

SLC2A2 (GLUT2) and sugar consumption

You do not carry gene variants linked to reduced glucose-sensing and higher sugar consumption.

Lower Risk

Dopamine and impulsive eating (DRD2)

You carry gene variants linked to a greater risk of impulsive eating, carbohydrate cravings, and desire for junk food.

Higher Risk

AHSG and body fat

Blood Sugar Levels

Do you carry gene variants linked to less body fat and greater leanness? In this trait, we look at variants of AHSG, a gene that encodes a protein called alpha 2 Heremans-Schmid glycoprotein, more commonly known as fetuin-A. Studies show that the greater amount of body fat you carry, the higher your circulating fetuin-A levels, with elevated levels seen in obesity, type II diabetes, metabolic syndrome, and non-alcoholic fatty liver disease (NAFLD). Some people, however, have AHSG gene variants that predispose them to lower fetuin-A levels, which may encourage fat burning, prevent the build-up of body fat, and improve insulin sensitivity and control of blood sugar levels.

Your result

Higher Risk

Moderate Higher Risk

Lower Risk

No Data

You carry genes linked to slightly lower fetuin-A levels, which can protect against fat build-up.

Fetuin-A is a protein secreted by the liver and fat tissue that can impair insulin sensitivity, stimulate inflammation, and promote fat accumulation.

Higher levels of fetuin-A circulating in the bloodstream are observed in obesity and are linked to greater amounts of visceral fat (the type of fat that surrounds internal organs).

Lower levels of fetuin-A are linked to greater lean body mass and better insulin sensitivity.

Fetuin-A is encoded by the AHSG gene. The Met (T) variant (rs4917) of the AHSG gene has been linked to lower fetuin-A levels and lower amounts of visceral fat / greater leanness.

You carry one copy of the Met (T) variant linked to lower fetuin-A levels and lower amounts of body fat. Your AHSG (rs4917) genotype is Met/Thr (TC).

A 2017 meta-analysis found that people with your genotype had fetuin-A levels that were 0.04 - 0.07 g/L lower than the Thr/Thr genotype.

You may, however, break down stored fat for energy (lipolysis) less readily in response to adrenaline (e.g. when exercising) compared to those with the Met/Met (TT) genotype. Fat cells taken from people with your genotype were shown in one study to be 35 times less sensitive to stimulation by terbutaline (an adrenaline-like substance).

People with your genotype have been shown to have poorer insulin sensitivity (compared to the Met/Met genotype), which may be partly due to lower levels of adiponectin - a hormone produced by fat cells that enhances tissue response to insulin. Poor insulin sensitivity can promote fat accumulation.

Aerobic exercise is shown to reduce fetuin-A levels and improve insulin sensitivity, even in the absence of weight loss. By contrast, calorie surpluses and weight gain are shown to raise fetuin-A levels and impair insulin sensitivity.

Recommended Actions

Be active for at least 30 mins, 5 days a week. Regular activity has been shown to reduce fetuin-A levels which may contribute to weight loss through exercise. Being active will also benefit insulin sensitivity.

Supplement with probiotics that contain Lactobacillus casei. This gut bacteria has been shown to reduce fetuin-A levels and help regulate blood glucose levels more efficiently.

Supplement with 500 mg of curcumin three times a day. Curcumin has been shown to reduce fetuin-A levels as well as act as an anti-inflammatory. Reducing fetuin-A and inflammation will help with maintaining healthy body fat levels.

Try taking a digestive enzyme supplement. Digestive enzymes help to break down foods for your body to absorb them and may enhance your gut microbiome health, which may have a positive impact on your body fat levels.

Eat more red grapes. Their skins contain a chemical called resveratrol which has been shown to reduce fetuin-A levels and increase adiponectin levels. This will help to improve your body composition.

Try fasting from 8pm to 10am a few days a week. Fasting reduces fetuin-A and has been shown to have multiple other benefits on your metabolic health, such as improved insulin sensitivity. This, in turn, can help keep your body fat levels healthy.

Add a handful of blueberries to your breakfast. Blueberries are low in calories and contain plenty of polyphenols that help keep inflammation levels low. This can, in turn, help to increase adiponectin levels and improve insulin sensitivity.

Try to have 3 servings of dairy each day. 1 cup of low-fat milk or yogurt equates to a serving. Dairy intake has been associated with reduced fetuin-A levels.

Make sure to have plenty of chicken, turkey, tuna or salmon in your diet. A 3-ounce serving of one of these meats has plenty of niacin (vitamin B3), which has been shown to help reduce fetuin-A levels.

Sleep and weight gain risk

Sleep Health

This trait looks at variants of your CLOCK gene, which regulates your circadian rhythms - the 24-hour biological cycles that govern when you wake and sleep, when you produce certain hormones and also how you consume, break down, transport and use (i.e. metabolize) nutrients. Depending on which CLOCK gene variants you inherit, your circadian rhythms may be more liable to be disrupted. This can increase your risk of weight gain, high blood sugar levels and other negative health outcomes.

Your result

- **Higher Risk**
- Moderately Higher Risk
- Lower Risk
- No Data

You carry gene variants that may disrupt your circadian rhythms and increase your risk of weight gain with poor sleep.

The circadian clock is an internal time-keeping system that regulates metabolism and physiology over the course of 24 hours.

CLOCK protein is a key factor that controls the circadian clock allowing your body to regulate metabolism over the day and night cycles.

This trait specifically looks at how variants in the CLOCK gene may impact your metabolism and health.

You have a significant burden of mutations in and around the CLOCK locus that has been linked to metabolic dysregulation and weight gain.

These variants have been linked to increased eating, due to higher plasma ghrelin concentrations, when your have reduced or fragmented sleep.

The variants many promote increased eating later in the day, when your insulin sensitivity decreases. In addition, you may overeat more when emotional.

It is very important for you to maintain good sleep hygiene, and follow you actions if you are not getting enough sleep or are performing irregular shift work or night shifts.

Recommended Actions

Keep your saturated fat intake below 12% of your total daily calories. This will limit negative metabolic effects and weight gain. The advice in your Fat intake trait will provide further guidance.

Try to get at least 20 g of protein in each meal. Protein is satiating so limits snacking between meals and overconsumption.

Limit added sugar intake and include resistant starches in your diet. This will improve your gut microbiome, reduce inflammation and improve insulin sensitivity.

10 mins of walking a few hours before bed can positively impact your sleep. This will reduce sleep latency and can also help lower your post-meal blood triglyceride levels.

Supplement with 200-1,000 mcg of chromium a day. This will help reduce blood glucose levels and improve sleep quality.

At night, use herbal teas or mix 5 g of glutamine with cold water. These can act as an appetite suppressant, limiting the risk of overeating as well as not spiking blood sugars before bed.

Use healthy snacks like nuts (only a handful) and raw veg. Having these more accessible will limit overeating on high-fat and sugary snacks.

Aim to get at least 7 hours of sleep a night. 7-9 hours is the optimal sleep duration for good health and wellbeing.

Identify triggers for emotional eating. These can be boredom, stress, happiness, social settings or times of the day; spotting the pattern is key to reducing the impact of emotional eating on your eating habits.

Reduce stress with activities like meditation. Stress can be a trigger for emotional eating, increasing the risk of weight gain and poor metabolic health.

Fat metabolism (β-oxidation)

Weight Loss

Fat is a useful fuel source, particularly during prolonged exercise and periods of fasting. Your fat metabolism trait focuses on beta-oxidation: the process by which our cells use fatty acids (which are formed from the breakdown of fat) to generate energy. One of the key enzymes involved in this process is ACSL5 (long chain fatty acyl-CoA ligase / synthetase). This enzyme enables fatty acids to enter mitochondria and be used for energy. Variants of your ACSL5 gene affect how effectively you use fat as a fuel. This, in turn, influences how you burn fat in response to various diet and exercise regimes.

Your result

- **Higher Risk**
- Average Risk
- Lower Risk

You have gene variants linked to reduced fat burning and slower weight loss when following a low-calorie diet.

Acyl CoA synthetase 5 (ACSL5) converts free fatty acids into fatty-acyl CoA molecules. These are used for energy. ACSL5 is present in muscle and brown fat, where it drives fatty acid oxidation ('fat burning').

Increased levels of a specific ACSL5 isoform has been shown to promote fatty acid oxidation in muscle, enhancing weight loss in response to caloric restriction.

We are specifically looking at SNPs that increase ACSL5 level, with rs2419621 being the core SNP.

You have lower ACSL5, so you will be less sensitive to weight loss in response to caloric restriction.

Lower ACSL5 decreases fatty acid oxidation and muscle tissue respiration, thus decreasing cellular energy expenditure

when hypocaloric. In addition, reduced ACSL5 can increase carbohydrate oxidation.

Recommended Actions

Add steamed cauliflower or green beans to meals. These are great sources of insoluble fibre which binds to dietary fats to help keep your blood lipid levels lower.

Try walking or running for 30-60 mins 3 times a week. Long low intensity cardio workouts are perfect for increasing maximal fat oxidation.

Eat more blackcurrants and blackberries. These have been shown to positively influence fat oxidation rates both at rest and during exercise.

Avoid severe negative energy balances such as eating less than 1000 kcal a day. Extreme forms of diets will not induce long term fat loss as they alter your metabolism and reduce lean muscle mass.

Take 400 mg of curcumin, with 10 mg of piperine to aid absorption, daily. Curcumin will improve insulin function, which will in turn improve fat metabolism and blood lipid levels.

Compulsive overeating (FAAH)

Weight Loss

Are you more likely to binge on junk foods?Users of marijuana are well known to experience a phenomenon called the “munchies” - increased appetite and strong cravings for high-fat, salty, and carbohydrate-rich foods. Recent research suggests that this is due to activation of our endocannabinoid (EC) system - a nerve-signalling system that regulates several functions, including eating behaviour and energy balance. People who are overweight and obese also show higher EC activity (without using marijuana), which may underlie unhealthy eating patterns. This trait looks at gene variants (including FAAH) and lifestyle factors that affect your levels of anandamide (AEA), a key neurotransmitter in the EC system. Higher anandamide levels may lead to overactivity in parts of the EC system that promote food intake and reward-seeking, which can drive overeating, a preference for fat, and cravings for palatable food.

Your result

Higher Risk

Moderately Higher Risk

Lower Risk

No Data

You do not carry FAAH gene variants associated with increased overeating risk and high-fat food cravings.

This trait looks at variants of your FAAH gene, which encodes an enzyme that breaks down anandamide - a key neurotransmitter in the endocannabinoid (EC) system.

Certain variants of the FAAH gene (e.g. rs324420) are linked to lower activity of the FAAH enzyme. This leads to reduced breakdown and therefore higher levels of anandamide.

Increased anandamide levels may overactivate parts of the endocannabinoid (EC) system that drive food intake, desire for palatable foods, and a preference for fat.

You do not have FAAH gene variants linked to increased anandamide levels and endocannabinoid system overactivity.

Your FAAH gene variants are not associated with a greater susceptibility to overeating.

Your other traits and lifestyle data suggest you do not have poor insulin sensitivity or leptin resistance. These factors can also elevate anandamide levels and increase EC activity, increasing risk of overeating.

Neuroimaging studies suggest people with your gene variants have normal reactivity of their neural reward system. It is possible that this is protective against impulsive eating behaviours.

Your gene variants are not associated with higher BMI, obesity, or higher levels of blood fats (triglycerides).

This trait uses both your genetic data and your latest lifestyle profile data. Updating your lifestyle profile data will ensure your results are accurate.

Recommended Actions

Maintain body fat levels below 25% for men and 31% for women. Having healthy body fat levels will help to maintain leptin sensitivity, preventing increases in anandamide levels and impaired appetite regulation.

Try to eat at least 2 meals with salmon or mackerel in per week. Fish is a great source of omega-3 polyunsaturated fatty acids which have been shown to keep anandamide levels lower.

Start your day with a green tea. Green tea has been found to keep blood sugar levels healthy, preventing impairments in insulin function dysregulating anandamide levels and appetite.

Be active at a moderate intensity for 30 mins, 5 times a week. Moderate intensity activity helps keep your body fat levels healthy and prevents impairments in appetite regulation via changes in anandamide levels.

BDNF, memory and overeating

Appetite Control

Can you remember what you last ate?If your answer is ‘no’, did you know that you may be more likely to overeat later in the day? Our brain uses memories of what we've recently eaten to regulate when we feel full or hungry. Deficits in episodic memory - the ability to recall the whats, wheres, and whens of past experiences - however, can disrupt our capacity to remember recent meals. This, in turn, can lead to greater hunger and later overconsumption of food.In this trait, we look at variants of your BDNF gene, which encodes a protein involved in the growth and maintenance of neurons and plays a key role in memory and learning, as well as lifestyle factors known to affect episodic memory. Your personalised actions include ways to improve recall of recent meals and minimise your risk of overeating.

Your result

Higher Risk

Moderately Higher Risk

Lower Risk

No Data

Your genetics are not linked to poorer memory of recent meals or increased overeating risk.

BDNF (Brain-derived neurotrophic factor) is a protein that plays a key role in episodic memory - our ability to remember past experiences, including details about what we have recently eaten.

A reduced ability to recall the details of our most recent meals can cause further food intake and lead to overeating. This is partly because our memory of previous meals influences whether or not we feel full.

The Met (A) variant (rs6265) of the BDNF gene is linked to poorer episodic memory. This may impair the ability to recall recent meals and thereby promote overeating.

Being overweight or obese can also impair episodic memory and promote overeating. This is likely due to the damaging effects of inflammation (caused by excess fat tissue and unhealthy diets) on brain areas involved in memory, such as the hippocampus.

You do not carry the Met (A) variant linked to poorer episodic memory and smaller hippocampal volume. Your BDNF (rs6265) genotype is Val/Val (GG).

Your lifestyle data suggest you are not currently overweight. Maintaining a healthy BMI is associated with better episodic memory, which can minimise your risk of overeating.

Eating while distracted (e.g. while watching television) can impair your ability to remember your meal, causing you to feel less full and overeat later in the day.

High-fat diets and a sedentary lifestyle are both associated with reduced BDNF activity, damage to the hippocampus, and poorer episodic memory. This can impair your ability to recall recent meals and lead to overeating.

Some studies suggest that people with your genotype (Val/Val) show greater improvements in episodic memory in response to exercise.

Recommended Actions

Be active at a moderate intensity for 30 mins, 5 times a week. Regular exercise has been shown to increase BDNF levels and also contributes towards maintaining healthy body fat levels. High body fat levels can impair episodic memory and cause overeating.

Try to do 1-2 high intensity interval workouts (HIIT) a week. The exercise-induced increases in BDNF are intensity-dependant, so doing higher intensity exercise will lead to greater elevations in BDNF levels.

Increase your intake of omega-3 rich foods such as mackerel and salmon. Omega-3 fatty acids have been shown to improve cognitive function which will help maintain your episodic memory, and minimise the risk of overeating due to this.

Make your own sauces and dressings instead of using store-bought ones. Ready-made sauces are usually high in sugars and unhealthy fats; making your own allows you to better control these. High refined sugar and fat intake can further impair your episodic memory.

Grill, bake or steam instead of frying or roasting when you can. Grilling, baking and steaming do not require the use of additional fat (e.g. oil or butter) which can help you moderate your fat intake. High-fat intakes can worsen episodic memory.

If wanting something sweet, choose some strawberries, blueberries, raspberries and/or cherries. These berries are rich in ellagic acid - a polyphenol that helps reduce inflammation and increases BDNF activity, which can help increase memory.

Oxytocin and overeating (OXTR)

Weight Loss

Oxytocin is popularly known as the 'love' or 'cuddle hormone' as it is released in the brain during social bonding, and plays a role in mother-infant attachment, pair bonding, empathy, trust, and social reward. But did you know that oxytocin also shapes our eating behaviour?Studies in which people received oxytocin via a nasal spray show that it reduces cravings and intake of food, particularly sugary and fatty foods. Other studies show that genes that influence oxytocin levels and activity in the brain can affect our propensity to overeat.In this trait, we look at OXTR gene variants that contribute towards lower oxytocin activity, which can increase our risk of binge eating, comfort eating, and consuming junk foods.

Your result

- Higher Risk
- Moderately Higher Risk
- Average Risk
- No Data

You carry gene variants which are associated with an increased risk of overeating in response to negative emotions.

Oxytocin is a neurotransmitter that regulates energy balance, the rewarding aspects of food, and eating behaviour in relation to stress, social and emotional cues.

Oxytocin is shown to reduce calorie intake, enhance inhibitory control of food intake, and suppress 'hedonic eating' - the consumption of food for pleasure rather than energy needs.

Low oxytocin system activity is linked to overeating, particularly of palatable, high-fat, and high-sugar foods.

This trait looks at several SNPs in the OXTR (oxytocin receptor) gene that are linked to lower oxytocin system activity, greater reward sensitivity to palatable food, and a tendency to overeat.

You carry a co-inherited group (haplotype) of 4 SNPs in the OXTR gene associated with lower oxytocin system activity and a higher risk of overeating.

People with your gene variants may be more likely to binge eat and eat in response to negative emotions (so-called 'emotional eating').

Lower oxytocin activity may make you more likely to experience stress and overeat in response to anxiety, psychological stress, and feelings of social rejection.

Your gene variants are linked to a greater tendency to crave and eat high-fat and high-sugar foods, even when you are not hungry.

Continued, excessive intake of sugary foods can cause long-term adaptations to the oxytocin system that increase appetite and promote overeating.

Recommended Actions

Snack on 28 g (1 oz) of sunflower seeds or almonds a day instead of crisps or sweets. Switching your snacks for more nutritious options will help you control your intake, particularly of sugar and fats.

Do something you enjoy everyday such as reading a book or chatting with a friend. Finding activities away from eating that you enjoy will help you reduce the risk of overeating high fat/sugar foods as you should gain an increase in oxytocin from these other activities.

Make your own sauces and dressings instead of using store-bought ones. This can help you control the amount of sugar in your meals.

Have your fruit bowl on show instead of the biscuit jar. Putting healthier food options in easily accessible locations can help you make better food choices when cravings for high fat/sugar foods occur.

Take a walk or play a game you really enjoy when cravings occur. Providing an alternative response to cravings can help you manage them more effectively which will aid weight loss.

Try some meditation or mindfulness training. Becoming more mindful has been associated with increases in oxytocin levels, and can also aid in managing eating behaviours.

When a craving strikes, pause for 5 minutes. Delaying your response to the urge can help you understand better why you have that craving in the first place, which may help you to have a different response in future.

Plan out your meals for the week. Planning and preparing your meals in advance will help minimise the risk of choosing high fat or sugar foods as you will already have meals and snacks prepared.

Set 20-30 mins aside to eat your meals. Eating slower will help encourage mindful eating as you will start to pay attention more to what you are eating and how you are feeling. You may start to feel full from eating less!

Connect with others, or animals. Creating positive relationships will increase the release of oxytocin and can help reduce negative feelings that usually trigger overeating.

Keep a food/mood journal. This can help you identify moods or situations that trigger overeating, and help you alter your responses.

Obesity risk (FTO)

Weight Loss

The FTO gene is the notorious 'fat gene'. Genetic variants around this gene are linked to greater appetite, increased fat storage, and an increased risk of becoming overweight and obese. This trait analyzes your risk of obesity by compiling results for several genetic variants or ‘SNPs’ (Single Nucleotide Polymorphisms) within the FTO region including rs993609 and rs1421085.

Your result

Higher Risk

Moderate Higher Risk

Average Risk

You carry some FTO gene variants that are linked to weight gain and increased obesity risk.

Genetic variants in and around the FTO gene enhance the risk of weight gain, obesity and type II diabetes.

These variants can lead to increased hunger and alter the way fat is stored and metabolised in the body.

You carry some of the risk alleles at several FTO genetic loci that are linked to increased fat storage in the body.

You may also feel increased hunger, leading to greater energy intake.

This means that you may find it harder to lose weight, or control your eating. It is therefore important to follow your actions if you are looking to lose body fat.

Other genetic and lifestyle factors, such as those affecting your sensitivity to leptin (a hormone that suppresses appetite), can also affect your risk of weight gain.

Recommended Actions

Snack on 28 g (1 oz) of almonds, raw carrots or a few squares of dark chocolate. Healthier snack choices will limit overeating on high-fat/high-sugar snacks which you may be more likely to crave.

Aim to get 7-9 hours of high quality sleep each night. Poor sleep quality and duration can have detrimental impacts on your appetite regulation.

Do 1-2 high intensity workouts each week. This form of training is best for keeping your body fat levels healthy.

Be active at a moderate intensity for 30 mins, 5 times a week. Moderate intensity activity helps keep body fat levels healthy and provides an alternative response to do when food cravings occur.

Take 400 mg of curcumin, with 10 mg of piperine to aid absorption, daily. Curcumin is anti-inflammatory which is beneficial for preventing weight gain and increased fat mass.

Set 20-30 mins aside to eat your meals. This will allow you to eat slower and without distractions, which has been shown to increase satiety therefore reducing the risk of overconsumption.

Try fasting from 8pm to 10am for weight loss with 4 meals when feeding. A higher meal frequency during your feeding window will help to regulate your ghrelin levels.

Fat taste sensitivity (CD36)

Weight Loss

You probably already know that we have five basic tastes - sweet, sour, salty, bitter, and umami. But did you know your tongue is also sensitive to fat? On the surface of our tongue are specialised receptors that detect fatty acids, the building blocks of fat. When activated by fatty foods, these receptors signal to the brain that we are eating fat and forward information to the gut, causing it to pre-emptively secrete enzymes that digest fat and 'satiety' hormones that make us feel full. Some of us, however, are less sensitive to the taste of fatty acids. This may be due to a variant of the CD36 gene, which encodes one of the fat receptors on our tongue. Reduced sensitivity to fats in the mouth can, in turn, cause us to feel less full and puts us at risk of overconsuming fatty foods.

Your result

Higher Risk

Moderate Higher Risk

Lower Risk

No Data

You carry gene variants linked to moderately-reduced fatty acid taste sensitivity, which can increase your risk of weight gain.

CD36 is a receptor on the surface of our tongue that is sensitive to fatty acids, which are found in food and also formed in the mouth from the breakdown of fat.

When we eat foods containing fat, the CD36 receptor sends a signal to our brain and digestive system that conveys information about the taste of fat, prepares our gut to digest fat, and increases satiety.

The 'A' allele (rs1761667) of the CD36 gene is linked to reduced fatty acid taste sensitivity, possibly due to fewer CD36 receptors expressed on the surface of our tongue.

Reduced fatty acid taste sensitivity can impair the satiety response to eating fat, leading to increased intake of fatty foods.

You have one copy of the 'A' allele. Your genotype (AG) is linked to moderately reduced fatty acid taste sensitivity.

Reduced fatty acid sensitivity may cause you to feel less full after consuming meals that are high in fat, due to an impaired satiety response.

People with lower fatty acid sensitivity have been shown to consume more calories at lunch following a high-fat breakfast.

Your CD36 genotype (AG) has been associated with higher BMI and an increased risk of obesity in some studies.

Studies have shown that low-fat (<20% of total calories) diets can enhance fatty acid taste sensitivity in lean individuals.

Recommended Actions

Swap white rice for quinoa. Quinoa is a wholegrain so it has high amounts of fibre and it is also a good source of protein, both of which will increase satiety and help reduce overeating on fats.

Replace the meat in stews and curries with vegetables and beans. This will reduce the fat content of meals, while also increasing the fibre content which will help increase satiety.

Trim visible fat and take the skin off meat. This is an easy way to reduce the calories from foods that can be higher in fats.

Start your day with 3-4 eggs or oats with a scoop of protein powder. Having a high protein meal to start your day will keep you fuller for longer, helping to reduce the chances of overeating.

Snack on air-popped corn, seasoned with pepper or chili flakes. Popped corn is high in fibre so you should feel fuller from a smaller amount and by avoiding high-fat flavouring such as butter, you can keep the total fat content down.

Use a food tracking app to help check your total fat intake. This can help you identify how much fat you are eating each day and make changes to meals that may be increasing total intake.

Consider adding probiotics such as lactobacillus or bifidobacterium longum into your diet through foods such as sourdough bread, miso and pickles, or supplements. Probiotics help to improve the gut microbiome which can help to mitigate your increased risk of obesity.

Set 20-30 mins aside to eat your meals. This allows you to eat slower and without distractions, which will help regulate your food intake and minimise the risk of overeating.

Fill half your plate with vegetables such as broccoli and cabbage. Vegetables can provide plenty of fibre to increase satiety following a meal, as well as being low in fat, helping keep overall fat intake lower.

Sex hormones and visceral fat

Weight Loss

This trait specifically looks at how suboptimal sex hormone levels lead to a build-up of visceral fat and increased inflammation, both of which cause insulin dysfunction. Visceral fat is the fat that sits around your organs, and it is known to enhance the risk of getting type II diabetes, insulin resistance and heart disease. Moreover, the presence of visceral fat can impact your ability to build muscle and make it harder for you to lose weight. The accumulation of visceral fat is also indirectly linked to premature ageing.

Your result

Higher Risk

Moderately Higher Risk

Lower Risk

You are currently at low risk of gaining visceral fat.

Our hormone risk profile analysis has predicted that you are currently at low risk of increased visceral fat levels.

You do not have a burden of genetic variants that increase estrogen level or reduce testosterone - a combination which can lead to increased visceral fat

Visceral fat is the fat that sits around your organs, and it is known to enhance the risk of getting type II diabetes, insulin resistance, heart disease and premature ageing.

Your current lifestyle should be reducing this risk.

However, if you go through a period of decreased activity or weight gain, visceral fat levels will increase.

This visceral fat will increase the pro-inflammatory cytokines that promote cellular stress and premature aging.

Furthermore, cellular stress enhances insulin resistance risk that is mediated through other mechanisms. Check out your blood glucose and insulin traits for more detail.

Recommended Actions

Add garlic, onions, artichokes, and bananas into your diet, or supplement with inulin. Inulin is a soluble dietary fibre that supports the growth of beneficial bacteria which could benefit blood sugar regulation, and reduce inflammation levels.

Take 1-2 g of powdered ginger with some added Ceylon cinnamon. Ginger will help fight inflammation, with cinnamon enhancing this effect.

Substitute coffee for an anti-inflammatory tea. An example is a ginger and turmeric tea with lemon. This can help keep inflammation levels lower, benefiting your sex hormone and visceral fat levels.

Drink warm water with lemon and a tablespoon of apple cider vinegar each morning. Apple cider vinegar has insulin sensitising effects and benefits gut health.

Add turmeric and avocado to your diet. These foods have anti-inflammatory effects which can help to reduce the increased inflammation visceral fat can cause.

Be sure to cook with the herbs rosemary and sage. These herbs contain compounds that increase the activity of superoxide dismutase, an enzyme that clears inflammation causing superoxides.

Aim to perform 1-2 high intensity interval training (HIIT) workouts a week. High intensity interval training has been found to be very effective in reducing visceral fat.

MC4R and obesity

Weight Loss

We often think of obesity as resulting from the complex interplay of 100s-1000s of genes and environmental factors such as our diet, physical activity, and social surroundings. Rare forms of severe obesity, however, can result from mutations within single genes: so-called 'monogenic' obesity. In 1998, researchers identified rare mutations in the MC4R gene that gave rise to severe, childhood-onset obesity, characterised by excessive hunger. Later, however, it was discovered that more common mutations within this gene can more subtly affect appetite and can either increase or decrease risk of obesity.In this trait, we look at both rare and common MC4R variants and discuss their potential impact on your eating behaviour and obesity risk.

Your result

Higher Risk

Moderately Higher Risk

Average Risk

Lower Risk

No Data

You do not carry any MC4R gene mutations that alter your appetite or obesity risk.

Your MC4R gene encodes the melanocortin (MC) 4 receptor, which acts in brain circuits that control energy balance to suppress appetite and food intake.

Rare MC4R gene variants can cause early-onset, monogenic obesity. More common MC4R variants can either increase or decrease the risk of common obesity.

MC4R mutations that reduce or completely abolish the expression or function of the MC4 receptor are known as ‘loss-of-function’ mutations. These can impair MC4 receptor signalling, which may promote overeating and increase obesity risk.

Gain-of-function mutations are those which enhance the expression or activity of the MC4 receptor. These may

enhance MC4 receptor signalling, which may help to suppress food intake and decrease obesity risk.

You do not carry any common or rare gain- or loss-of-function MC4R mutations (of those analysed in this trait).

Your MC4R variants are not linked to changes in MC4R signalling and overeating risk.

Your MC4R variants are not linked to increased obesity risk, greater feelings of hunger, or more frequent snacking.

Studies show that several other genes can moderate the effect of the MC4R gene on eating behaviour and obesity risk.

Recommended Actions

If under high amounts of stress, try yoga or meditation. Stress can lead to poorer eating behaviours as it can affect brain circuits involved in motivation and reward sensitivity.

Fill half your plate with vegetables at meal times. This will help you moderate your intake of high fat/sugar foods in meals, minimising any risk of overeating and helping keep body fat levels healthy.

Be active at a moderate intensity for 30 mins, 5 times a week. Regular activity, such as a brisk walk or cleaning the house, are important for maintaining healthy body fat levels and can help encourage healthier eating patterns.

Carbohydrate intake and weight loss

Weight Loss

“I want to lose weight: should I eat a diet high in carbohydrates? Or would a diet higher in fat be more effective?” The answer to this question depends on your genetics. More specifically, according to findings from the Preventing Overweight Using Novel Dietary Strategies (POUNDS) Lost trial, it depends on variants of your FGF21 gene.In the POUNDS Lost study, one of the largest clinical trials to compare long-term weight loss on diets with varying proportions of macronutrients (i.e. carbs, fat, and protein), subjects carrying the ‘C’ variant (rs838147) of the FGF21 gene were found to lose more weight on a diet that was relatively higher in carbohydrates. Conversely, non-carriers tended to lose more weight when fat made up a relatively greater percentage of their energy intake.As well as affecting weight loss, other large studies show that FGF21 genotype variants also influence your typical eating habits and intake of macronutrients. In this trait, you’ll find out your optimal diet type based on your FGF21 gene and receive personalised dietary advice to lose body fat and maintain a healthy body weight.

Your result

- Low carb responde
- High carb responder
- No Data

You may be more likely to lose weight when following a calorie-restricted low-carb/high-fat diet.

FGF21 (fibroblast growth factor 21) is a hormone-like protein secreted by our liver and fat tissue. It regulates how our body uses carbohydrates and fats for energy.

Variants of the FGF21 gene can have small effects on our dietary intake of the 3 major macronutrients: carbohydrate, fat, and protein. People who carry the 'T' variant (rs838147) have been shown in large studies to consume more carbohydrate, but less fat and protein.

FGF21 gene variants are also shown to impact how effectively you shed body fat and lose weight in response to diets with varying proportions of carbohydrate and fat. The POUNDS Lost trial found that overweight and obese individuals carrying the 'C' variant (rs838147) lost more body fat over 2 years when adopting a high-carb/low-fat diet compared to a low-carb/high-fat diet (both with a target calorie deficit of 750 kcals per day).

By contrast, individuals carrying two copies of the 'T' variant (TT genotype) are shown to lose more body fat when following a low-carb/high-fat diet vs. a high-carb/low-fat diet.

You carry two copies of the 'T' variant associated with greater weight loss when adopting a LOW-CARB/HIGH-FAT diet. Your FGF21 genotype (rs838147) is TT.

You may be more likely to lose weight when following a calorie-restricted low-carb/high-fat diet, in which carbohydrates and fat make up 35-45% and 40% of your daily calorie intake, respectively.

The POUNDS Lost trial found that people with your genotype (TT) reduced their total body fat percentage by roughly 3.2% after 2 years when following a low-carb/high-fat diet, but only by around 1.6% with a high-carb/low-fat diet (in which carbohydrates and fat made up 55-65% and 20% of daily calorie intake, respectively).

People with your genotype (TT) lose more body fat than 'C' variant carriers when following a low-carb/high-fat diet. In the POUNDS Lost trial, your genotype was associated with 1.8 - 3.6 kg greater loss of fat mass after 2 years compared to 'C' variant carriers.

Excessive intake of saturated fat and cholesterol has been linked to an increased risk of cardiovascular disease, and

these should only make up a small proportion of your total fat intake. Accordingly, subjects in the POUNDS Lost trial were recommended to limit their intake of saturated fat to below 8 g per day and restrict their intake of cholesterol to 150 mg or less per 1000 kcals.

It is important to eat enough fibre if reducing your carbohydrate intake. Fibre, which is present in vegetables, fruits, beans, and whole grains, has been shown to support weight loss by helping you feel fuller. Subjects in the POUNDS Lost trial were recommended to consume at least 20 g of dietary fibre per day.

People with your genotype (TT) are shown to consume relatively higher amounts of carbohydrates. Studies of the DietGen and CHARGE cohorts, which monitored the dietary habits of close to 80,000 individuals, found that the proportion of total daily calories made up by carbohydrates was 0.50% higher in your genotype (TT) compared to those with the CC genotype.

By contrast, your genotype (TT) is shown to consume relatively lower amounts of protein and fat. The DietGen and CHARGE studies found that in your genotype, the proportion of total daily calories made up by protein and fat was 0.22% and 0.42% lower, respectively, compared to those with the CC genotype.

Recommended Actions

Use a food tracking app to help you track your carbohydrate, fat and total daily calorie intake. This will help you meet the recommended percentages for your daily carbohydrate and fat intake, and also help to keep in a calorie deficit if looking to lose weight.

Snack on 28 g (1 oz) of sunflower seeds or almonds a day, instead of crisps or biscuits. These are high in poly and monounsaturated fats so are a great way to increase your total fat intake, while keeping your saturated fat intake lower. Nuts and seeds are also a good source of fibre.

Add legumes like chickpeas and lentils into your diet. Bulking out meals such as curries or stews with these legumes will help make sure you get enough fibre in your diet. Fibre will help you feel fuller for longer, which in turn will aid weight loss.

Try to eat at least 2 meals with salmon or mackerel in per week. Fish provides polyunsaturated fats which have beneficial impacts on your metabolic health and are therefore a better fat food source to include in your diet.

Trim visible fat and take the skin off meat. This is an easy way to reduce saturated fat content of the meat and reduce the number of calories from these fat sources.

If you are craving something sugary, try eating some fibre and protein alongside the snack. For example, having one cookie with a protein yoghurt and some vegetables will help you feel fuller, making you less likely to reach for another sugary snack.

Swap pasta for veggie alternatives. Using vegetables such as courgette or squash to make spaghetti creates nutrient-dense meals while reducing your carb intake. This can help you achieve a low-carb, high-fat diet which is more effective for you when looking to lose weight.

Cook homemade meals as much as you can, using fresh ingredients. Opting for homemade meals over pre-prepared or processed foods is an easy way to reduce saturated fat intake and better control your calorie intake.

Minimise your intake of saturated fats from foods such as butter, red meats and pastries. Instead, get the majority of your fat intake from healthier alternatives such as avocados, olives, dark chocolate and lean meats such as chicken and turkey.

Gut inflammation risk

Gut Health

For most of the 20th century, inflammatory bowel disease was mainly observed in affluent, westernised countries, such as those in North America and Europe. Since the 1990s, however, the prevalence of these conditions has been rapidly increasing in newly industrialising countries of Asia, Africa, and South America. One theory is that the growing adoption of urban lifestyles and western diets in these countries serves to tip people's gastrointestinal tract or “gut” from a healthy equilibrium state into one that promotes excessive inflammation. In a healthy state, our gut acts as a barrier against harmful organisms, and our gut immune system is primed to neutralise any invading organisms, while avoiding damage to our own tissues. Unhealthy diets, exposure to air pollution, smoking, poor sleep, and sedentary lifestyles, however, can all weaken the gut barrier and contribute to an immune environment in the gut that causes excessive inflammation. In some cases, this inflammatory state may give rise to the development of inflammatory bowel diseases, such as Crohn’s disease and ulcerative colitis. As well as our lifestyle, our genes also influence how easily our gut can shift from a healthy, balanced state into one that favours inflammation. In this report, we analyse the impact of both your genetic make-up and lifestyle on your risk of gut inflammation.**As we cannot alter the gene variants that we have inherited (but can modify our lifestyle), this report tells you your genetic (gen) risk and lifestyle (lstyle) risk separately. IMPORTANT DISCLAIMER: Please note this is not a diagnostic test for inflammatory bowel disease and the information in this report should not be used as a substitute for diagnosis, treatment, and guidance from a qualified medical practitioner. You are advised to consult a physician for further information, assessment, and support.

Your result

Higher genetic and lifestyle risk

Significantly higher gen risk, medium lstyle risk

Significantly higher gen risk, high lstyle risk

Significantly higher genetic risk

Average gen risk, high lstyle risk

Higher gen risk, medium lstyle risk

Significantly higher gen risk, low lstyle risk

Average gen risk, medium

You carry an above average number of gene variants linked to gut inflammation and inflammatory bowel disease.

Our susceptibility to gut inflammation is influenced by several factors, including our genetics, the make-up of our gut microbiome, and our lifestyle.

Your genetic risk score analyses up to 22 different gene variants that have been associated with gut inflammation and the risk of having an inflammatory bowel disorder (i.e Crohn's disease and ulcerative colitis).

Our gut lining is maintained in a healthy state by recycling and renewing damaged cells. This renewal process is called "autophagy." Gene variants (e.g. NOD2) that impair autophagy in gut cells can increase susceptibility to gut inflammation.

A healthy gut is in a balanced state of pro- and anti-inflammatory processes that protect against harmful organisms, while minimising damage to our own gut cells. Certain gene variants can impair anti-inflammatory processes in the gut, which increases susceptibility to excessive gut inflammation.

An unbalanced diet, inadequate sleep, physical inactivity, smoking, and being overweight are also shown to cause gut inflammation and increase the risk of inflammatory bowel disease. These lifestyle factors are assessed in your lifestyle risk score.

Your overall genetic risk score is: HIGHER.

Overall, you carry an above average number of gene variants linked to gut inflammation and inflammatory bowel disease.

lstyle risk

Higher gen risk, low lstyle risk

Higher genetic risk

Lower gen risk, medium lstyle risk

Lower gen risk, high lstyle risk

Average gen risk, low lstyle risk

Average genetic risk

Lower genetic and lifestyle risk

In particular, you carry a relatively higher number of gene variants linked to impaired anti-inflammatory processes in the gut.

You also carry a relatively higher number of gene variants linked to impaired autophagy in gut cells.

Unfortunately, we were unable to calculate a lifestyle risk score based on your lifestyle data.

To get a better understanding of how your current lifestyle affects your risk of gut inflammation and inflammatory bowel disease, please complete the questions in your Lifestyle Profile.

This report is based on a limited number of gene variants and basic lifestyle data only. Further tests (e.g. blood tests, stool tests, endoscopy) are required to accurately assess levels of gut inflammation. Please consult a medical practitioner for further information.

Lower genetic risk

No data

Recommended Actions

Get spermidine in your diet by eating vegetable sprouts and soybeans. Spermidine has been shown to activate PTPN2 and induce anti-inflammatory effects, which can limit gut inflammation.

Add fresh basil into your homemade sauces. Basil increases IL-10 levels, increasing the body's anti-inflammatory defences.

Add a handful of blueberries to your breakfast. Blueberries are high in polyphenols which keep inflammation levels low, and increase anti-inflammatory cytokines such as IL-10.

Start your day with 10 minutes of mindfulness meditation, tai-chi, qi-gong, or breathing techniques. Mindfulness, which involves paying attention to your internal states and surroundings, is a great way to de-stress. High levels of psychological stress have been associated with an increased risk of inflammatory bowel conditions.

Fill your diet with vitamin D-rich foods, such as salmon, eggs, and portobello mushrooms. Deficiencies in vitamin D are more common in those with higher gut inflammation, so getting dietary sources is important.

Add spinach to your curries, stews, and sandwiches. Spinach is a rich source of magnesium - a mineral that is more likely to be deficient in those with increased gut inflammation.

Regularly sip water throughout the day. Hydration is important for gut health, particularly if you are experiencing digestive symptoms such as diarrhoea that cause greater fluid loss.

Increase your intake of omega-3 through fatty fish such as salmon, mackerel, and tuna, or through supplements. Fish oil supplementation has been shown to reduce inflammation in individuals with inflammatory bowel disease.

Switch some animal protein sources for vegetable protein sources such as tofu, edamame, and quinoa. Diets high in animal protein, meat and fish in particular, have been associated with an increased risk of inflammatory bowel disease.

Include more wholegrain foods in your diet. Diets with plenty of wholegrains, such as those in wholemeal bread, wholewheat pasta and brown rice, have been shown to reduce markers of low-grade systemic inflammation compared to diets high in refined grains (white bread, white rice etc.).

Have oats for breakfast a few days a week. Oats can help relieve some symptoms of gut inflammation, such as bloating, and are a good source of soluble fibre, which can help to regulate inflammation levels.

Consume lots of insoluble fibre if well tolerated. This form of fibre can be found in brown rice and wheat bran. Higher intakes of insoluble fibre are associated with reduced risk of inflammatory bowel disease, with wheat bran shown to be very beneficial for colon health.

Add legumes like chickpeas and lentils into your diet if well tolerated. Legumes are rich in fibre and other important nutrients, so if they do not cause any unpleasant gastrointestinal symptoms, they should be a staple within your diet.

Saturated fat response

Weight Loss

Are you more likely to gain weight when eating saturated fat? Saturated fats, found in fatty meat, dairy products, palm oil, and coconut oil, are energy-dense nutrients that, if eaten in high amounts, can lead to weight gain, obesity and high levels of LDL cholesterol. Depending on our genetic make-up, however, some of us may be at an enhanced risk of weight gain when consuming saturated fat. This is partly due to so-called ‘thrifty genes’ that promote the storage of excess energy as fat when nutrients are easily available. In this trait, we look at a ‘gene x diet interaction’ whereby certain variants of the APOA2 gene increase the risk of weight gain specifically when diets are high in saturated fat.

Your result

Higher Risk

Average Risk

Lower Risk

No Data

You do not carry two copies of the APOA2 gene variant linked to weight gain with high (>22g/day) saturated fat intake.

Apolipoprotein A2 (ApoA2) is a component of HDL particles. It regulates the transport and metabolism of fat and cholesterol.

Variants of the APOA2 gene can affect the expression of ApoA2 in response to high intakes of saturated fat, which may affect the risk of weight gain.

The 'C' allele (rs5082) of the APOA2 gene is linked to decreased ApoA2 expression with high saturated fat intake.

People with two copies of the 'C' allele (i.e. CC genotype) are shown to be at a higher risk of weight gain and obesity when following a diet high (>22g/day) in saturated fat.

You do not have two copies of the 'C' allele. Your genotype is TT.

People with your genotype (TT) are not at a greater risk of weight gain and obesity when following a diet high (>22g per day) in saturated fat.

Although your genotype is not linked to an enhanced risk of weight gain, foods that are high in saturated fat can promote weight gain when consumed in excess.

Recommended Actions

Try to perform at least 150 mins of moderate-intensity exercise each week, which can be split into short 10-min bouts. Regular activity is important for maintaining a healthy weight and may be more effective for you for improving blood lipid levels.

Try sticking to 1 coffee a day and choosing herbal teas as an alternative. Caffeine can reduce APOA2 expression, which can cause negative effects on your lipid profile; so lowering your caffeine intake will minimise this impact.

Start your day with a green tea and a handful of blueberries. These are both high in antioxidants that will help maintain healthy levels of inflammation, which in turn will help with weight management.

Look to stop smoking, if currently doing so, by trying some nicotine replacements or talking to your clinician about stop smoking programmes. This will improve many aspects of your metabolic health, and may be a more effective way for improving blood lipid levels.

Perform meditation or yoga in the morning before your breakfast. This will help you manage your psychological stress level, which can otherwise impact upon food choices and increase your risk of weight gain.

Have 1 or 2 plant-based meals a week. Swapping out meat with vegetables or beans is a great way to moderate your saturated fat intake, while also increasing your intake of fibre.

When cooking, opt to bake, steam, or grill (rather than fry) foods that are high in fat. This can reduce the fat content of meals, benefitting your metabolic health.

SLC2A2 (GLUT2) and sugar consumption

Weight Loss

Do you have genes for a sweet tooth?Our brain requires more energy than any other organ, accounting for 20% of total energy consumption. To ensure its energy needs are adequately met, the brain senses the amount of glucose (its main fuel source) in the bloodstream and then adjusts eating behaviour accordingly. When blood glucose levels drop, for example, we feel hungry. Conversely, when blood glucose levels rise after eating, we feel full. Gene variants that impair the brain's ability to sense glucose, however, can lead to overeating, particularly of refined carbs and sugars (e.g. sucrose, fructose) that are quickly broken down to glucose.In this trait, you'll find out whether you carry a GLUT2 gene variant associated with a higher daily intake of sugar.

Your result

Higher Risk

Lower Risk

No Data

You do not carry gene variants linked to reduced glucose-sensing and higher sugar consumption.

Glucose transporters (GLUTs) are proteins that allow glucose to move from the bloodstream into organs, including the brain.

Glucose transporter type 2 (GLUT2) acts as a 'glucose sensor' - it allows the brain to assess how much glucose is available in the bloodstream and then adjust food intake accordingly.

Poorer glucose-sensing may lead to increased food (esp. sugar) intake, as the brain is less 'aware' of blood glucose levels.

This trait looks at variants of the GLUT2 gene. The 'T' allele (rs5400) has been linked to poorer glucose-sensing and higher sugar consumption.

You do not carry the 'T' allele linked to higher sugar consumption. Your genotype is CC.

One study found that people with your genotype consumed approx. 16 g less sugar per day compared to those with the 'T' allele.

Excessive amounts of sugar in your diet can worsen insulin sensitivity and blunt glucose-sensing over time.

High sugar intake in the long-term is linked to several negative health outcomes, including: type II diabetes, cardiovascular disease, obesity, depression, and dental caries.

Other genetic and environmental factors that affect sugar metabolism and brain reward pathways also can lead to higher sugar consumption.

Recommended Actions

Infuse water with fruit, herbs or vegetables. This is a great way to enhance the flavour without adding sugars, and is a good alternative to sugary drinks e.g. fresh fruit juice or fizzy drinks.

If having a morning caffeine hit, find a coffee you enjoy the taste of and keep it black or just with milk. Frappacinos and other varieties of coffee-containing drinks have high amounts of sugar and can also be calorific.

Choose raw nuts/seeds/crackers over glazed or coated ones. The addition of glazes or coatings increase the sugar content, overriding the nutritional benefits of nuts and seeds as the sugar content can be as high as some sweets.

Make your own sauces and dressings instead of using store-bought ones. Store-bought sauces are usually high in sugar, so by making your own, you can control the amount of sugar.

Dopamine and impulsive eating (DRD2)

Weight Loss

Are your dopamine genes making you eat impulsively?Dopamine is often called the 'feel-good' neurotransmitter, but its functions in the body go beyond pleasure and reward. When it comes to food, dopaminergic brain circuits help us integrate information about the nutrient-content, taste, sight, and other sensory properties of food, and then optimise our eating behaviour to obtain and store energy. Evolutionarily-speaking, this would have been beneficial: maximising energy intake when food was available would help us survive periods of scarcity. Nowadays, however, where calorie-dense, high-fat, and sugar-rich foods are all around us, the same brain circuitry can make it difficult to resist palatable foods and cause us to overeat.In this trait we look at variants of the dopamine D2 receptor gene linked to behavioural traits such as impulsivity, sensation-seeking, and a preference for immediate rewards, all of which can lead to unhealthy eating behaviours.

Your result

Higher Risk

Lower Risk

No Data

You carry gene variants linked to a greater risk of impulsive eating, carbohydrate cravings, and desire for junk food.

The dopamine D2 receptor plays a key role in dopamine (DA) signalling in brain circuits that regulate eating behaviour, the 'reward value' of food, inhibitory control, and our motivation to eat.

Lower levels of D2 receptors in dopaminergic brain circuits may underlie impulsive and reward-seeking behavioural traits that increase our risk of unhealthy eating behaviours (e.g. impulsive eating) in certain environments.

This trait looks at the A1 risk allele (Taq1A polymorphism) (rs1800497) of the dopamine 2 receptor gene (DRD2).

People who carry the A1 risk allele are shown to have 30-40% fewer D2 receptors in the striatum (part of the brain's reward system) and are more likely to have behavioural traits that make them prone to unhealthy eating.

You carry the A1 risk allele linked to impulsive eating, greater fast-food and carbohydrate cravings, and difficulty in reducing food intake.

Poor diet, weight gain, lack of sleep, chronic stress, and poor sleep quality can all further disrupt DA signalling and increase your risk of impulsive eating.

You may experience less success with weight-loss diets. People with the A1 risk allele have been shown to lose less weight, struggle to maintain weight loss, and find it harder to restrict fat intake in weight-loss interventions.

You may be less able to learn from the negative consequences (e.g. weight gain, changes in mood, digestive discomfort) of unhealthy eating behaviours. Neuropsychological studies suggest people with the A1 risk allele learn to avoid behaviours with negative consequences less effectively.

You may be more likely to impulsively eat palatable foods that are high in fat and sugar. One neuroimaging study showed that people with the A1 risk allele display heightened activity in brain reward centres when unexpectedly presented a milkshake.

Recommended Actions

Swap butter for avocado on your toast a few mornings a week. This will help to reduce the amount of saturated fat in your diet, minimising impulsive eating tendencies.

Try yoga or meditation to reduce stress. Keeping stress levels low will minimise the chances of raised impulsivity, and overeating.

Create a dark, quiet sleeping environment, avoiding screens and bright lights. This will help you get a better nights sleep, which in turn will lead to better eating behaviours.

Replace the meat in stews and curries with vegetables and beans. This will reduce the saturated fat content of meals, while also increasing the fibre content which will help increase satiety; reducing the risk of overeating on high fat foods.

Cook with nut or seed oils. This will reduce your dependency on the saturated fats found in butter, lard, and coconut oils; while also providing plenty of healthy unsaturated fats.

Do something you enjoy everyday such as reading a book or chatting with a friend. This will help keep your mood positive and induce dopamine levels so that you are less likely to search for a dopamine boost through impulsive food choices.

Make your own sauces and dressings instead of using store-bought ones. This can help you control the amount of sugar in your meals, reducing the risk of increased impulsive eating.

Reduce intake of highly-processed foods. These foods are more likely to exacerbate your impulsive eating tendencies as are usually high in sugars and fats, causing weight gain and poor metabolic health.

Plan out your meals for the week. Planning meals can help you reduce impulsive food decisions at these times of the day as you already have food prepared.

Try and eat one meal a day without distractions. Limiting distractions allows you to focus on the food you are eating and identify how the food is making you feeling, allowing you to eat more mindfully.

Set 20-30 mins aside to eat your meals. This will allow you to eat slower and recognise when you feel full better. This should help minimise impulsive food decisions after meals as it can increase your mindfulness while eating.

Perform at least 20 mins of endurance exercise, 3 times a week. Regular exercise can help to manage stress levels and can help create an energy deficit without having to follow a low calorie diet.