

Is Ageing Really Necessary?

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Persephone, Lily, Daffodil, Crocus, Forsythia and Rose. Remember these names - if your senescent brain is up to it. Scientists say these six cloned cows with their floral nomenclature have cells which are biologically younger than those of newborns. This may mean that all the mad millionaires steeped in Californian ice tanks are right. We could live forever. Whatever your theory of ageing, these identical bovine sextuplets prove that cell decay IS reversible. So humans are nearer to becoming gods than ever and cellulite may finally be conquered.

Experts up to now have regarded ageing as an inevitable trade-off between our rate of reproduction and individual cell survival. Each species finds a balance. Rabbits breed masses but get fairly short lifespans. Humans enjoy much longer lives and try NOT to breed like rabbits. But as gerontologist Dr Tom Kirkwood drily observes: "From Nature's point of view, we are not that useful after the age of around 40". Employers dolefully agree.

On this basis, ageing has been called "the only affliction we all share". The fundamental problem is cellular. As we get older cell replacement rates slow dramatically. In 1961, two cell biologists showed that human fibroblasts in lung and heart tissue could only divide approximately 50 times and then stopped. Till now, the only proven way to mitigate this effect was semi-starvation. Underfed cells take up to three times as long as normal cells to make their divisions. But the victory is miserable. As one young male psychological researcher said: "While living on a few hundred calories daily does seem to keep me young, the gain is not worth the persistent gnawing of hunger".

Even before they reach their growth limit, cells start to degenerate. As more errors occur our biological "photocopier" magnifies these. Some of the biggest variations happen in the vital cell membranes and internal genetic code-carriers. Liver spots, for instance, indicate an increase of cell "debris" just lying around in the body.

But that's not all. Our defining moment in longevity – death - occurs when the small "telomeres" at the ends of our chromosomes finally exhaust their copying capacity. On traditional ageing theory, there's nothing you can do to cheat your telomeres and today we enjoy no greater absolute life expectancy than the Ptolemies in ancient Egypt – 120 years if you keep your nose clean, cut your drinking and avoid in-breeding with the wrong sisters.

It is this classical "time bomb" theory of ageing that's been trampled under the hooves of Persephone and co. But even if you accept that ageing is a limited programme, it's still perfectly legitimate to distinguish between your "chronological and biological" ages. A man of 120 might well have the arteries of centenarian and live to be 140 in the Republic of Georgia. For many years middle-aged singer Sir Cliff Richard suffered from the criticism that he looked about 10. Last year, I played cricket against an 84-year-old man who overtook his 34-year-old partner running 'quick singles'. By contrast, my mother at 50 decided she was never going to walk anywhere again and almost overnight became officially 'old'. If you couldn't get there by car, she didn't want to go.

What a contrast with today's 50-somethings from Mrs Parker Bowles doing politically incorrect things to royalty and foxes and ex-geisha Mandy Rice-Davies selling the pleasures of HRT - "She admits to having had cosmetic surgery around her eyes and on her chin and is scrupulous about not over-eating. She obviously does give a damn about her looks and, most particularly, her sexual allure. She confides that she has had an implant which combines HRT and testosterone and that she is now going to start wearing a testosterone patch. 'After you have taken testosterone, it keeps you frisky. It is very healthy. It's almost the same thing as female Viagra'" she says.

Actually Mandy's got that last bit wrong - Viagra being only an 'enabler' rather than an aphrodisiac as the couple who forgot to have foreplay found out! But hormone replacement therapy for men and women is fast becoming *the* mainstream anti-ageing treatment: "HRT helps to re-set the body's hormonal clock and so can reverse or delay the effects of ageing", says Dr Tom Kirkwood. "Hormone production is highly interactive, so the drop in production of any one hormone is likely to have a feedback effect on the whole organism" he writes. Fine, but which effects can doctors now safely predict?

OESTROGEN is not just taken by women like Mandy Davies to strengthen their brittle bones. Replacement oestrogen helps you look younger, increases skin elasticity and rejuvenates the vagina, says Dr John Moran of Holistic Medical Clinic of Wimpole Street. "If you cannot tolerate conventional HRT, you also have a choice of the modern tri-oestrogens or the phyto-oestrogens but it may be important to combine these with replacement progesterone to get the best effect in relieving fluid retention, weight gain, headaches and many other unacceptable symptoms", he says.

DHEA (de-hydro-epi-androsterone) is what Dr Michael Perring calls the "mother" hormone: "DHEA is the precursor of testosterone in men and progesterone and oestrogen in women. It's actually derived from cholesterol and is one reason why a fashionable non-fat diet can spell hormonal disaster". A double-blind trial by Morales and Yen in 1992 showed that on 50mg of replacement DHEA daily, patients with a DHEA deficiency (most of us over 30) obtained increased energy, well-being, brain and memory function and better immunity to infection. Dr Perring (author with Anne Hooper of Get Fit, Feel Fantastic) has himself taken DHEA for five years and believes the only reason we aren't all being wooed to follow suit is that the drug companies cannot obtain a copyright because DHEA is a natural compound. As a side result, DHEA is not generally available on the NHS - perhaps the Department of Health hasn't heard about it? Taken sub-lingually, DHEA can be absorbed directly into the blood stream so there are no concerns about liver function.

TESTOSTERONE is often prescribed with DHEA after the age of 45 to both sexes. This provides a cocktail of benefits which include raised energy levels, increased sexual drive, harder erections in men and increased confidence in women. Up to 50 per cent of men aged 50 and over suffer from reduced testosterone. The soon-to-be launched Andro-Gel (which can be massaged into the body) and a similar product from Belgium called Andractim (already here) help to deliver the testosterone at a constant dosage. Dr Moran explains that falling oestrogen levels in women may or may not be combined with waning measures of testosterone: "If testosterone stays where it is, while oestrogen collapses, women may become too masculine - with the beards to prove it. But it's far more common to see a decline in testosterone which basically removes or destroys sexual interest. In these circumstances, carefully monitored replacement is therefore

recommended". He stresses that testosterone (or oestrogen) should not, however, be given if there is found to be prostate cancer in men or breast cancer in women.

MELATONIN is the sleep messenger in charge of circadian rhythms. This critical hormone also declines in both sexes after the age of 30. As we all know, sleep loss alone may wreck your physical appearance and mental function adding light years to your sense of age. Melatonin is therefore at the heart of the new anti-ageing medicine. Production in the body is acutely vulnerable to environmental cues. For example, if you wake up and turn on the light, Melatonin levels drop at once by 50 per cent. If you regularly get up in the night to pee, then fit a red light bulb in your bedside light, suggests Dr Perring. You should also be aware, says Dr Moran, that you can have too much Melatonin in the system: "The pineal gland, functioning normally, produces 1mg per day. If you sleep too much in the long winter hours of darkness, depression may be one of the unwanted consequences". Recommended doses of melatonin to reduce jetlag are 1mg per one hour time zone crossed – taken on the day of travel and the following two days.

ANTI-OXIDANTS/NUTRITION We cannot all follow the advice of Daniel Nathaniel Harakeb, aged 112, of Namibia: "I eat maize porridge in the morning, followed by fruit, and never eat after it gets dark. I drink whenever I can – it makes me feel young again. And whenever I see a woman, I have her". But the oxidation theory of ageing is what lies behind all those boring recommendations to eat your broccoli. Fruits and vegetables tend to sop up "free radicals" which are the sometimes deadly poisonous components in that otherwise genial gas oxygen. Oxygen is good for us, yes. But oxidation produces decay. In metal we call it rust. In humans we notice that while free radicals zap some harmful bacteria they also attack our own immune systems interfering with DNA and RNA synthesis. Dr Moran states as fact that anti-oxidants – such as Vitamin C, Selenium, chromium, zinc and magnesium – slow down the ageing process but stresses the need for digestive tests too: "It's not enough to take a supplement – you need to know whether your body can absorb it". Note: there appears to be no truth in the idea that normal doses of Vitamin C damage your arteries.

EXERCISE – according to doctors – is the single most significant factor in promoting all-round fitness for both body and mind. Energetic physical movement not only reduces your risk of heart attack it helps prevent osteoporosis, body shrinking and perhaps delays the onset of Alzheimer's. "Ideally you need 30 minutes of sweat-your-socks off exercise three times a week," says Dr Perring. "The best return for older people is walking. Dump the car. Over 80 per cent of fractures in older women after the menopause are due to osteoporosis. Exercise which stresses the muscles to the maximum controls the density of your bones. It's that simple". Dr Moran adds that "many of my patients are able to restart an exercise regime after being prescribed the correct hormone regime".

BRAIN HEALTH is also worth your attention. We are born with 12 billion brain cells and manage to lose 10 per cent of them in a lifetime. The good news is that while these losses are irreplaceable we do increase the inter-neural connections we can make if we exercise our minds regularly. All the evidence shows that older heads can be WISER with accurate memories of critical information – like, for example, how to survive in a bear market, or how to treat TB – so it's as well to stay alert to show the youngsters what you are capable of.

OTHER potential anti-ageing compounds include Acetyl L-Carnitine (helps counteract the 25 per cent memory loss experienced by late middle age) and Gingko Biloba (improves blood flow to the brain and therefore memory). On the present state of knowledge, Human Growth Hormone is not recommended says Dr Moran. Nutritional aids would be Glucosamine Sulphate (an anti-arthritic); Lecithin (for cholesterol control) and the standard Vitamins C, B5, B6 and B12.

Till last week, taking the above precautions was all you could do to join the 5000 Britons who currently live to be over 100. But now the cows have come into the equation. The ONE difficulty about Persephone and her fellow-clones is that scientists have absolutely no idea as yet what caused their breakthrough. Was it not cloning udder cells? Was it choosing this particular breed? Or was it just the weather?

Within five years, the human genome project will have mapped out our human genetic complexities. Already it appears that less than 10 per cent of the complete gene set represent possible age-determining genes. "It might therefore be possible", says Dr Moran, "that we talking about adjusting only 50 core age-determining genes in order rapidly to extend our life spans". But if only we knew which ones! If only cows could talk.