

THE SCIENCE OF AGEING

New research suggests only a small part of how you age is determined by your genes. Here's what you can do to stay youthful for longer. **Clair Weaver** reports.

their chronological age. Advances in medical science mean that for the first time in history, doctors are able to take stock of the wear and tear to which we have subjected our bodies and come up with a more accurate figure for how "old" (or "young") we really are.

The good news is that science is increasingly showing that how we age is not pre-determined by our genes. There are ways in which you can significantly slow down the ageing process – irrespective of the number of candles on your birthday cake.

In fact, an overwhelming 80 per cent of how you age is thought to depend on what you do (the remainder is shaped by your genes). This means you have the power to stay younger for longer, rather than accept rapid physical and mental deterioration as inevitable.

Our perception of age has already changed dramatically compared to a generation ago. Turning 70 no longer

automatically equates to being "elderly" (just ask Ita Buttrose). There's every chance, like Christina, you're still working in your 60s. Fifty, we're told, is the new 40 (or in the case of bikini-clad Elle Macpherson, maybe more like 35). Most people wait until their 30s to start a family. And the 20-year-olds, meanwhile, are still living at home.

With our life expectancy rising to a record high of 84 for women and 80 for men, it turns out the popular motto that "you're only as young as you feel" has some scientific merit.

New research examining almost a thousand 38-year-old New Zealanders found an extraordinary range in their bodies' biological ages, from 28 to 61. Even though they all shared the same chronological age, concluded researchers, some were ageing at a faster rate than their peers.

So what can you do to slow down your body's ageing? >

CHRISTINA'S BIRTH certificate says she is 60 years old. She's reached an age where she could retire, access her super and get a senior concession bus ticket. In decades past, she would be eyeing the prospectus of the local retirement village. There's a fair chance her head may have encountered a blue rinse and her wardrobe featured a knitted cardigan or two.

Yet Christina is anything but old. She works full-time, jogs regularly, has an active social life and is planning a trekking holiday to South America. Certainly, if you were to ask her doctor, he'd tell you Christina has the body of a 49-year-old. Not so much in terms of how it looks, but rather how it functions and the level at which it performs.

Christina is part of a growing number of Australian women whose so-called "biological age" is significantly less than



Catching up with friends and family could help you slow the ageing process.



FITNESS

If it was packaged in a pill, we'd all be clamouring to buy it for its anti-ageing properties. Yet, instead, many regard exercise as a chore and relegate it to the backburner when our lives get busy.

Keeping active is one of the most powerful ways to maintain your youthful vigour and slow decline, with bonus knock-on benefits for your brain, heart, lungs, body weight and blood sugar levels.

"It doesn't have to be complicated," says Dr Elizabeth Cyarto, Healthy Ageing Stream Leader at the National Ageing Research Institute. "It can be as simple as putting on your shoes and walking – and, on the flipside, trying to reduce the amount of time you spend in front of a screen or sitting."

Walking is good because it combines cardiovascular and weight-bearing exercise – which is good for your heart, muscles and bones (doing it outside means you get bonus points for vitamin D and being in nature, which is good for mental wellbeing).

To complete the full trifecta, you need to work on your balance, too. Falling over is the top cause of hospitalisation and injury in older people. Dr Cyarto, who suggests practising standing on one

leg while waiting for the kettle to boil, says falling "can lead to a spiral where people lose confidence and don't move, leading to a decline in abilities."

So how much exercise do we actually need? "150 minutes of activity per week," Dr Cyarto replies. "It's not really a big ask."

NUTRITION

How you eat is another important factor in how you age, particularly because of its impact on your weight, cholesterol, blood pressure and triglycerides (a type of fat found in your blood).

Eating sensibly from all the food groups and keeping an eye on portion size is the best advice for long-term good health, says Dr Cyarto, who recommends

avoiding fad diets.

"Your metabolism is slowing down as you get older, so you don't need as many calories," she warns, "otherwise, you are going to have issues with body fat. You also need to have a good

protein intake to maintain muscle mass."

For women, says Professor Hal Kendig, the Professor of Ageing and Public Policy at the Australian National University, carrying a few extra kilos as you get older is better than being underweight, which raises the risk of muscle wastage.

"Being a little bit overweight can have some protective value in terms of survival and recovery from illness," he says. "But carrying a lot of extra weight greatly increases the likelihood you will never make it to older life."

In terms of research, the Mediterranean diet has the strongest evidence to support healthy ageing – so think fresh fruit and vegetables, fish, olive oil, legumes, nuts, some dairy and whole grains.

Drinking should be limited, says Professor Kendig (but not necessarily banned – a bit of alcohol appears to be better than none in research on healthy ageing). Smoking, needless to say, is disastrous for premature ageing and death.

SOCIAL CONNECTIONS

This isn't about amassing a huge tally of Facebook friends so much as maintaining genuine real-life connections to other people, including friends and family (see *The Loneliness Generation* on page 45).

"Social connectedness is very important for morale," says Professor Kendig. "Sometimes, it's a matter of another person or animal being dependent on you to feel valued."

Good spousal relationships can also be a powerful contributor to healthy ageing. "Having people you can call in the middle of the night is key," says Dr Cyarto.

While family is important, a network of peers is also invaluable. "The social benefits of connections between ageing women in particular have enormous potential," says Professor Kendig. "It's about having someone who understands you and has had similar life experiences."

BRAIN WORK

There's been a lot of hype about brain-training computer games, not much of which is backed up by substantial research, and in any case these may be over-complicating things.

Dr Cyarto agrees. "Rather than investing big money into this stuff," she says, "you might be better off going for a walk. >

About **80%** of how we age is determined by lifestyle factors.

Or learning a new language – that kind of cognitive stimulation and building new neural pathways may be protective.”

Even if taking up the flute or becoming a Sudoku master doesn't prevent dementia, says Dr Cyarto, “anything you can do to build up your cognitive resources now may help you down the track.” (See *Bootcamp For Your Brain* on page 73.)

MEANING

We all need purpose in our lives, whether it's through work, family, religion or community. However, big life changes can throw a spanner in the works.

“Especially for men, if their identity is their work, without planning for retirement, they can be really lost when they don't have work anymore,” says Dr Cyarto. “It's important to have meaning and identity in other stuff away from work.”

She suggests cultivating extra-curricular activities, such as joining a cycling team or choir group or getting a pet, which is especially beneficial for people who don't have regular physical contact with others.

Professor Kendig says maintaining resilience and resourcefulness as we age is also important – and warns us against being too paternalistic with elderly parents. “Younger generations, out of concern and love, often want to be protective of aged parents, who rather like being independent and want to do stuff for themselves,” he says. “To prematurely have more support than is necessary can risk atrophy of capacity and expectations.”

CHECK-UPS

Resist the temptation to procrastinate with medical check-ups. Sure, no one really enjoys a mammogram, Pap test, bowel screening or prostate exam – but they're important.

Likewise, you should be paying attention to your cholesterol, blood pressure, triglycerides and waist-hip ratio – all of which are strong indicators of your risk of disease (so much so, they were used as “biomarkers” to determine the true biological age of the 38-year-olds who took part in the New Zealand research).



How do scientists work out your biological age?

1. Blood glucose test for diabetes
2. Cardiorespiratory fitness test
3. Waist-hip ratio
4. Lung function tests
5. Blood pressure
6. Body mass index
7. Measuring telomere length (the ends of our chromosomes, which are important in healthy cell replication)
8. Kidney function test
9. Liver function test
10. Various tests for heart disease/stroke risk
11. Triglycerides (fat in the bloodstream)
12. Gum health
13. Total cholesterol
14. White blood cell count
15. HDL “good” cholesterol

* Source: Summary of biomarkers used in *Quantification Of Biological Aging In Young Adults*, published in Proceedings of the National Academy of Sciences in July 2015.

“It's important to keep on top of everything,” says Dr Cyarto. “And start when you're younger so, over time, you can pick any changes up early.”

To stay on track, you should schedule an annual general check-up with your GP and while you're there, get your skin checked (Australia has the world's highest rate of melanoma).

DENTAL

Gum health is another key measure of health and ageing. So beyond giving us a nice smile, what do gums have to do with it? It turns out dodgy oral health is strongly linked to cardiovascular disease, which kills more than 43,000 Australians each year, as well as stroke, diabetes and other illnesses.

Research says this is likely to do with bacteria and inflammation in our mouths – although that doesn't mean it's the cause (it could be that your dental problems are symptomatic of heart disease, for example, and vice versa).

The best advice? Brush your teeth twice a day and have annual check-ups with your dentist. “And you should be flossing, too,” adds Dr Cyarto.

WHILE IT'S NEVER too late to make changes to your life and boost your chances of staying healthy and youthful for longer, the earlier you start the changes, the better.

“We are fundamentally transforming our expectations about ageing,” says Professor Kendig. “And the evidence is that ageing outcomes are malleable throughout our life.”

Do it right and you might even be one of those lucky people who get a birthday message from the Queen. Think that sounds unlikely?

Then it may surprise you to learn that the over-100s are currently the fastest growing age group in Australia. So put on your shoes and go for a walk. ■

To find out how you are ageing and what you can do to improve, take the free *Healthy Ageing Quiz* at the *National Ageing Research Institute's* website, nari.net.au.