in Williams syndrome, an autism-related, rare genetic condition, the genetic variation shapes the structure and function of the insula in the brain and the phenotype manifests with visuospatial impairment and excessive sociability (i.e. the opposite of what it is hypothesised would be typical of the Neanderthals).

The researchers measured the amount of Neanderthal gene variants in 221 people of European ancestry, from the NIMH Sibling Study of Schizophrenia Risk, and also skull and brain structure using MRI. As a validation of their approach they showed that a greater load of Neanderthal-derived genetic variants (higher 'NeanderScore') is associated with skull shapes resembling those of Neanderthal fossilised skulls, particularly in the occipital and parietal areas. They found a positive correlation between the NeanderScore and measurements of the grey- and white-matter volume, sulcal depth, and gyrification index) localised in the visual cortex and intraparietal sulcus. The more of the Neanderthal gene variants we have, the better our visuospatial functions are. Unfortunately, this is at the expense of the development of our social brain areas.

Gregory, M. D., Kippenhan, J. S., Eisenberg, D. P., *et al* (2017) Neanderthal-derived genetic variation shapes modern human cranium and brain. *Scientific Reports*, https://doi.org/10.1038/s41598-017-06587-0.

Can we choose between spreading our genes and living longer, healthier lives?

As we grow old our brains progressively undergo neurodegenerative changes and our bodies waste away with progressive sarcopenia. The mechanism responsible for these processes remains unclear. The most plausible explanation of ageing, given by George C. Williams in 1953, is the 'antagonistic pleiotropy theory'. He proposed that the Darwinian natural selection process favours genes that promote reproductive success, even at the expense of longevity; the premise is that a gene mutation that results in more offspring but shortens life is nonetheless good. Such gene mutations are indeed actively selected.

This explanation had remained theoretical but now researchers from Gutenberg University Mainz have found evidence to support it. They investigated genes mediating autophagy, a catabolic process which causes cellular degradation of cytoplasmic components and is crucial for survival, promoting health and fitness in the young, but also ageing in later life. It is a form of active recycling of our cells, which unfortunately slows down with ageing. The authors of the study were able to identify 30 novel gene regulators of post-reproductive longevity and they showed that shutting these down led to a 50% increase in longevity! Very importantly, they were able to identify the neurons as the source of pro-longevity signals. Inactivating autophagy in the neurons of old worms (yes, all this work was done in worms!) not only prolonged life but also dramatically improved their total health.

We already live long enough, you may quite rightly argue. The possible benefit of this research is in the treatment of devastating degenerative disorders such Alzheimer's and Parkinson's disease.

Wilhelm, T., Byrne, J., Medina, R., *et al* (2017) Neuronal inhibition of the autophagy nucleation complex extends life span in post-reproductive *C. elegans*. *Genes and Development*, https://doi.org/10.1101/gad.301648.117.

'Strictly dancing' into health

As we grow old our balance and cognitive functions get worse. But all is not lost! Despite ageing, our brains retain the capacity for neuroplasticity and some areas of the brain are better at this than others. The hippocampus, a brain region responsible for memory consolidation, learning and navigation in space, increases in volume with improvements in aerobic fitness. In addition, there is a positive correlation between the volume of the left hippocampus and balance performance.

A recent study compared the effects of dancing with those of standard health fitness training on the volume of the hippocampus (mainly the left hippocampus, CA1, CA2 and subiculum, measured using MRI) and balance ability (using the Sensory Organisation Test) in people with an average age of 68 years. Over 18 months both interventions produced increases in the volume of the brain areas studied but only those in the dancing group achieved an improvement in balancing ability.

Being able to shut down our autophagy genes may be a long way away but it is never too late to start dancing!

Rehfeld, K., Müller, P., Aye, N., *et al* (2017) Dancing or fitness sport? The effects of two training programs on hippocampal plasticity and balance abilities in healthy seniors. *Frontiers in Human Neuroscience*, https://doi.org/10.3389/fnhum.2017.00305.

Drink coffee, live longer

Pandora has previously exalted the merits of coffee but there is more to come! Researchers analysed data from over half a million people in ten member states of the European Union participating in the European Prospective Investigation into Cancer and Nutrition Study and found that drinking coffee was associated with better liver function and immune response. The risk of death from all causes, particularly digestive and circulatory diseases, was reduced in coffee drinkers. The health benefits of moderate coffee drinking is in keeping with previous research findings. Coffee drinkers and coffee growers rejoice!

Gunter, M. J., Murphy, N., Cross, A. J., *et al* (2017) Coffee drinking and mortality in 10 European countries. *Annals of Internal Medicine*, https://doi.org/10.7326/M16-2945.

Erratum

For the article 'Listening to silence – trauma and recovery in post-*golpe* Chile' in the May 2017 issue of *BJPsych International* (vol. 14, no. 2) the affiliation for the author, Lindsey Kent, was wrongly given on page 46. It should read 'Academic path foundation doctor, Salford Royal NHS Foundation Trust, Salford, UK'.

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