

# Future perfect

*The advances in various medical fields mean that we can now look and feel great well into our senior years. Diane Cassere considers some of the most exciting options*



**IT'S TRUE, WE'RE LIVING LONGER AND LOOKING BETTER. SCIENCE** is providing us with the tools for stronger skeletons, better skin and life-boosting diets. We can literally build ourselves, and research is ensuring that future generations will be able to design their own health.

In the next decade, treatments that currently sound like science fiction will become a reality. Let's see what the doctors have in store for us...

#### **THE DNA DIET**

Everyone is talking about it, the diet that matches your own genotype. It's billed as the answer to weight difficulties – why one diet will work for your friend or a celebrity, but leaves you with persistent bulges.

Is it scientifically viable?

Yes, but the research is still in its infancy, says Celeste Naudé, researcher and dietitian at Stellenbosch University's Division of Human Nutrition.

Correctly speaking, it is dietary therapy based on DNA testing. Research informs us that interaction between our genetic inheritance and the environment we live in is the foundation for all health and disease. Nutrition is one of these environmental factors, as is exercise. 'We now know that bioactive components in our food interact with our genome. This emerging and exciting field is called nutritional genomics,' says Naudé.

Clinics and dietitians in South Africa are offering the treatment. They take a swab, usually from the mouth, you fill in the necessary forms and a laboratory will test your DNA.

In a nutshell, your diet and lifestyle should be aligned to your own genotype. While we are drawn to DNA dieting, it is much more than weight control – major areas of our health can be improved by it. ‘Research into nutrient-gene interaction has shown promise in providing information and knowledge for designing optimal diets to maintain health,’ says Naudé. ‘The potential benefits of a personalised approach to healthcare and nutrition in the future are significant for individuals, public health and the economy. It is exciting and innovative.’

While Naudé is positive about findings in the field, she cautions against the quick-fix approach.

Researchers in the field say there is substantial evidence of the benefits of the DNA diet. Like Naudé, they will tell you that while there is great progress and the news is out in the public domain, more work remains to be done.

**Want to know more?** Currently DNAllysis offers the DNA diet in South Africa. Visit [www.dnadiet.co.za](http://www.dnadiet.co.za).

#### SKIN THERAPY

Cosmetic surgery is by its nature invasive and while some swear by the knife, claiming it is the only route to a tauter, more youthful look, others say skin therapies can do the job just as well.

A number of fantastic skin therapies are available today. The biggest buzz surrounds mesotherapy and carboxytherapy, said to be even better than Botox.

Pioneered by the French physician Dr Michel Pistor in 1952, mesotherapy is a minimally invasive procedure in which tiny ‘medicinal bullets’ are delivered directly into the mesoderm (middle layer of skin) by micro injections that are highly specific to the condition being treated. Its original purpose was not cosmetic, but to treat various injuries and medical conditions.

Dr Maureen Allem, whose clinics offer the treatment in South Africa, explains: ‘Mesotherapy is introduced into the skin either by small micro-injections, or by transdermal mesotherapy in patients who have a fear of needles. The needles used in mesotherapy are very short and

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thin so the doctor can deliver medication to the right depth.’

The long-term results of treatments are dependent on the active ingredients used in the solution and the number of treatments.

For anti-ageing benefits, a cocktail of ingredients is used to stimulate the production of collagen. What can it improve? Well it makes skin appear more youthful, but is also used for pigmentation problems, rehydration, and, best of all, for reduction of double chins and for facial sculpting. It also treats fat or flabby cheeks and fatty eye bags.

Carboxytherapy (carbon dioxide therapy), explains Dr Allem, is ‘the miracle gas’.

It has been called the biggest beauty breakthrough since Botox, and is available in South Africa at Body Renewal. It is said to be able to diminish cellulite, rejuvenate skin and treat loose skin, stretch marks and ‘resistant fat’. It can even reduce varicose and spider veins.

Therapy involves injecting tiny amounts of carbon dioxide under the skin to break down fatty deposits and stimulate collagen production. No pain, plenty of gain.

**Want to know more?** Body Renewal centres in Johannesburg and Cape Town offer mesotherapy and carboxytherapy. Find out more at [www.bodyrenewal.co.za](http://www.bodyrenewal.co.za).

#### STEM-CELL RESEARCH

Stem-cell research is a hot topic once again. Dr William Ferris, senior researcher in the division of endocrinology in the department of medicine at Stellenbosch University, explains why.

Stem cells have been heralded as the new wonder therapy for degenerative diseases such as Alzheimer’s and Parkinson’s,

multiple sclerosis and diabetes, but the mere mention of stem cells often provokes passionate debate on the use of fertilised eggs for research, he says.

‘The stem cells in this case are embryonic stem cells that are derived from a fertilised ovum and may be made into any cell type in the body. As such they offer an opportunity to correct a multitude of diseases either by replacing the function of defective cells or by repopulating tissue where cells have inappropriately died.’

The fierce US anti-abortion lobby managed to have the use of these cells banned, but the Obama administration has reassessed the matter and overturned the ban. However, research in this contentious area remains under strict control. ‘The American legislation is not equivalent for all stem cells because the majority of current stem-cell research involves isolation of these cells from adult tissue, abrogating any debate over the unborn child,’ explains Dr Ferris.

One way in which stem cells can help us build a stronger body is in the field of osteoporosis. One in two women will suffer from this, and one in three men, not just the stereotypical older woman.

‘It is now known that there is a pool of naive cells that are functionally dormant in tissue, that can change into functional cells,’ explains Dr Ferris. ‘These are adult stem cells. The advantage of having these in our tissue is that they can divide easily and can turn into a multitude of cell types found in a specific organ.’

‘This tool has the potential to do many jobs, but only functions when needed. In the same way, stem cells may have many functions by turning into specific cell

types. This ability to change is an integral part of any future therapy. An example of this is the use of stem cells from fat being used to produce bone cells, which it is hoped will increase bone density lost during osteoporosis.'

How will this be done? Not quite by extracting a 'pound of flesh'.

'These stem cells can be obtained from fat deposits under the skin and the use of the relatively safe procedure of liposuction,' says Dr Ferris. 'Currently we are able to isolate these mesenchymal stem cells, greatly expand their number and induce them to deposit calcium, which is required for bone formation. But as yet, we know little about the regulation of these cells, particularly how they divide.'

Dr Ferris tells us that the future of stem-cell therapy, in this and many other life-enhancing ways, is assured. As always with scientific research, it needs the funds to take it forward.

**Want to know more?** Ask your GP or specialist doctor if you want to know more about stem-cell research. For anyone looking for information about academic research (please note, academic research only), contact the scientists at Stellenbosch University on ☎ 021 938 9091/2.

## GOING GREEN FOR THE FUTURE

The world needs our help, so the call to go green is not just a fashionable phase – it's important for our minds too. As we live longer, Alzheimer's, which causes memory loss and cognitive degeneration, is something we need to deal with. There is no cure, but a study in America has found that diets rich in poultry, fish, nuts and dark, leafy vegetables, and low in meat, butter and fatty products can lower our risk by as much as 38%.

London-based Alzheimer's Disease International says that about 30 million people globally have the disease. A good diet protects blood vessels in the brain,

preventing tiny strokes that may lead to Alzheimer's.

Nikolaos Scarmeas, an associate professor of neurology at Columbia University medical centre, says, 'We know these foods are definitely helpful for other conditions and now we have a hint that they may be helpful for brain disease.'

The study was done on 2 000 people aged 65 and older. They were tracked for four years to document their food habits and their neurological well-being. The diet that was linked to a lowered risk of Alzheimer's also consisted of oil and nut vinegar salad dressing, tomatoes and vegetables, including broccoli and cauliflower. Fruit played a large part.

The study did not measure exercise and its effect, but it has always been said that staying physically active helps us to remain mentally so. Yet another good reason to get moving. 