Ageing: Is it all bad news?

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The best place to start is the beginning

- In the beginning

- Life was very bad for most people most of the time

- Life was very short for most people most of the time

- Life expectancy is a good measure of whether things are getting better or not
Life expectancy has increased markedly
These trends are projected to continue

In 2050 about two billion people will be over the age of 65
But...

- Growing older is associated with an increased chance of death (mortality)

- Growing older is associated with an increased period of time spent ill before death or recovery occurs (morbidity)

- Morbidity is a miserable and expensive condition to be in (currently costs £14-45 billion increasing to £30-65 billion by 2030)
These figures mask the diversity of the ageing population.
Many older people live bleak lives
Bored and depressed (9%)

Is life worth living?

- Older, downmarket, DE 65+, widowed, live on own, rent
- In poor health
- Lonely and cut off, feel helpless
- Only group to use Social Services, Home Help, Meals on wheels etc
- Least likely to go out and be engaged with others / in activities
- Use anti-depressants, sleeping tablets, prescribed medicines
- Most likely to drink every day, and smoke
- Feel it is not worth getting up in the morning sometimes, struggle to fill their day
- Heaviest TV watchers

Wise branding market segment analysis
But many more do not
Satisfied Innovators (17%)

No worries. What’s new?

• AB and 60-64, couples and empty nesters, own home outright
• In very good health and less likely to take supplements and medicines
• Most interested in change and keeping up to date
• Most likely to have stocks, shares, investments
• Very active socially, likely to do sport / exercise
• Most likely to be a member of a sports / golf club, or wine / investment club
• Most likely to use a computer and go on line, have technical equipment at home
• Most likely to go on holidays

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Healthspan is the key to independence
This is not a new observation

In Greek mythology, TithONUS was carried off by Aurora and was granted immortality by Zeus.

However, he had forgotten to ask for eternal youth and soon became so decrepit that he was kept in a basket.
“At present aged-linked diseases are coming to account for well over half the clinical material in any Western medical practice.”

“We are producing Tithonuses.”

Comfort (1963) The biology of senescence
Are we?

**FIGURE 2**

**Life Expectancy and Healthy Life Expectancy**

- Female life expectancy
- Male life expectancy
- Female healthy life expectancy
- Male healthy life expectancy

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UK House of Lords S&T Committee Report
Confounding variables

- Data from the US does show a compression of morbidity
- Most survey data monitors self-reported health
- People compare themselves to their peers
- People may gain financial advantages from being sick
- People use different definitions of sickness
- People are a PROBLEM
Can studying the biology of ageing help?

- Can it help us understand how ageing happens?
- Can it help us understand what might happen to a population if ageing is slowed?
- Can it offer effective interventions into human ageing?
YES!

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Rats don’t get sickness benefits!

Cumulative Survival Curves

Retarded ageing in the Brown Norway Rat

Work by Dr Brian Merry, University of Liverpool
Age specific mortality can be altered by CR

\[ y = 0.003x - 4.6179 \]
\[ R^2 = 0.9927 \]

\[ y = 0.0016x - 4.2555 \]
\[ R^2 = 0.7814 \]
Mutations in insulin IGF1 can also alter the rate of ageing

Null mutation of chico (the fly insulin receptor substrate) extends lifespan

Work by Professor Linda Partridge, UCL
Altering the rate of ageing:

- Decreases the rate at which pathologies appear and reduces their severity once they do appear.
- Produces an effective compression of morbidity.
- If this happens in humans we may well spend less money on care, promote independence and get happier older people.
Ageing hasn’t been ‘cured’ yet

- One of our jobs today is to put you in your guard against people who say it has...

- Some people say it by accident

- Some people say it out of misplaced enthusiasm

- Some people say it to make money
Some people...

Alex Chui
Inventor of the Immortality Device,
on sale at www.alexchiu.com

“If you are not satisfied with the results brought by the Immortality Devices we can refund your money back within 90 days.”
Want to know more?

www.sparc.ac.uk