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Ageing

Ageing (also spelt aging) is the process of becoming older. This happens continually throughout life. Older age tends to bring with it unwelcome changes such as a greater risk of health problems and typical changes to appearance. As populations are living longer, the challenge is to avoid living longer in ill health, but instead to have longer lives which are happy and healthy.

The ageing population

Globally, populations are becoming older. That is, there is a higher percentage of older people, and people are living longer. In Europe, according to the United Nations (UN), a quarter of people are aged over 60. Globally, it predicts the number of people over 80 to triple between 2017 and 2050. In the UK there are currently half a million people in their 90s, more than two and half times the number there was in 1985. Life expectancy still varies hugely across the planet, but has increased everywhere. Over time, life expectancy has doubled in the UK. In 1841, baby boys were not expected to live past the age of 40.2 and girls not past 42.2. For babies born now in the UK, boys can be expected to live for 79.5 years, and girls 83.1 years.

This is mostly due to improvements in health - due to basic hygiene and safe water supplies, better nutrition, vaccinations, and new medical treatments which can cure, delay or prevent diseases.

The improved life expectancy we now have is great news for us as individuals, but is also a challenge for society as a whole. There needs to be long-term planning for the medical, financial and care needs of so many more older people. There is also the need for research into keeping the population of older people healthier.

What are the problems associated with ageing?

As we become middle-aged, and then move towards being older adults, a number of typical changes occur. Most health problems tend to become more common as we get older. With age, we're told, comes wisdom, but unwelcome changes that may happen with ageing include:

- Changes to skin - wrinkles, thinner, looser skin, freckling, bruising. Much of the change to skin which comes with age is due to sun (UV light) exposure.
- Changes to hair colour (grey/white) and pattern (balding, particularly in men).
- Deterioration in memory.
- Deterioration in eyesight - for example, due to [age-related long sight \(presbyopia\)](#), [macular degeneration](#) or [cataracts](#).
- [Hearing loss](#).
- An increased risk of frailty. [See the separate leaflet called Frailty and Multimorbidity](#).
- An increased risk of being on lots of medicines. [See the separate leaflet called Polypharmacy](#).
- An increased risk of many diseases, including amongst many others some [cancers](#), [strokes](#), [coronary heart disease](#), [atrial fibrillation](#), [wear and tear of the joints \(osteoarthritis\)](#) and [dementia](#).
- Loss of fertility.
- An increased chance of [having difficulty getting erections \(erectile dysfunction\)](#) for men, and for both men and women sometimes a reduced interest in having sex (loss of libido) or sexual difficulties.
- Changes in body shape and weight.
- An increased chance of losing teeth and needing dentures.

Can ageing be prevented or reversed?

There is a lot of research going on into this very question. The change that comes with age (the ageing process) is due to complex goings on inside the body. This is not yet fully understood, but some of the many mechanisms that seem to be involved include the following:

- Cells, the building blocks of the body, divide in order to produce new cells to grow and repair various body tissues and organs. At some point they reach a stage when they stop dividing, called senescence.
- Changes (mutations) in the DNA codes (genes) within our cells. It may also be that the presence or absence of certain genes allows people to live longer.
- With repeated dividing, the telomeres - protective structures at the end of the threads of genes (chromosomes) - become shorter, exposing the chromosomes to damage.
- Damage to cells by various types of stresses, by inflammation and by factors in the environment.
- Using up too many stem cells - stem cells are very basic early cells, from which many other specific types of cells can be created.
- Changes to the proteins within cells (proteostasis).

If studies can find out what causes the changes that result in ageing, then obviously the next question will be to find out if there is any way of interfering with those processes, in order to halt ageing. The study of ageing is called biogerontology or geroscience.

It does seem that one day it might be theoretically possible to stop or slow the ageing process but the science is a long way away still. Some of the options studied are:

- Calorie restriction. This is the only measure that has some proof that it can extend life in studies in other creatures. However, thin people if anything live less long, so it isn't as straightforward as eating less, and more studies are needed.
- Resveratrol. This is a substance found in certain plants, particularly berries and grapes, which in some studies has been shown to have a similar effect on cell function as calorie restriction
- Specific diets. A Mediterranean diet, and others high in fruit and vegetables, whole grains, fish, nuts and certain vegetable oils (such as olive oil), seem to be associated with living longer. Studies are trying to find out if there is a specific part of these diets which is particularly effective. Numerous other nutrients and supplements have been studied, including beetroot juice, green tea extract, omega-3 fatty acids and a substance called spermidine. Many supplements are marketed as 'anti-ageing' but there is no solid evidence for any of them yet.
- Exercise. Regular exercise does seem to improve lifespan, although of course this is partly due to its effect on reducing the risk of specific diseases.
- Medicines. Medicines such as metformin and acarbose, used to treat diabetes, have been studied for their effects.
- Stem cell therapy and gene modification.
- Anti-ageing skin creams. There are many of these on the shelves, containing various different chemicals, vitamins and substances. Some products show some benefit for as long as they are used. Studies suggest the benefit to be fairly small. Very few have been tested in robust scientific studies.

How can I stay healthy as I get older?

While these studies try to find out if ageing can be reversed, we do have evidence that shows us how to help prevent a good number of illnesses and medical problems. As a breakthrough in how ageing can be halted is still a long way away, meanwhile, the short answer is in common sense and a healthy lifestyle.

- Do not smoke. Smoking puts you more at risk of most of the more serious diseases such as many cancers, heart disease, and strokes, and contributes to the ageing of skin. See the separate leaflets called [Benefits of Stopping Smoking](#) and [How to Quit Smoking](#).
- Take regular exercise. Exercise helps to improve your cholesterol and mental health, reduces your risks of heart disease, strokes, diabetes and dementia, amongst other diseases. It helps to keep your muscles and bones strong. [See the separate leaflet called Exercise and Physical Activity](#).
- [Eat a healthy balanced diet](#). Aim to keep your [weight within a healthy range](#). You need a balanced and adequate diet to stay healthy, and becoming [overweight](#) makes you more likely to develop type 2 diabetes, heart disease, osteoarthritis and some cancers, amongst other problems.
- Have regular check-ups at the dentist. Take the dentist's advice about looking after your teeth - eg, regular brushing, flossing, etc. Problems with teeth can lead to a number of health problems and make it difficult to eat well.
- Have regular check-ups at the optician.
- Ask for a hearing test if you feel you are having difficulty hearing.
- Look after your feet. Wear shoes that are supportive and don't hurt your feet or cause you to slip. Cut your toenails regularly. See a podiatrist/chiropractor to help if you can't do this yourself.
- Get a good night's sleep. Have a regular routine and try to avoid daytime naps if you do not sleep well at night (although some people need a daytime nap and still sleep well at night).
- Do not drink more than the recommended maximum of alcohol (14 units per week). [See the separate leaflet called Alcohol and Sensible Drinking for more information](#).
- Keep in touch with others. Have regular contact with family and friends and try to avoid becoming isolated.
- Have vaccinations which are recommended for your age group - for example, the 'flu jab', the [pneumonia vaccination](#) and the [shingles vaccination](#).
- Use sun protection cream when out in hot or midday sun to protect against skin ageing and skin cancers.
- See your GP as needed for health problems, but also routinely as they advise for check-ups such as medication reviews or blood pressure checks.

We are as a population living longer, but we don't want this to mean we have many more years of living with poor health. We want to live the extra years feeling well and being able to enjoy them. Despite all the research going on into age-related illnesses and prolonging life, so far all the evidence shows us is that a lot of the responsibility is on us and how healthily (or otherwise) we live our lives.

How can I stay independent as I get older?

All the measures above will help you to stay independent as they will reduce your chances of ill health. Poor health is more likely to make you dependent on other people. Sources of support available for ageing people to help them remain independent in the UK include:

- Your GP. Your GP can help with any health issues, and may also be able to refer you on for other services. For example, for an occupational therapist (OT) assessment to advise on gadgets around the house which might help, such as grab rails, jar grippers, walking frames and ways to raise a seat to help you get out of a chair.
- [Your local council social services](#). They will help advise about any help or care you might need at home, and what financial help you might be entitled to with this. They may also be able to advise on day centres, community activities and home adaptations.
- [Age UK](#). This charity organisation has a huge range of support options available, from an advice line to helping you find local services of all kinds.

- **Independent Age**. Another charity organisation with a range of advice and information leaflets.

Further reading & references

- [Multimorbidity: clinical assessment and management](#); NICE Guidance (September 2016)
- [Multimorbidity and Polypharmacy](#); NICE Key Therapeutic Topic (KTT18), January 2017 - updated February 2018
- [A practical guide to healthy ageing](#); Age UK & NHS England, September 2015
- [Ageing](#); United Nations
- [Ageing and Life Course](#); World Health Organization
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- [Seals DR, Justice JN, LaRocca TJ](#); Physiological geroscience: targeting function to increase healthspan and achieve optimal longevity. *J Physiol*. 2016 Apr 15;594(8):2001-24. doi: 10.1113/jphysiol.2014.282665. Epub 2015 Mar 11.
- [Life expectancy and healthy life expectancy](#); GOV.UK, July 2017
- [Ageing](#); The National Institute for Health Research (NIHR), NHS
- [Fit For Frailty Part 1 - Consensus best practice guidance for the care of older people living in community and outpatient settings](#); British Geriatrics Society in association with the Royal College of General Practitioners (RCGP) and Age UK

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