

Could your DNA hold the key to a wrinkle-free face and a great figure?

By CLAIRE COLMAN - Last updated at 11:59am on 19th June 2007

Looking after your body and caring about your appearance means you've probably been tempted to seek out expert help to combat wrinkles, flab and bloating.

But prepare to add to your aesthetic entourage because the latest must-have is your very own geneticist.

Developments in health and beauty focus on examining your DNA, the unique building blocks of your body, to come up with a lifestyle, diet and beauty plan designed exclusively for you.



Gene genius: geneticists may revolutionise the beauty industry

New technology has made it relatively cheap and straightforward to examine a DNA sequence, taken from something as non-invasive as a cheek swab.

While approximately 99 per cent of human DNA is identical, it is the other one per cent that not only makes us look different, but also makes our bodies work in different ways.

Known as polymorphisms, these differences are thought, in part, to be responsible for everything from how easily you put on

weight to how your skin will age.

Although examining every one of our genes - more than 20,000 - would be very time consuming, geneticists say they have been able to isolate and examine a handful that play a significant role in the way our bodies age.

If you believe the hype on this, knowledge is power.

Finding out that your body struggles to fight off pollutants, meaning everything from your skin to your heart could look old before its time, could be just the kick you need to help you quit smoking and up your intake of antioxidants, the substances thought to help neutralise ageing free radicals.

And maybe discovering that you could be prone to osteoporosis might encourage you to take up load-bearing exercise and increase your intake of calcium.

In an ideal world, we'd all be exercising regularly and eating a diet that's rich in antioxidants and low in fat. But realistically that doesn't happen.

Nutritionist Carolyn Katzin, who works with a U.S. genetics company called Genelex, explains: "Most people know what they should be doing, but simply aren't motivated enough to do it.

"However, once you are able to see where your body really needs help, it's much easier to work out what small changes you can make to your diet and lifestyle that will make the biggest difference."

Katzin's work with Genelex has spawned America's hottest new diet craze - the DNA diet, which costs £300 a pop.

Using a lifestyle questionnaire in combination with a number of genetic tests, the DNA Diet assesses the way your body works, looking at a number of areas including detoxification, inflammation, antioxidant activity and insulin sensitivity.

A nutritionist then uses the information to create a diet and lifestyle plan that will best help you compensate for any potential problems your genes may cause you.

And while many people are interested in knowing how to prolong their life and good health, an even more significant proportion want to know how to lose weight.

Could DNA really hold the secret to weight loss?

Some experts think so and insist that genetics explain why not all diets work for everyone and why two biscuits make you put on 2lb but two packets have no affect on your perennially slim friend.

The link between genetics and obesity hit the headlines earlier this year when a study of more than 40,000 people discovered that those with two copies of a "fat" version of a particular gene were 70 per cent more likely to be obese than those whose versions of this gene were "normal".

If you are cursed with the "fat gene" you might think you'd just give up dieting for good because it's never going to make a difference.

But Dr Paul Jenkins of Genetic Health, the only UK company to offer this sort of genetic testing for diet and lifestyle, explains that discovering that it's in your genes and it's not just you being a useless dieter helps people lose weight.

"It's empowering for someone to see their genetic code, to look at what makes them fundamentally them.

"And, while you might not be happy to learn that you have to work harder to lose weight than other people, knowing that you have a genetic predisposition to gain weight can help people choose a diet and stick with it, and make the lifestyle changes that they need."

However, Dr Fred Kavalier of the British Society of Human Genetics sounds a note of caution. "What these companies offer is potentially very valuable, but we're still a long way from knowing whether it's really worthwhile.

"If you're only testing a handful of the thousands of genes that make up our bodies, how do you know there's not one out there that counterbalances the one you've tested?"

"Tinkering with such a complicated interactive web could have knock-on effects that we don't yet understand."

For those willing to take the chance, and spend £825, Genetic Health offers a premium product that tests 45 genes, allowing you to find out huge amounts of information about your potential susceptibility to heart problems, cancers, even Alzheimer's.

But, primarily due to consumer demand, they also offer the Nutrition Test, which looks at the genes that govern metabolism and detoxification.

The results can help you regulate your BMI and improve your body's detox systems - all of which have the potential to result in a slimmer, healthier looking version of yourself.

Genetic testing might not yet be able to give us the perfect recipe for the flat stomachs and wrinkle free complexion, but it can put us on the right path.

Eating in a way that complements your DNA will not only help slow the ageing process on the inside, but also on the outside.

If you up your intake of antioxidants and adapt your diet to help your body detoxify more effectively, you can't help but end up with a more streamlined physique and clearer skin.

In fact, DNA-based skincare is nothing new. Since 2002 a New York-based genetics lab has been selling face cream bespoke to your DNA.

Using the same technology that looks at genetic differences, GeneLink claims to be able to study five different genes and subsequently identify your genetic propensity for a range of factors including collagen breakdown, sun-induced ageing, susceptibility to irritation and ability to resist environmental pollutants.

Armed with this information, for just £130, they will provide you with a cream specifically devised to help your skin.

Although the technology is rumoured to have seduced celebrities such as Goldie Hawn, Meg Ryan and Teri Hatcher, sceptics argue that all they are doing is repackaging the same old thing and claim that the DNA aspect is simply there to bamboozle customers with science.

"There are no secret ingredients," says John Souza, director of business development for GeneLink.

"What we have done is looked at all the active ingredients on the market and worked out which ones can help compensate for certain genetic issues.

"If we were to put them all in high concentrations into a single cream, not only would it be very expensive but sometimes, applying too much of an ingredient your skin doesn't need can cause more damage.

"We've got clinical testing to prove that 70 per cent of users see an improvement in fine lines and firmness over eight weeks."

The DNA bandwagon is also rolling into the beauty mass market.

While not specifically tailored to an individual's DNA in the way that the GeneLink product is, a number of products have been launched to help protect the skin's DNA using a variety of different ingredients.

One of the first was High Street beauty brand Nivea, with its DNAge products boasting a "Cell Renewal Anti-Age System" that uses folic acid to help support the skin's DNA.

Dr Maria Langhals, Nivea's in-house skincare expert, explains: "Folic acid is essential for the repair and regeneration of our DNA and our skin cells, which is why pregnant mothers are advised to take it as a supplement."

And Nivea isn't the only one working on skincare through DNA. Beauty boutique Space NK stocks the Beverly Hills cosmeceutical brand Leaf & Rusher, whose Tx Night Formula (£125) contains what they call "DNA technology".

According to Dr Norman Leaf, one of the founders of the brand: "It's a morning after pill for the skin. One of the biggest contributors to skin ageing is the sun. This is, in part because the sun damages the structure of the DNA.

"The active ingredient in this cream is an enzyme that reverses the damage done by the sun so that the structure of the DNA is kept intact."

Recently Space NK added to their DNA product portfolio with a cream called Zelens Skin Science DNA Protection Cream (£120).

Zelens is rich in anti-oxidants which, say the manufacturers, work to counteract oxidative injury to the cell membranes, cellular structure and DNA, consequently preventing premature ageing of the skin.

So is this genuine new science, or simply fancy new repackaging, capitalising on the DNA tag for credibility? The experts suspect the latter.

Jim Frame is a consultant plastic surgeon at Capio Springfield Hospital in Essex, he says: "The first thing I'd question about these topical creams is quite how easily the necessary ingredients are able to penetrate to the level where they would be useful.

"If they're working at a cellular level, they should be classified as drugs rather than cosmetics.

"More significantly, while we're now in a position where we can genetically map people, we're neither capable of nor licensed to manipulate DNA."

Despite the scepticism, with every passing year, our knowledge of our DNA and the way our bodies work increases.

So it seems ever more plausible that in the future everything from the food we eat, to the exercise we take and the drugs we are prescribed could be tailored to suit our genes.