- Diet / Weight loss



THE FUTURE OF WEIGHT LOSS

DECODE YOUR DIET

Tired of eating plans that don't deliver? The secret to sustainable weight loss could be written in our DNA. Scientists are unlocking the personalised approach to weight management by gaining better understanding of our genetic blueprint so that we can make informed, individualised and effective lifestyle changes.

BY JOANNA TOVIA

We would all love to find the perfect formula that sees us greeting the day with boundless energy and keeps unwanted kilos at bay. In reality, what works for one person often doesn't work for another, and what some people find effortless – fasting or giving up carbs, for example – others find almost impossible to stick to.

To make matters worse, our efforts to lose weight often seem futile when those kilos we work so hard to lose, creep back on.

Too often, we find ourselves back where we started, or even a little heavier. DNA diets are a new frontier in weight loss and wellness and have the potential to optimise weight management, enhance health and prevent disease. With recommendations tailored to an individual's genetic make-up, one-size-fits-all fad diets could soon become a relic of the past.

The concept of personalised nutrition is not entirely new. For decades, scientists have understood that genetics play a role in how our bodies process food. However, the advent of DNA sequencing and genetic testing in the early 2000s marked the beginning of a new era. With the completion of the Human Genome Project in 2003, researchers began exploring how variations in genes could influence metabolism, nutrient absorption and susceptibility to certain diseases.

DID YOU KNOW?

If you prefer sweet food over savoury or can't stand the taste of coriander, the answer could lie in your genes. A large-scale study sheds light on why some foods are more irresistible than others. Researchers found food preferences are influenced by genetics, with 325 genes linked to how much we enjoy different types of foods.

Now, companies like myDNA, Genetrack and EasyDNA offer genetic testing for anyone looking to make better food choices and reach their ideal weight. Tests can reveal how your body processes everything from B vitamins to caffeine, how your body regulates, breaks down and processes fats, and even whether you're a morning or night person and how many hours you should aim to sleep.

DNA diets operate on the principle that genetic differences influence how our bodies respond to various nutrients. Some people are wired to metabolise caffeine more slowly, for example, while others might be more prone to weight gain from diets high in carbohydrates. Typically, users submit a saliva sample or cheek swab, which is analysed for

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specific gene variants associated with dietary and metabolic traits. The results are then translated into tailored advice, preferably with the added guidance of a nutritionist or dietitian who can suggest the best types of foods, portion sizes and even exercise routines based on your genetic profile.

"As humans, 99.9% of our genes are identical, but it's the 0.1% difference that makes us each unique," explains dietitian Skye Swaney. "Our individual genetic make-up means that the way in which we metabolise nutrients, the interactions of enzymes and the biochemical reactions that occur in our bodies differ from person to person and therefore so do our responses to what we eat. This is where personalised nutrition comes in."

KNOWLEDGE IS POWER

Integrative nutritionist and pharmacist Sarah Gray began offering DNA testing to her clients to help them understand more about their genetic make-up and how to leverage that to best improve their health.

"DNA testing takes out the guesswork and enables me to build plans and recommendations that best match a client's genetics – especially when it comes to the way their body responds to different foods, their predisposition to weight gain or how sensitive they might be to things like salt and caffeine," says Gray. "It helps clients become more aware of their body and their specific and unique health needs."

Gray doesn't recommend DNA testing for all clients, but says it can be useful for clients who have tried many different approaches to reaching their health goals but have been unsuccessful. Clients who have struggled to lose weight all their lives are usually relieved to find that some of their genetic make-up predisposes them to this, she says. Their test results may show they have an increased risk of obesity, for example. "This motivates clients to stick with healthier eating patterns and prioritise aerobic exercise to help lose weight."

Consider the case of 44-year-old client, Kate*, who came to Gray after being advised by her GP that she was pre-diabetic. She was feeling sluggish and had gained almost 10kg over the past two years. DNA testing was one of the tools Gray used to analyse her health. Along with having an increased risk of obesity and diabetes, the testing revealed she was predisposed to having an increased appetite and was less likely to feel full due to a lower sensitivity to satiety cues than average. She was also more likely to prefer sweet foods based on a decreased ability to perceive sweetness.

To counter these predispositions, Gray recommended Kate increase her protein intake to help with feelings of fullness and to enable her to better stabilise her blood sugar levels. She also advised Kate to add regular moderate exercise for weight management and blood sugar control, suggested she prioritise natural sources of sugar and limit her added sugar intake, and recommended supplements to help with sugar cravings and sugar metabolism and to support her gut health.

"Within six months her weight was back on track, she was feeling more energetic and her blood sugar results from the doctor showed positive signs that her dietary and lifestyle changes were making a difference," Gray says.

Through her own DNA testing, Gray found she is prone to sleep disturbances from caffeine. While she hasn't given up coffee completely, she now only has one cup of coffee per day and avoids any coffee after midday. "This has played a role in improving my quality of sleep," she says.

MOVED TO ACT

DNA testing can reveal whether you're lactose intolerant (the test analyses the Beta-D-Galactosidase gene and determines whether the enzyme responsible for lactose digestion is functioning), whether you're coeliac or intolerant to wheat, and whether you'd be better off reducing your alcohol intake or avoiding it completely. You can also find out how your DNA affects your body's ability to absorb and store iron, whether your body needs extra help to maintain bone health, and if you're more prone to high cholesterol or vitamin deficiencies.

Results like these can provide the motivation people need to take action, especially if it's likely to prevent disease. People who discover they have an increased sensitivity to salt, for example, can be more inclined to reduce their salt intake to ward off high blood pressure.

Damian Chaparro, co-founder of Aro Ha wellness retreat in New Zealand's Glenorchy, had his DNA

STRESS BUSTERS

Regardless of your DNA make-up, are there foods that can help lower high anxiety levels, so prevalent in today's society? Consuming complex carbs such as oatmeal, quinoa and wholegrain breads is the advice from experts, along with avoiding foods and drinks high in sugar and caffeine as much as possible.

WARD AGAINST DEMENTIA

Caloric restriction by intermittent fasting produces several metabolic changes, such as increased insulin sensitivity and use of ketone bodies as energy sources. Decreased oxidative stress damage and attenuated inflammatory responses are also associated with intermittent fasting and these changes are showing to have profound implications for pathological mechanisms associated with dementias, particularly Alzheimer's disease over a period of time.

"AS HUMANS, 99.9% OF OUR GENES ARE IDENTICAL, BUT IT'S THE 0.1% DIFFERENCE THAT MAKES US EACH UNIQUE."

DNA: THE KEY TO LONG-TERM WEIGHT LOSS?

Losing weight is one thing, but keeping it off can be quite another. DNA diets are proving effective not just at helping people lose weight – and the associated health benefits of doing so – but also keeping those unwanted kilos at bay.

In a recent study, researchers in the UK compared the results of a keto diet versus a DNA-tailored diet in a group of 114 overweight subjects 24 weeks and 18 months into a weight-loss program.

While those following a keto diet lost an average of 2.5kg more weight than the DNA dieters initially, at the 18-month mark those on nutrigenetic diets had lost significantly more weight (an average 8kg more) than the keto dieters, along with better results related to cholesterol and fasting glucose levels.

Both diets contained around 1,600 calories a day but variants driven by genetic results included differing amounts of saturated fats, carbohydrates and modifications based on caffeine intake and micro and macronutrients. The DNA dieters were also far more likely to have kept the weight off than the keto dieters, some of whom had regained some of the weight they'd initially lost.

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A BLUEPRINT FOR BETTER HEALTH

Getting enough of what your body needs can be the key to keeping your health in top shape. DNA testing can provide clues to how well your body processes and absorbs the nutrients you take in, and the vitamins and minerals you might need more of.

Vitamin A: Essential for vision, immune function, skin health, bone growth and reproduction. The BCO1 gene impacts how Vitamin A gets activated in your body.

Vitamin B6: Helps process carbs, supports brain development, immunity, skin health and red blood cell formation. The NBPF3 gene regulates how quickly Vitamin B6 is removed from your body. Some variants speed up Vitamin B6 clearance, so you may require more of it.

Vitamin B12: Critical for brain and nerve function, making DNA and breaking down fats and proteins. The FUT2 gene influences how well Vitamin B12 is absorbed.

Vitamin C: Important for making collagen, boosting immunity, wound healing, absorbing iron, and removing toxins. The SLC23A1 gene controls absorption and distribution of Vitamin C in your body. Some variants may disrupt how well Vitamin C is retained and transported.

Vitamin D: Supports cell growth, immunity, reducing inflammation, and bone health. The CYP2R1 gene alters activation of Vitamin D and the GC gene alters uptake and transport.

Vitamin E: Boosts immunity and is vital for eye and skin health. The APOA5 gene regulates Vitamin E blood concentrations. Some variants lead to lower circulating Vitamin E.

Folate: Promotes proper growth and helps break down some amino acids. The MTHFD1 and MTHFR genes play roles in folate utilisation and activation. Some variants lower usable folate, despite adequate intake.

Iron: Makes haemoglobin, which carries oxygen throughout the body. The TF and TMPRSS6 genes influence iron absorption and transport. Some variants reduce iron uptake from food.

Omega-3: Key fatty acid that supports metabolism and overall health. The NOS3 gene impacts triglyceride response to omega-3. Some variants weaken the triglyceride lowering effects.

Source: Genetrack Australia

tested to find out how his genetic make-up might be interacting with his diet and lifestyle choices. “I have the dreaded MTHFR mutation, so appreciate me while I'm here,” he jokes. MTHFR gene mutations can lead to high levels of homocysteine in the blood and low folate levels, raising the risk of health conditions such as heart disease and stroke.

While such news may not be welcome, Chaparro is now more focused than he otherwise may have been on looking after his heart.

“Genetics don't spell your fate, right? Genetics show you predispositions,” says Chaparro.

Discovering predispositions, whether to disease, obesity or being coeliac, gives people the opportunity to counteract them, he says.

“If you have an FTO mutation, which predisposes you to obesity, then you're really going to need to calorie count, watch your weight, and go beyond what many people would have to do to keep your weight down. I think it's helpful.”

> “PERSONALISED EATING PLANS GUIDED BY OUR GENETIC BLUEPRINT ARE LIKELY TO BECOME MORE WIDELY ACCEPTED.”

When guests arrive at Aro Ha for their six-day retreat, they’re offered the opportunity to wear a continuous glucose monitor (CGM) and an Oura ring to track their sleep and heart rate, tests to track their ketones, and a measure of their biological age before and after their stay. The CGM works for an additional week after they return home, which can be helpful in comparing how their bodies respond once life gets back to normal. If they want to dig deeper, they can have their microbiome analysed and be referred for DNA testing.

Demand is growing for personalised wellness in line with the wellness industry’s ability to deliver insights of a personal nature, Chaparro says. “I think we're interested as humans in being taken care of, in being understood, and of feeling like somebody is paying attention to our needs,” he says. “I think we thrive when something is tailored just to us.”

Food scientist Dr Vincent Candrawinata says demand for personalised wellness will continue to grow as people become more aware of the intricate connections between their unique biology and health outcomes. “Advances in cellular and molecular nutrition have shown how personalised approaches can optimise cellular functions, enhance antioxidant capacity and mitigate chronic disease risks – this scientific progress resonates with individuals seeking targeted, evidence-based solutions.”

THE FUTURE

Dr Vincent, as he is known, says personalised eating plans guided by our genetic blueprint are likely to become more widely accepted as a way to maintain a healthy weight in the future. “This approach is poised to become a cornerstone of preventative health and sustainable weight management strategies,” he says.

While DNA tests can identify genetic markers that influence nutrient metabolism, sensitivities and dietary needs, Dr Vincent cautions that DNA testing doesn’t account for real-time factors such as epigenetic changes, gut microbiome dynamics or environmental influences that impact cellular health. “The body’s ability to use antioxidants effectively, for example, depends not only on genetic markers but also on dietary intake and overall health status,” he explains.

Caution is also needed when it comes to protecting the privacy of your genetic data, Dr Vincent warns.

Hackers gained access to the data of almost seven million customers of genetic testing company 23andMe in a 2023 cyber attack, and it has come to light that 23andMe had been selling customers’ genetic data (albeit stripped of personal details) to pharmaceutical companies. Policies in the fine print also allow the company to sell customers’ data if the company goes bankrupt or is merged or acquired. “Ensure the DNA testing company has clear policies about how your information is stored, shared and used,” advises Dr Vincent.

“Only choose providers that prioritise data protection and allow you full control over how your information is utilised.”

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WHAT IS 'WEIGHT CREEP'?

WORDS BY NICK FULLER

As we enter a new year armed with resolutions to improve our lives, there's a good chance we'll also be carrying something less helpful: extra kilos. At least half a kilogram, to be precise. 'Weight creep' doesn't have to be inevitable. Here's what's behind this sneaky annual occurrence and some practical steps to prevent it.

SMALL GAINS ADD UP

Adults tend to gain weight progressively as they age and typically gain an average of 0.5 to 1kg every year. While this doesn't seem like much each year, it amounts to 5kg over a decade. The slow-but-steady nature of weight creep is why many of us won't notice the extra weight gained until we're in our fifties.

WHY DO WE GAIN WEIGHT?

Subtle, gradual lifestyle shifts as we progress through life and age-related biological changes cause us to gain weight. Our:

Activity levels decline: Longer work hours and family commitments can see us become more sedentary and have less time for exercise, which means we burn fewer calories.

Diets worsen: With frenetic work and family schedules, we sometimes turn to pre-packaged and fast foods. These processed and discretionary foods are loaded with hidden sugars, salts and unhealthy fats. A better financial position later in life can also result in more dining out, which is associated with a higher total energy intake.

Sleep decreases: Busy lives and screen use can mean we don't get enough sleep. This disturbs our body's energy balance, increasing our feelings of hunger, triggering cravings and decreasing our energy.

Stress increases: Financial, relationship and work-related stress increases our body's production of cortisol, triggering food cravings and promoting fat storage.

Metabolism slows: Around the age of 40, our muscle mass naturally declines, and our body fat starts increasing. Muscle mass helps determine our metabolic rate, so when our muscle mass decreases, our bodies start to burn fewer calories at rest.

We also tend to gain a small amount of weight during festive periods – times filled with calorie-rich foods and drinks, when exercise and sleep are often overlooked. One study of Australian adults found participants gained 0.5 kilograms on average over the Christmas/New Year period and an average of 0.25 kilograms around Easter.

WHY WE NEED TO PREVENT WEIGHT CREEP

It's important to prevent weight creep for two key reasons:

1. Weight creep resets our body's set point. Set-point theory suggests we each have a predetermined weight or set point. Our body works to keep our weight around this set point, adjusting our biological systems to regulate how much we eat, how we store fat and expend energy. When we gain weight, our set point resets to the new, higher weight. Our body adapts to protect this new weight, making it challenging to lose the weight we've gained.

But it's also possible to lower your set point if you lose weight gradually and with an interval weight loss approach. Specifically, losing weight in small manageable chunks you can sustain – periods of weight loss, followed by periods of weight maintenance, and so on, until you achieve your goal weight.

2. Weight creep can lead to obesity and health issues. Undetected and unmanaged weight creep can result in obesity, which can increase our risk of heart disease, strokes, type 2 diabetes, osteoporosis and several types of cancers (including breast, colorectal, oesophageal, kidney, gallbladder, uterine, pancreatic and liver).

A large study examined the link between weight gain from early to middle adulthood and health outcomes later in life, following people for around 15 years. It found those who gained 2.5 to 10kg over this period had an increased incidence of type 2 diabetes, heart disease, strokes, obesity-related cancer and death compared to participants who had maintained a stable weight.

Fortunately, there are steps we can take to build lasting habits that will make weight creep a thing of the past.

HOW TO PREVENT GRADUAL WEIGHT GAIN AS WE AGE

1 Eat from big to small
Aim to consume most of your food earlier in the day and taper your meal sizes to ensure dinner is the smallest meal you eat. A low-calorie or small breakfast leads to increased feelings of hunger, specifically appetite for sweets, across the course of the day. We burn the calories from a meal 2.5 times more efficiently in the morning than in the evening. So emphasising breakfast over dinner is also good for weight management.

2 Use chopsticks, a teaspoon or an oyster fork
Sit at the table for dinner and use different utensils to encourage eating more slowly. This gives your brain time to recognise and adapt to signals from your stomach telling you you're full.

3 Eat the full rainbow
Fill your plate with vegetables and fruits of different colours first to support eating a high-fibre, nutrient-dense diet that will keep you feeling full and satisfied. Meals also need to be balanced and include a source of protein, wholegrain carbohydrates and healthy fat to meet our dietary needs – for example, eggs on wholegrain toast with avocado.

4 Reach for nature first
Retrain your brain to rely on nature's treats – fresh vegetables, fruit, honey, nuts and seeds. In their natural state, these foods release the same pleasure response in the brain as ultra-processed and fast foods, helping you avoid unnecessary calories, sugar, salt and unhealthy fats.

5 Choose to move
Look for ways to incorporate incidental activity into your daily routine – such as taking the stairs instead of the lift – and boost your exercise by challenging yourself to try a new activity. Just be sure to include variety, as doing the same activities every day often results in boredom and avoidance.

6 Prioritise sleep
Set yourself a goal of getting a minimum of seven hours of uninterrupted sleep each night, and help yourself achieve it by avoiding screens for an hour or two before bed.

7 Weigh yourself regularly
Getting into the habit of weighing yourself weekly is a guaranteed way to help avoid the kilos creeping up on us. Aim to weigh yourself on the same day, at the same time and in the same environment each week and use the best quality scales you can afford.

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