

Longevity in human evolution assignment



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Diamond proposes that one evolutionary advantage that we have is longevity. Discuss the implications of this advantage in evolutionary terms. Diamond suggests one advantage that progressed through the evolutionary tree, is longevity. We will discuss the reasons for longevity in the evolution of the human species. Diamond addresses through chapter seven, how aging and menopause are strongly connected to longevity. Men and women have been tested in various different ways to solve the mystery behind the theory that reproduction is the cause of post-generative longevity.

Another benefit Diamond writes about is how technology is a big step toward progressing how lives much further than it was one hundred thousand years ago. The one theory written progressively is one of Charles Darwin's 'Theory of Natural Selection' which is one of the theories much argued about today. These topics, as well as being spoken about in Diamond's book, are heavily argued about whether the theories are believable to endure human longevity to an increased size. In menopause, there are two different hypotheses to state post generative longevity; these are the 'Stopping-Early Hypothesis' and 'The Grandmother Hypothesis'.

The 'Stopping-Early Hypothesis' states, since human infants are too young to live without protection or motherly aspects, '...it is beneficial for women to cease reproduction at the age at which the risk of maternal death reaches a certain threshold. In contrast, 'The Grandmother Hypothesis' states that survival long past the age of menopause have been selected for because grandmothers significantly improve grand offspring survival probabilities. ' (J. Beise) These two hypotheses have biological origins but have social

implications; they are both tested for evolution of menopause and the evolution of post-generative longevity.

Menopause and post-generative longevity are artefacts of modern life that were not present for most human evolutionary history, and are in accordance with the lack of evidence from the fossil record of human ancestors surviving to late ages. Some have argued that because modern hunter-gatherer societies have life-expectancies well beyond the mean age at menopause means that the same was probably true for historical populations with similar lifestyles. While this argument is valid, the fact remains that the ‘modern-artefact’ hypothesis can not be ruled out.

Having an extended lifespan was selected for early in human evolutionary history but the primary selection was the improved status and mating opportunities that age meets the expense of men. Men achieve status with age, and reproductive opportunities. According to this hypothesis, female longevity is a by-product of selection for longevity in males but there has never been sufficient selective pressure on females to alter their reproductive lifespan. In chapter seven, Diamond articulates that aging and menopause are crucial to today’s’ human existence as evolution is involved.

Aging and menopause gives Homo Sapien Sapiens a higher advantage in the evolutionary tree when it comes to longevity. Diamond suggests that modern humans have a longer lifespan than apes because modern humans age more slowly. ‘The longer lifespan of modern humans than of apes rests not only on cultural adaptations; such as tools to acquire food and deter predators. It also rests on biological adaptations of menopause...’ (Diamond pg 117)

Human female fertility rises gradually with age, peaks in the late twenties, and then begins to decrease until menopause occurs during the late forties or early fifties.

At this point it is not possible for women to reproduce anymore, yet women can expect to live between another 19-22 years even in contemporary hunter-gatherer societies without modern medicine. Evidence regarding the termination of reproduction prior to death amongst primates kept in captivity, well fed and free from predation, is very mixed. Where an animal dies having not reproduced for some years it is unclear, whether this represents menopause or just an increase in inter birth intervals with increasing maternal age.

Suggesting these biological adaptations developed around the time of the Great Leap Forward, it has changed the history of evolution to enable apemen to revolutionise into modern humanity. One of Darwin's evolutionary theories Diamond speaks about in his book is the 'Theory of Natural Selection'. 'Natural selection states that 'the survival of the fittest'. The idea is that when change occurs, those organisms best suited to the new circumstances will thrive. ' (allaboutsceince. om) Natural selection acts to preserve and gather minor beneficial genetic changes. Perhaps a member of a species developed a functional advantage such as; it grew wings and learned to fly. Its offspring would inherit that advantage and pass it on to their offspring. The inferior members of the same species would gradually die out, leaving only the superior members of the species. Natural Selection is the preservation of a functional advantage that enables a species to

compete better in the wild and is the naturalistic correspondent to domestic breeding.

In 1860, Herbert Spencer, an English philosopher, began working on his *First Principles*, one of the goals that he sighted from it is final social balance; ‘ Evolution can end only in the establishment of the greatest perfections and the most complete happiness. ‘ (R. Richards) Spencer’s conception of evolution was the adaptational device that remained the principle of equilibration; disturbing forces in the environment would cause an unbalancing of the rhythmic forces of life. The adaptation of man’s nature to the conditions of his existence, cannot cease until the internal forces which we know as feelings are in equilibrium with the external forces they encounter. ‘(R. Richards) Due to the theory of change and the survival of the fittest, hardship creates intelligence to produce a further qualified journey to populate the rest of the world. Stretched over a few million years, the human lineage has developed different forms of technology. Made by *Homo Habilis*, around 2. million years ago, the stone hand axe was the start of an evolutionary chain of technology. From that time, man has seen a change in technical knowledge in so many different ways which has progressed to such extraordinary inventions that are considered common today, such as; guns, telephones, computers and remotely controlled surgical equipment. During the period between *Homo Habilis* and *Homo Sapiens*, there were a range of manual-made type tools such as; the hand axe and so called spears made out of bamboo or sticks, to achieve and improve on their hunting and defensive skills.

Throughout the thousands of years, as the human ancestry travelled across the globe, they would have met several species of animals and sources of food. As their adventure around the huge continent grew longer, their intelligence grew bigger, as they learned new skills and adapted with constantly new experiences. These new experiences might have been, to think of a variety of ways to hunt a particular species they had not seen before, or to think of different ways to get across a lake, a great valley or huge mountain ranges. As the different species of Homo's emerged, each one grew more intelligent eventually making them what they are today to design electricity and build planes, ships and invent other types of astonishing technology. As the human lineage discovered many amazing sorts of technology, it has increased our longevity much more than it was a few hundred thousand years ago. The human ancestry intelligence and mind brought a variety of aspects to life that has invented great steps today such as, cures for some diseases and surgery to difficult parts of the inner body.

Modern technology has improved ones life so much so that death now seems a vast distance away. By linking the human lineage to evolutionary circumstances, Diamond proposes longevity is one advantage that modern humans have. Aging is not only postponed caused by cultural adjustments but also by theories of biological adjustments. Menopausal women and middle aged men have been tested for reproductive solutions for post-generative longevity. Technology has and will be one of the manual or cultural traditions that make human longevity greater.

Speaking about the 'third chimpanzee' throughout chapter seven, to prove to his readers, Diamond elaborates that his theory of longevity is an

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evolutionary advantage for modern humans. As a student, learning about this interesting subject, one can believe that there are numerous reasons that give us as humans, an advantage to keep evolving. Total : 1, 336 words

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