SPECIAL REPORT

YES

NO COUNTRY FOR OLD MEN

Singapore is ageing in a hurry. Researchers from all disciplines at the National University of Singapore, from architecture to finance, are racing to find ways to help people grow old gracefully. Chang Ai-Lien reports.
By 2020, the number of dementia sufferers is expected to more than double from the estimated 22,000 now. And by 2030, one-fifth of Singaporeans will be 65 or older — that is, 900,000 people, treble the number now.

AGING WITH GRACE

WHAT'S BEING DONE IN SINGAPORE

SINGAPORE last month is relishing the chance to build a case for public financing to put unbearable strains on health systems around the world, according to the Economist Intelligence Unit. In 2030, about half of all dementia sufferers will be in Asia, and the region will require the most years of care. To cope with the emergence of dementia, the world’s health system should be equally focused on dementia as it is on heart disease and cancer. Dementia is a public health issue, not just a medical one, and it is likely to become a bigger issue over the next few decades.

The Ministry of Health (MOH) will launch a new dementia strategy to help people with dementia and their families access care and support services. The strategy, which will be launched in the first half of 2017, will focus on improving the availability and accessibility of dementia care services, as well as to enhance dementia care services.

The National Institute of Mental Health (NIMH) is working with other institutions to improve the mental health of people with dementia.

The government has set up a $1 billion Community Care Fund, which charities working on dementia care can access.

The government has invested in new facilities and resources to support people with dementia, including dementia-friendly neighborhoods, dementia-friendly communities, and dementia-friendly businesses.

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Hope in a humble worm

Simple organism studied in bid to find way to extend human lifespan

BY CHANG Ai-Lien
SENIOR CORRESPONDENT

Professor Barry Halliwell hopes to unearth some of the secrets of ageing from a humble worm.

The internationally acclaimed biochemist has discovered compounds that extend the lifespan of C.elegans—a widely used research organism—as well as free radicals which can halt its life.

Although it is early days yet, the hope is that once more is known about how such chemicals work, they can eventually be used to extend human life.

Professor Halliwell, who is deputy president in charge of research and technology at the National University of Singapore, is well known for his seminal work on the role of free radicals and antioxidants, and is one of the world’s most highly cited researchers in biology and biochemistry.

Some researchers believe antioxidants may protect cells from free radicals, by-products produced when the body processes oxygen and which damage cells and increase the risk of diseases such as cancer.

Explaining the ageing process, Prof Halliwell said: “if everything in a person’s body declined at the same rate he’d probably live to the age of 120.

“Yet that doesn’t usually happen because one organ will fail first, plus disease becomes more common with age, and people also heal more slowly.”

Aging is affected by a person’s genes and lifestyle, he added, but there is also a random element which is unknown.

Enter C.elegans. The 1mm roundworm is popular with scientists for a number of reasons.

It is transparent — so changes in or-
Advisory: Eat less fat and more fruit and veggies

gains and cells can be easily studied; it has not been long… 2 days ago on average its computer and software, development and generation see well andThat's why enzymes and genes also exist in people.

In his laboratory, the worms used for such research are genetically identical, and they have exactly the same environment. As some of the 10 Ancestral worm lines used in the study, the worms are the same... even though they are not exactly the same. They do have mouse-like and fruit-like phenotypes. They are less fine-tuning the optimal dietary concentration of the... on the right side, new radicals have been found to dramatically shorten the worm's life span to about 14 days. But the process is more complicated than it seems, said senior researcher Jan Groden. Knocking out genes that cause antioxidants has not had the expected effect of increasing life span. The biological response is complex and compensatory for the loss. Also, these radicals are not just toxic chemicals. They are believed to play a role in cancer mortality.

"What we're trying to do is to make sense of these simple mechanisms in a better and more... less likely than it is now. But it is not yet clear which. They have been found in human studies... has been less than in humans. How much... studies have been done to study the potential of these... been on this topic. It is likely that the... may be that different antioxidants may have different... the quality of the results, the... to these antioxidants and how they are combined.

"We don't know what the exact role... for both the patient and the public. About 70,000 people... in 30 countries... to be more than 30,000. At the National Institutes of Health, a... used to study how the brain structure and function change in the elderly. Dr. Chen's team is, for a start, recasting... the brain's vascular system and brain damage... in mice. Dr. Chen et al. at the Salk Institute... and further research. Dr. Chen and his... the scientific community. The idea is to... with these antioxidants. This is... not yet clear which mechanisms... are the main ones... of the worms... studies... same conditions... Genes play a key role... what does this mean for... how the worms respond to... the worms. The... and the researchers... that the worms... under the same... and the researchers... the worms under the same... we are not sure..."
An exercise to get the best out of ageing

A GROUP of inactive seniors here who started on an exercise regime reported startling improvements both physically and mentally after just three months. A project found that the participants did better in memory, attention and language skills, had lower stress hormone levels and felt happier.

“We were looking for concrete ways for people to age successfully,” said Dr Steven Graham of the Clinical Imaging Research Centre at the National University of Singapore’s Yong Loo Lin School of Medicine.

Much of his work studying brain activity uses functional magnetic resonance imaging – a multi-disciplinary technique that allows the brain to be imaged during learning or cognition.

“The anecdotal benefits of exercise are well recognised, but the question I want to answer is, if it’s exercise which helps people age well, or just that people who are ageing well have more time and energy to exercise,” he explained.

A hint came from mice studies. When mice exercise, the hippocampus – the region in the brain associated with memory – grows larger, and certain proteins also increase.

In people, there are relatively few brain imaging studies, he said, but some have also indicated that brain volume did increase after exercise.

His team wanted to tease out the effects of exercise in greater detail, so it gathered a group of 36 people aged about 60 years old for various activities over three months.

They either did aerobic and strength-building exercise for an hour three times a week, stretching and toning for the same period, or nothing at all. Their diets remained unchanged.

The participants then went through a battery of tests to study changes in brain function and cognition, mental health and changes in certain hormone levels.

The $1 million study, which took three years, showed some heartening results.

Of the three groups, only the one which did the aerobic exercise showed more brain activity in the hippocampus, and did significantly better in several forms of memory, language and attention tests than before.

Lower levels of the stress hormone cortisol were found in this group, which after three months also reported feeling happier.

In fact, the 12 weeks of exercise had the same effect on them as selective serotonin reuptake inhibitors – a common class of anti-depressants. Like those pills, exercise managed to decrease the activity of the amygdala, an almond-shaped group of brain cells that processes information about emotional events and may be linked to depression.

Members also had significant fitness improvements as well as weight loss as reflected in lowered Body Mass Index.

The aerobics group were clear winners in every aspect.

“While the placebo effects of stretching helped improve self-perceived mood in that group, there were few benefits compared to more intense aerobic exercise,” he said.

Dr Graham is currently trying to fine-tune the best exercises to achieve the greatest benefits – and how long people should do them. He is working with organisations such as the People’s Association to spread the message.

He said: “It’s nice to see how our research impacts real people.”

CHANG AI-LIEN

Pay people to take a hike? Maybe

WOULD it be worthwhile to give people money to exercise? The answer may be yes, according to children are willing to work hard to get the prizes, which include iTunes gift cards, Toys “R” Us vouchers and even tickets to Universal Studios for those who are able to meet the step goals for several months in a row,” he said.

“Ultimately, the success of these programmes will be measured by the extent to which they encourage participants to stay active and whether or not the programmes can be expanded to reach a large percentage of the community and at a reasonable cost.”

He notes that when it comes to health and wellness, there is no one-size-fits-all approach. “Incentives are not a cure-all but may be part of a cost-effective strategy that employers and the Government could implement in efforts to improve the health of the population.”
Help for the elderly before they need it

By Chong Ailin
Senior Correspondent

Many elderly people have physical and mental health problems, such as depression and dementia. More than half either do not take medication for their ailments or are not being treated properly.

Scientists at Angelique Chan is working on a new treatment to help elderly people with dementia. Her latest research programme is aimed at finding new ways to help Alzheimer's patients.

The key to helping elderly people is to identify those who have early symptoms of dementia, especially if they are still able to function normally. By identifying these individuals early, we can start treatment to slow down the progression of the disease and prevent it from becoming more severe.

For those who are not aware of the signs and symptoms of dementia, it is important to consult a doctor for a proper diagnosis. Early detection and intervention can help improve the quality of life for elderly people and their caregivers.

Making computer use easier for seniors

Program being developed will customise interface to the user’s preferences

By CAUSE AL-XU
SENIOR CORRESPONDENT

RESEARCHERS are developing an intelligent computer program that will mould itself to the preferences of its user.

Created with the elderly user in mind, it will adjust the computer interface to the specific needs of the user, such as font size and layout. It will also adjust the interface for users who are visually impaired or those that have difficulty using a mouse.

Anticipating why such programs would be popular, Prof Zhao said, "An elderly person’s computer skills are not as strong as they were in younger years. They may need to use a larger font or a more user-friendly interface to make their tasks easier.'’

The research team led by Prof. Zhao and his team, including senior researcher Sun Hsiao (Mather), is working on a prototype of the program that was recently launched in Singapore.

One of the key benefits of the program is that it can learn from the user’s habits, adjusting the interface to suit their needs.

"By learning the user’s habits, the program can adapt to their unique preferences, making it easier for them to use the computer," Prof Zhao said.

The program is expected to be ready for testing by the end of this year, with a full version scheduled for launch next year.

"The goal is to make computer use easier for the elderly and anyone with similar needs," Prof Zhao said.

If the program is successful, it could be adapted for use by people with disabilities, improving their quality of life and providing them with greater independence.