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## REPORT

Age Control in REDWOOD  
Australia opens its first anti-aging clinic

by Marilyn Bitomsky

Australians finally have a real chance to maximize their potential for a healthy long life. The country's first anti-aging clinic opened on February 1 in Melbourne, with two more planned in Sydney and in Brisbane.

The brainchild of advertising guru Simon Reynolds, and marketing expert Brian Sher, together with Dr. Warwick Greville and biochemist Mr. Bill Anton, the Redwood Clinic claims to "reverse aging from the inside out." Current evidence suggests that it should be possible for humans to stay middle aged until 70 or 80 years, and then go on to live healthy vibrant lives well after 100, they say. "Evidence shows that it's possible for humans to live to 120 and still feel good. The reason we age so quickly is because we are robbing our bodies of essential vitamins and minerals. We are virtually starving to death," comments Reynolds. "What is important is not how old you are chronologically but the health of your body and its ability to function efficiently and fight off the effects of disease."



Reynolds claims the clinic is giving Australians a choice for the first time. "We can either accept that aging and diseases are inevitable, or we can reclaim control of our body biochemistry, remove toxins, restore our energy and vitality, look better, feel better, and live long and healthy lives.

"To establish how quickly my body was aging, samples of skin, blood and urine were analysed. I was told I was consuming too much red meat. Also pinpointed were the minerals and vitamins I lacked, and a course of amino acids and other nutrients was tailored for me. Within weeks of taking them I felt incredible. Despite my having exercised four times a week, the tests revealed that my body was aging at a slightly accelerated pace."

Redwood's doctors prescribe for some patients the use of human growth hormone (HGH), a natural chemical that helps speed up the regeneration of the body's cells. "As we get older, the rate at which our cells are replaced slows down dramatically. That's the key to aging. Controlled doses of HGH means the cells can avoid the decline," says Reynolds. Only a small percentage of the clinic's patients are prescribed human growth hormone, mainly the elderly. This hormone is manufactured by the pituitary in the body in spurts-in a pulsatile fashion particularly in grade three sleep over a 15-minute period, and it lasts in the body for about 20-30 minutes. The actual prohormone, or mediator, of most of its beneficial effects is insulin growth factor number one (IGF1), which is produced in the liver.

As people age, the level of the hormone drops progressively. While it may reach its maximum in the late teens or early twenties, from 25 on it starts going down hill, and by the time you are 80, you probably have 10-20% of what you had when you were 20. Other hormones are reduced also, such as DHEA, and that is a marker for aging.

Good liver function and proper nutrition are essential to the formation of the insulin growth factor, and its production results in an increase in a sense of well-being and a positive mental outlook, strengthens the muscles, decreases middle-aged spread, and increases organ function such as liver, kidneys and cardiac muscles. In determining whether to prescribe the hormone, it is not just a case of enhancing it to the physiological level of, say, a 35-year-old person, says Redwood's medical director, Dr. Warwick Greville. This is approximately 65% of the peak level found in a 20-year-old. What is just as important is improving the efficiency of all the hormones. "When you put the fuel on the fire, you get a few sparks forming, and these need to be screened. Likewise in our body, when we burn fuel to oxidize it, we get production of free radicals, which are the oxygen molecules that have only one electron. They grab electrons from membranes in the body and also cause damage to our genes, particularly to the mitochondrial genes which have a more exposed structure and don't have protective mechanisms."

Another anti-aging substance sometimes prescribed is coenzyme Q10 (CoQ10). This is small, vitamin-like molecule that is an

essential component of the electron transport chain in mitochondria, the power plants in our cells. It is also an antioxidant. As we age, we gradually lose some of our ability to produce energy from the food we eat. Supplementation with CoQ10 partially reverses this loss, especially in the heart muscle. The clinic prescribes it in mild amounts for people who have specific defects or in larger amounts for people with cardiac problems.

Alpha lipoic acid is a critical cofactor for the decarboxylation in the glycolytic and TCA pathways, a coupler of electrons and group transfers. It recycles other antioxidants and increases glutathione, and chelates damaging transition metals such as iron. It is an ideal antioxidant and an important supplement for diabetes and any degenerative brain diseases.

Another helpful substance is acetyl carnitine, which is important in the transport of fatty acids across cell membranes to the mitochondria. The Redwood Clinic's work is part of international anti-aging movement. Although there are two marketing professionals behind the clinic, the work of the clinic is part of an increasing international anti-aging movement backed by solid scientific research. The purpose of anti-aging medicine is not to extend life years as an older person but rather to delay the onset of the aging process and give a greater number of middle-aged healthy years.

Sher says the clinic has received calls from people keen to slow their body clocks, women in their 30s anxious about their first wrinkles and cellulite, men in their 40s worried about hair loss and declining sex drive, men and women in their 50s and 60s concerned about degenerative changes and disease, elderly people wanting to reduce the number of pharmaceutical drugs they are consuming each day.

A couple of years ago Sher bought a book in the United States called *Stopping the Clock* by Dr. Robert Goldman and Dr. Ron Klatz. He read it on the flight home and passed it on to his friend Reynolds. Soon afterwards, he and Reynolds attended two conferences, one in Las Vegas and one in New Jersey, that discussed current medical research into why the body ages and what can be done about it.

The Las Vegas conference was sponsored by the American Academy of Anti-aging Medicine, an organization with over 5,000 physicians and several thousand scientists worldwide. The other conference was held at the headquarters of the Longevity Institute International in New Jersey. This is where they learnt about Greville and Anton who are members of these organizations. Their original clinic in Melbourne, the Longevity Institute of Australia, was the forerunner of the Redwood Clinic and was an affiliate of the parent organization.

"The doctors say aging is a preventable disease, and when you hear that you realize this is a huge shift in traditional thinking," says Sher. Anti-aging medicine, he says, makes a distinction between chronological and biological age, and the idea of an anti-aging program is to slow your biological age in line with your chronological age.

Redwood represents a new paradigm in medical care. The Redwood Clinic is modeled on the Longevity Institute in New Jersey, one of 25 clinics around the world affiliated with that Institute. Redwood's medical director, Warwick Greville, 63, a graduate of the University of Melbourne, has spent most of his working life in Chicago in general practice and as a cosmetic surgeon. So far he is the only Australian doctor to complete exams on anti-aging medicine that are approved by the educational council of Harvard Medical School. He is now training medical staff for two other clinics that Redwood plans to open, first in Sydney and later in Brisbane.

The team of 10 anti-aging physicians, biochemists, nutritionists and fitness experts, he said, is small but efficient and cohesive. "Just as we want efficiency with your hormones, we want efficiency with our people. I think we have a very good value system inculcated in our group, and we are positive that we are here to help people. This represents the new paradigm of medical care into the next century." Before Greville developed health problems in the early nineties, he considered vitamin supplements unnecessary for those with a varied diet. "I had seen doctors at some of the most respected clinics in the United States for my health problems, and I found there were insufficient answers for me so I began to look a little more laterally. Like De Bono, I discovered other things."

He began to embrace the anti-aging movement when he realized it could offer answers to his metabolic health problems. He followed the longevity protocols, including lifestyle changes, nutrition and other appropriate supplementation, and he lost weight, so that today he feels healthier and more energetic. His quality of life and energy levels became those of someone more than 10 years his junior.

"Some people might say you can just take a commonsense attitude. Obviously this is very important, but now we have sophisticated diagnostics, we can use these to optimize the program. So basically we are looking beyond the commonsense items of appropriate lifestyle, stress reduction, sufficient exercise, diet and proper nutrition, and meditation to a program tailored to the needs of each individual."

The Redwood way

Redwood's patients enter the clinic through a grand reception area, with plush carpet and piped music. They are then shown into consultation rooms that look more like a five-star hotel than a medical practice. They complete a detailed health questionnaire, and undertake a battery of tests to map out their current rate of aging. Since people age in a different way and at a different rate than others, this in-depth analysis defines precisely individual deficiencies and needs, and allows physicians to prescribe a customized anti-aging regimen to slow down the aging process and, in some cases, to reverse the process. Their peak performance assessment is divided into four phases, lasting over four hours. Patients don't find this exhausting, rather they consider it a challenge, clinic staff say, as they like to be able to find out how their chronological age compares with their biological age and how to maximize their potential.

The first is a biochemical assessment (BCA) which analyses blood, urine and saliva to determine the health of the body's building blocks-the enzymes, essential fatty acids, amino acids, molecules and electrons. The results are used to produce "a biological terrain assessment" or an internal profile of the body. "We do live blood analysis to see how flexible the blood cells are, whether there are abnormalities, how the white blood cells move, how mature they are, how the pseudopodia work and whether they are active," said Greville. "It is not necessarily diagnostic specific but it gives us an overall index of what is going on.

"We use the biological terrain analysis-if you go outside and it is 110 degrees, the environment is not so friendly. So we want to have a better means of determining if the environment around your cells, the interstitial fluid, or the cellular soup, is the most becoming for your cells. We look at the saliva, the urine, the blood and check out the pH, redox and antioxidant potential and resistivity, and we correlate all these findings to delineate which organs are stressed. We carry out all the more mundane blood biochemistry studies, and we also measure IGF1, IGF binding proteins number 3, and all other appropriate hormones such as DHEA, the estrogens, progesterone, testosterone, DHT, etc."

The second phase is a bio-functional assessment, a computer-based test of external functions that decline with age, such as hearing, vision, touch, reactions, memory, agility, decision speed and lung function. The 45-minute test involves pressing buttons, listening to high-pitched sounds, touching vibrating boxes, blowing into plastic tubes, watching flashing lights, and generates two pages of results which help in the estimate of functional age.

The third phase is the 40-minute physical evaluation, conducted by a fitness and exercise specialist. It includes an analysis of body fat percentage, blood pressure, flexibility, aerobic strength, body measurements, cardiovascular strength and fitness. John Gearon, the lifestyle director, is a former triathlete who spends much of his time preparing soldiers for combat and elite athletes for competition. As sports psychologist and physiologist, he conducts the clinic's fitness assessments and along with a dietitian devises individually tailored eating and training programs.

The final phase involves nutrition and dietary advice. The clinic's nutritionist develops an easy-to-follow diet plan to suit the individual's personal health goals. The Redwood philosophy is that for many people it is important to eat foods to suit your particular blood chemistry and body type. The result is an individually tailored prescription of vitamins, minerals, coenzymes, antioxidants, hormones, and biochemical substances combined with a regime of exercise, lifestyle changes, meditation, and the right diet. The function of stressed organs can be restored, memory can be improved, muscles strengthened, and energy levels raised.

Most of the tests are processed at the Redwood Clinic site and local laboratories, but some are sent overseas, notably to the United States, for analysis. "I have just finished speaking to a man who is 90 and who is alert, has all his memory, and will be traveling to England by himself. He is taking tests now and when he returns he will get the results of certain tests that take several weeks to process-such as those that are sent to the United States for analysis," said Greville.

Laboratories in the United States are used frequently because of their expertise in oxidation studies. Some vitamin studies are conducted in Holland because they use protozoa to test bioavailability, he said, although this is not necessary for every patient. "With the urine, we study the 8-hydroxydeoxyguanosine-that tells us about the damage to genes. Genes are repairing themselves, and these little break-offs, or adducts appear, giving us an indication of the rate of genetic damage. We do alkenals, that tell us about lipid peroxidation, aqueous peroxide and prostaglandin 2-alpha that show damage to the membranes, and there are other antioxidant studies as well."

These laboratories offer a very broad range of tests, not just antioxidant studies, and they have a good link-up program which gives an indication of the amount of oxidative damage and the amount of antioxidants in the blood, Greville said. "Some people might have low oxidative damage but low antioxidants, while others might have high oxidative damage and low antioxidants. [They may] even [have] a higher rate of oxidative damage and high antioxidants, or low oxidative damage and high antioxidants. So there are these four combinations, and this enables us to more precisely prescribe the most appropriate nutrients or treatment."

In determining which tests the Redwood Clinic would include in its repertoire, Greville studied the protocols of several other clinics, the main one being the Longevity Institute International. Dr. Vincent Giampapa, medical director and founder of the Institute, was one of the originators of the American Academy of Anti-Aging Medicine in 1993.

"We obviously look at a person's genes, but the genes are only a tendency not an absolute certainty, as they can be modulated by

the environment. When you have your symphony orchestrated most optimally, and you are looking at the sum total, you get a synergistic effect and decrease the rate of aging."

To ensure the symphony is orchestrated optimally, Redwood makes use of its multidisciplinary team approach. "Patients see all the specialists before the specialists compare notes to determine the optimum treatment. You have to know a lot about nutrition, endocrinology (particularly with older patients who may need hormone supplementation), genetics, immunology, biochemistry, as well as general medicine-there is a great wealth and body of knowledge out there," said Greville. "You need to get to know it in order to use it most effectively for optimum increase in lifespan of the individual.

## Costs

Cost of the initial consultation at the Redwood Clinic is \$98, and it lasts one and a half hours. Peak performance tests cost \$695 for basic or \$995 for comprehensive, and these last four and a half hours. Following the initial assessments, patients can choose one of six life extension programs, ranging from blue, which costs \$90 per month, to platinum, which costs \$1950 per month. The former includes basic monthly supplements, which are taken twice daily. The most extensive program includes advanced monthly supplements, meditation program, detox massage (six per year), monthly personal trainer, comprehensive follow-up and re-check of biochemical assessment (one every three months), personal shopping trip, life integration session, diet and exercise follow-up consultation, human growth hormone boosters, and additional supplements.

Screening tests such as those conducted at the clinic are not covered by Australia's Medicare. The diagnostics are expensive, but fortunately they are not as expensive as they are in the United States. "This means the costs of our clinic are much less prohibitive than those in the United States or the United Kingdom," Greville said. "Also, since pathology tests often become cheaper with increased usage, we are hoping that in 10 years costs may decrease to 10% of what is charged now."

## Reaction to clinic varied

The reaction to the clinic from the medical community has been varied, ranging from the very positive to the skeptical. Greville dismisses the naysayers with the view that "there are many doctors who are secure in yesterday's medicine. The world was once thought to be flat, wasn't it?"

Conventional medicine does not have all the answers, he says. And people are realizing more and more that the mind, stress, environment, and nutrition are all crucial factors in the aging process. "We are trying to determine the optimum functioning of people and find ways of keeping that function going longer, rather than waiting until you are sick. Certainly in my lifetime and that of my children, we will still require the services of regular doctors, because there is still much more to know and the more we know, the more we find out how complicated it is. This means the family doctor will be here for a very long time."

## Clinic keen to participate in research on anti-aging

Redwood's biochemist, Bill Anton, and his scientists specialize in pathology and biochemical analysis and interpretations of all the testing protocols. Eager to increase knowledge about anti-aging, Greville and his team are participating in university research projects, including one looking at the effect of the body terrain analysis and the antioxidant status of water and also using micro-water. Another project will study the way growth hormone affects health.

Even though growth hormone has been used for many years in treatments, there is still some controversy surrounding it, Greville commented. "We know that it improves the quality of life, and so far it has been found to be very safe, but we don't know whether there could be any long-term side effects, so we have to be very conservative with its usage. An older person said to me, 'Look, I'm 70. By the time you find out those results, doctor, I won't be alive.' So its use depends on the individual." Another of the clinic doctors is interested in brain longevity, and he is currently applying for a research grant.

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