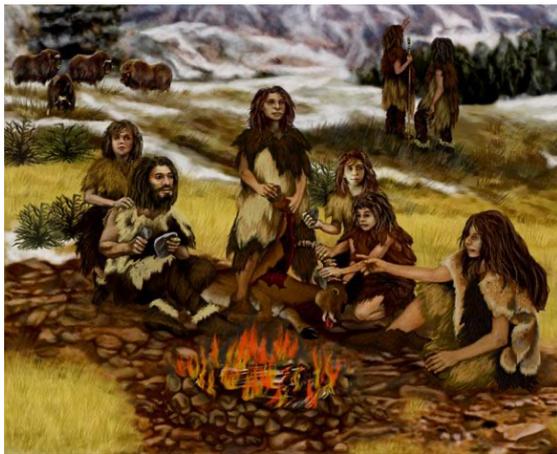


Evolutionary mismatches

How our evolutionary path and our technological advancements have created many of the sicknesses today

As a species, we have a complex evolutionary history. As such, none of us are adapted for any single diet, habitat, social environment or exercise regime. So, from an evolutionary point of view, there is no such thing as optimal health, it is very personal and no single strategy or 'quick health fix' is suitable for everyone.



We do not exist in our natural environment anymore, like most animals in a zoo. Over 600 generations ago, everybody was a hunter-gatherer living in small groups of less than 50 people, moving between camps, foraging for plants, hunting and fishing. This is how we evolved to function.

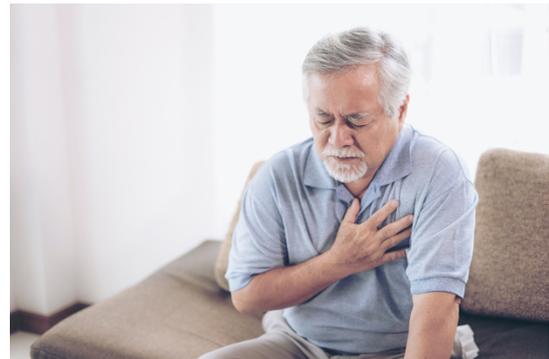
The social, medical and technological progress over the last few hundred years has been staggering and has taken us as far from our natural habitat as we could ever have imagined. This has created several 'evolutionary mismatches'. As an example, before this time our teeth were adapted to chew figs and grapes, but when extreme droughts occurred, individuals with bigger, thicker molars that helped them chew other less calorific foods, such as tough leaves, stems and roots, would have a strong selective advantage. Calories and sugars were hard to come by, so our natural cravings for sugars were based upon their sparse availability and our instincts to survive. So, our inclination to crave rich food, like cakes and sweets, is ingrained in our DNA which is now maladaptive under today's conditions of excessive availability. In fact, if you provide primates in zoos with processed foods and restrict their activity, they acquire type II diabetes through a similar mechanism to humans².

In addition, we have evolved to save energy, as unnecessary activity used energy from calories which historically was hard to come by. So not only do we tend to eat more calories, but we have a natural tendency to save energy and be less active. Both evolutionary mismatches are key reasons why we have many of the health issues we see today, including diabetes and obesity¹.

Humans evolved to be prone to obesity because it increased our survival rates and so our ability to propagate our species. Along these same lines, our species' inclinations to be worried, anxious and stressed can cause many of the mental health issues we see today, but they are primeval adaptations previously necessary to avoid or cope with danger.

So, we did not evolve to be healthy but instead we were selected to have as many offspring as possible despite challenging conditions. We never evolved to make rational choices about what to eat or how to exercise in conditions of abundance and comfort, we are instinct driven to survive and reproduce.

Moreover, interactions between the bodies we inherited, the environment we have created and the decisions we sometimes make have set in motion an insidious feedback loop. We get sick from chronic diseases by doing what we evolved to do but under conditions for which our bodies were poorly adapted and then we pass those same conditions on to our children who then also get sick!



These evolutionary mismatches contributed to a total healthcare expenditure in the UK in 2020 of £257.6 billion, equating to £3,840 per person. Total current healthcare expenditure in the UK accounted for 12.0% of gross domestic product (GDP) in 2020, compared with 9.9% in 2019.

If we are to halt this vicious circle, then we need to decide how to encourage each other to eat foods that promote health and to be more physically active. Importantly, education needs to be around the reason why we crave foods and why we are naturally inactive. If we understand why we have these tendencies, it may be easier to rationalise how to manage and counter our basic instincts.

Inactivity and a maladaptation to our environment is responsible for many of our musculoskeletal disorders (MSD) too. If we are to successfully prevent and manage our MSD issues globally (and specifically in the workplace), we must create a system to return our bodies to the natural ways in which they used to move. We need to provide each joint and structure the capacity to move the way nature intended. We have designed the FLX app with this in mind. It provides the user with the ability to self-manage low grade injuries and provides personalised exercises to improve how their bodies move, which reduces the risk of MSDs.

Martin Haines

Chief Medical Officer | FLX Health

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1. "Exercised – The Science of Physical Activity, Rest and Health" by D Lieberman.
2. "Narratives of Human Evolution" by M Landau