

# COULD A DNA TEST HELP YOU SLIM?

Genetic testing can reveal your risk of diseases, and the diet and exercise that suit you best. But is it a smart use of your money?

WORDS HANNAH EBELTHITE

**W**hen Jessica Latham, 38, struggled to zip up her size 16 dresses, she decided enough was enough. 'I'd tried various diets and always ended up bored and hungry,' she says. 'So when I heard about DNAfit (dnafit.com) – a company that analyses your DNA to produce a bespoke report on the food and exercise best for you – I was intrigued. The results were amazing. It recommended that my ideal diet was based around complex carbohydrates and low-fat foods (no wonder I'd failed miserably at high-protein diets) and that moderate exercise was most effective for me (I hate high-intensity classes). Once I was doing what I was genetically predisposed to, the weight came off and I had more energy. I stuck to exercise for the first time. Working with, rather than against, my body has made all the difference.'

## A MAP OF HEALTH

These new genetic testing companies like DNAfit and 23andMe (23andme.com) screen for

anything from inherited diseases to your response to exercise and food. US company 23andMe (named after the 23 pairs of chromosomes in a human cell) charges £125 to screen for around 5000 gene variants. It reports on more than 100 personal traits, from how well you metabolise caffeine to whether you have risk factors for diseases like Parkinson's, Alzheimer's and breast cancer. 'We take complicated genetic information and distil it into language that people understand,' says company CEO, Anne Wojcicki.

## ETHICAL QUESTIONS

For something that costs around the same as a good pair of trainers yet potentially delivers a lifetime of health, it's a no-brainer, right? But consider this: 23andMe's genome testing was banned by the US Food and Drug Administration (FDA) in 2013. It was allowed to keep selling its ancestry tests and provide raw genetic tests, but not the analysis, which was deemed to be inaccurate and misleading.

'The trouble is they look at gene variants that only alter risk by a tiny amount,' says Professor

## BODY BEAUTIFUL

At Mayfair beauty salon Geneu (geneu.com), your DNA can be used to assess how your skin responds to ageing, and used to make personalised skin serums. DNAfit can also tell you if you're prone to injuries and how well you recover from workouts.



**CRACK THE CODE**

**23** The number of pairs of chromosomes in a human cell

**800K** THE NUMBER OF PEOPLE GLOBALLY WHO HAVE TAKEN A **23ANDME** TEST

**60** The percentage variance in bodyweight thought to be down to genetic factors

**33%** THE PERCENTAGE MORE **WEIGHT LOST** BY PEOPLE FOLLOWING A DNA-MATCHED DIET, COMPARED TO THOSE NOT\*

\*STUDY AT UNIVERSITY OF THE SAHARA PHOTO GUYAWA THINKSTOCK



## HOW IT WORKS

Saliva is collected on a swab, sealed in a tube and posted to the company for screening. Once in the lab, your DNA data is extracted, analysed by a computer and uploaded to a secure online account for you to access. It's called 'genotyping', meaning it looks only at certain genes, which have common variants that have been well studied.

Shirley Hodgson, professor of cancer genetics at St George's Hospital in London. 'There are many other factors involved. You may carry another gene variant that isn't tested for, or hasn't yet been studied, that negates the risk. Or your lifestyle may make it worse.'

You also have to be prepared to receive bad news, such as being a carrier of one of the BRCA genes that make breast and ovarian cancer much more likely. 'Receiving this news online or in the post isn't the right, supportive channel,' says Professor Hodgson. 'It should be delivered by a doctor who can offer counselling and advise you on the best next steps.'

However, Professor Mark Thomas, professor of evolutionary genetics at University College London, says 23andMe is one of the best services in terms of

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the information it provides and how it does so. 'To be responsible, a company must be clear about what your elevated risk is and how confident scientists are there's a real risk. They should provide supporting statistical information – and I think they do this.'

He cedes that most of the risk factors you'll discover are so slight as to be easily remedied with lifestyle changes. 'DNA tests are here to stay, and the medical profession is going to have to wake up to this,' he says. 'But doctors' advice about what fundamentally constitutes a healthy lifestyle won't change.'

When it comes to fitness, Team GB athlete and DNAfit consultant, Andrew Steele, believes the tests are a welcome progression of the trend for wearable devices like the FitBit activity tracker. 'They're the ultimate in personalised data that can help to realise your potential,' he says. Indeed, two studies, from the University of Portsmouth and the University of Central Lancashire, appear to show that training to your genome type can double your performance.

## THE FUTURE OF HEALTHCARE

Proof that DNA testing is here to stay comes from the NHS's pilot 100,000 Genomes Project – full genome sequencing for 100,000 cancer patients, to find out more about how genes predispose us to certain cancers and affect the growth of tumours.

'If you know what genes are turned on and off as a cancer progresses, you can really target treatment,' says Professor Hodgson. 'It's likely that in years to come, our health records will include our personal DNA maps, so doctors know precisely what our risks and predispositions are and how best to treat us.'