

In *Tanach*, fifty-five prophets are discussed; fifteen prophets with individual books named after them and another forty mentioned throughout *Tanach* [1]. From a young age, Jewish children learn about prophets and prophecy. They are taught that a prophet is someone G-d has chosen to be a leader and to communicate with. Prophecy, when stated simply, is G-d “talking” to an individual. However, children are not commonly taught what it was like for the prophets to experience prophecy. The Rambam discusses in *Mishneh Torah, Hilchot Yesodei Hatorah*, chapter 7, what prophets experienced when receiving prophecy. The Rambam describes how prophets would lose control of the muscles in their limbs and experience visions (of prophecy). In other locations in *Tanach*, it is seen that prophets would also lose awareness of their surroundings and afterwards would be overcome by exhaustion [1].

These “symptoms” that accompanied prophecy appear to mimic the “symptoms” of a complex partial epileptic seizure: loss of muscle control, visions, lack of awareness, and fatigue. While the prophets were clearly undergoing a completely Divine and spiritual experience when receiving prophecy, to the untrained eye the prophets may have appeared to be mimicking the physical experience of having an epileptic seizure. Therefore, through understanding what happens during an epileptic seizure, and through the Rambam's explanation of prophecy, one can come to a greater understanding of the physical symptoms of prophecy.

Epilepsy is a neurological disorder of the brain in which a patient experiences recurring seizures. These seizures are caused by neurons in the brain suddenly transmitting false signals to each other, as well as by anything else that interrupts neuron communication [2]. There are many types of epileptic seizures, and one of the most common forms is complex partial seizures. Complex partial seizures most often, but not always, originate in the medial temporal lobe and frontal lobes of the brain. However, these seizures can quickly move to other locations in the brain. Like all forms of epileptic seizures, many cases of complex partial seizures are due to a genetic disposition, as well as injury, illness, or abnormal brain development. However, there are also many cases in which the reasons for these seizures are unknown [3].

The brain is the organ that regulates our responses to stimuli, both voluntary and involuntary responses. In particular, the cerebellum is responsible for movement and coordination of muscle movement. Any disturbance in the functioning of the brain or abnormal brain activity would therefore have an effect on voluntary and involuntary responses [2]. The disturbance of normal voluntary responses would thus cause a loss of muscle control

leading to the flailing of arms and legs in a seizure.

In the *Mishneh Torah, Hilchot Yesodei HaTorah*, Chapter 7, the Rambam discusses the experience of prophecy. While experiencing prophecy, the prophet's limbs would shake and the prophet would become weak and lose control of his body. This would enable the prophet to freely communicate with G-d, without the limitations of the body. This can be seen in *Yeshiyah* chapter 21 verse 3, where Yeshiyah states that he had become confused from the prophecy he saw. Rashi interprets this to mean that his body started to convulse from the prophecy [4]. The random motion of the prophet's limbs would thus appear to mimic the movements of one experiencing epilepsy.

A lack of awareness is often experienced as an aura, a warning, before a seizure as well as throughout a complex partial epileptic seizure. The interruption of the nerve signals in the brain and the surge of electrical activity can cause confusion and memory loss [2]. Additionally, in the midst of complex partial epileptic seizures, patients may experience visions or hallucinations. The origins of these visions have been researched as early as the late 1800s by John Hughlings Jackson, who observed how a seizure that originates from the medial temporal lobe can often result in visions during the seizure. As a result of the formed “dream state,” hallucinations sometimes occur, causing familiar people or places to become unfamiliar to the patient [6].

To an untrained eye, a prophet would appear to mimic the lack of awareness, “dream state”, and visions seen in complex epileptic seizures. To be in the right state of mind to communicate with G-d, the prophets had to rise above their surroundings. The Rambam explains that to receive prophecy a prophet had to be in the right mindset; he must separate himself from his physical surroundings and focus on G-d and what G-d is showing him. This can be seen in *Zechariah* Chapter 5, when Zechariah received a prophecy in which G-d told him to focus on a flying scroll. During this prophecy, Zechariah focused all his attention on the spiritual vision, which led to lack of awareness of his physical surroundings [5]. However, as is clear from the words of the Rambam, the prophet was required to consciously put in effort to remove himself from physicality. This is obviously different from a seizure, which is involuntary and not in one's control.

In *Parshat Bamidbar*, chapter 12, G-d speaks to Aaron and Miriam and says that when communicating to a Jewish prophet, He will make himself known in a vision and in a dream [7]. This is seen with all fifty-five prophets except Moshe who communicated with G-d clearly without visions. This “dream state” enabled the prophets to be able to communicate with G-d through receiving visions from Him. One instance where a vision in prophecy can be seen

is in Jeremiah, Chapter 1. Jeremiah experiences a prophetic vision of a staff from an almond tree and a bubbling pot. These visions are given to Jeremiah in riddles that alluded to foreign enemies coming to and destroying Jerusalem [8].

At the end of a complex partial epileptic seizure, fatigue and extreme exhaustion are often experienced. After a seizure has passed, the patient can be left confused, exhausted, and lack the ability to function. This state usually remains for a few hours after a complex partial epileptic seizure [4]. Prophecy could again appear to mimic this state of exhaustion to the uninformed eye. After receiving prophecy, some prophets experienced a state of exhaustion and lack of strength. This fatigue was evident with the prophet Daniel in chapter 10 of the book of *Daniel*. After receiving prophecy, Daniel stated that his appearance was horribly changed and that he had no strength left [9]. This loss of strength may appear to mimic the exhaustion that a patient may feel after an epileptic seizure.

Through the above parallel descriptions of brain seizure episodes and prophetic experiences, one can begin to superficially understand how G-d acts through natural means, through *derech hateva*. This can be seen in the idea that prophecy, the way that select individuals

communicated with G-d, can appear to mimic the process of a complex partial epileptic seizure to the untrained eye. However, as is clear from the words of the Rambam, the prophet was required to consciously put in effort to remove himself from physicality, while an epileptic seizure is involuntary and not in one's control. While the prophets were clearly undergoing a completely Divine and spiritual experience when receiving prophecy, to a lay person the prophets may have appeared to be mimicking the physical experience of having an epileptic seizure. Through understanding what happens during an epileptic seizure, and through the Rambam's explanation of prophecy, one can come to a greater understanding of the physical symptoms of prophecy.

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The mystery of the process of aging of the human body is slowly beginning to unravel. We now know that one of the major contributions to the aging process is oxidative damage to cellular material caused by free radicals generated in biochemical reactions in the human body. As a result of these free radicals, DNA molecules and proteins are damaged and altered, creating rigidity of the lungs, heart muscles, ligaments, and tendons, as well as problems with genes and replication. We have also become aware that the telomere, the cap on the end of the chromosome that protects the DNA from deterioration, naturally shortens after each division of the cell. The DNA of some cells reach a limit of divisions, called the Hayflick limit, after which they can no longer divide. This and other factors over time cause cells to degenerate and prevent them from functioning properly [1].

In the past century, we made leaps forward in medical research, gained a greater understanding of how to maintain our health, and saw a dramatic increase in life expectancy. In the United Kingdom, the life expectancy at birth oscillated up and down from 1543 until 1811, with its lowest point in 1561 at 27.77 years and its highest point at 1581 at 41.68 years. With the turn of the 1800's and until the 1900's there was a slow rise in life expectancy, rising from 37.59 in 1811 to 49.95 years in 1905. Thus, about 12 years were added to the human life expectancy. However, the most dramatic increase in life expectancy occurred in the 20th and 21st century, rising from an expectancy of 49.95 years in 1905 to 80.84 years in 2011 [2].

Throughout this article, we will weave together the thoughts of Nathan Aviezer and Rabbi Aryeh Kaplan, who discuss how recent scientific advances on the aging process help explain longevity in the Bible. As a result of breakthroughs in our knowledge on aging, scientists predict even larger leaps in the human life expectancy. In a piece titled "The Extreme Longevity of Early Generations in Genesis," Dr. Nathan Aviezer quotes an article in the *New Scientist*, titled "Death of Old Age," stating: "We can live healthy lives well into our hundreds." Aviezer also notes Professor Michal Jazwinski, the director of the Center on Aging at Louisiana State University, who states, "The maximum human life span might go as high as 400 years" [1].

The occurrence of a human being living 400 years or longer does not appear to be unprecedented. Genesis records that the first human being, Adam, lived for 930 years (Genesis 5:5). Based on G-d's warning to Adam (Genesis 2:17), "But of the Tree of Knowledge of Good and Bad, you should not eat from it because on the day you eat from it you shall surely die," it appears that Adam was originally created to be immortal. As a punishment for eating from the tree, not only was he punished with loss of

his immortality, but his descendants would also be mortal beings (*Beresheit Rabbah* 16:6).

Ramban discusses Adam's punishment of death in his commentary on Genesis 2:17. He explains that "on the day you eat from it" does not mean he would die on the day he ate the fruit, but that he would bear the death penalty from the King (G-d) immediately on that day. The King could choose his execution date for any time period, and the perpetrator would eventually die due to his sin. Therefore, Adam would not necessarily die immediately, but from that point on he was sensitive to death.

Ramban continues and describes the opinion of the natural scientists of his time who believed that a group of elements must decompose back into individual elements. Therefore, they claimed that man must eventually decompose into his simpler elements and die. The question that remains from this analysis is that if this was the case, what change did Adam's eating of the fruit create? If man was destined to die based on his physical makeup, how would eating the fruit alter this reality? *Ramban* counters their argument by stating that those who think man must die because of a physical law have little faith in G-d, because G-d has the ability to will anything to happen. *Ramban* contrasts their opinion with the words of the Sages who write that had Adam not sinned, he would have been immortal, for the soul given to him by G-d bequeathed to him eternal life. *Ramban* writes that G-d's Divine favor for Adam would have caused Adam to be sustained forever.

However, Adam ultimately sinned and was punished. His punishment was spoken by G-d, ending with the words, "By the sweat of your brow you will eat bread until you return to the land because from it you were taken because you are dust and to dust you will return" (Genesis 3:19). From this, it is clear that Adam and his subsequent generations were punished with death as the ultimate end. However, we are told that Adam lived for 930 years (Genesis 5:5) so it is apparent that his death was not an immediate, but rather an eventual, punishment for his sin.

The generations after Adam continued to live for extremely long periods of time (at least those men representing their generation as recorded in Genesis). Rabbi Aryeh Kaplan writes that the average age of death for the ten generations between Adam and Noah was 857.5 years (ranging from 365 years to 969 years) and ignoring two low numbered outliers, the average age was 929 years (ranging from 905 years to 969 years) [3]. Rabbi Kaplan presents the possibility that those years were shorter than current years and that is why the age expectancy seems so high compared to modern standards. Kaplan negates this possibility because the years during the description of the flood consisted of 12 normal months. Therefore, it is

probable to assume that the years describing Noah's life also consisted of 12 normal months [3].

Josephus, a Jewish historian of the 1st century, cited reasons for the longevity of those generations, as described by Kaplan. Josephus writes in *Antiquities* (1:3:9), "...those ancients were beloved of G-d, and [lately] made by G-d Himself: and because their food was then fitter for the prolongation of life, might well live so great a number of years. And besides, G-d afforded them a longer time of life on account of their virtue, and the good use they made of it in astronomical and geometrical discoveries." Josephus also writes of other historians who agreed that the ancients lived a thousand years. According to Josephus, it appears that the reason for their long life related to spiritual matters, such as virtue and closeness to G-d, as well as physical matters, such as the food which promoted long life [3].

Kaplan also notes Maimonides (*Moreh Nevuchim* 2:47) who attributes the longevity of those generations to their diet. Maimonides believes that only those explicitly recorded in Genesis lived to extremely old ages, as he writes, "I say that only the persons named lived so long, whilst other people enjoyed the ordinary length of life." The reason they had such long lives was "in consequence of different causes, as *e.g.*, their food or mode of living, or by way of miracle, which admits of no analogy." If their longevity was due to a diet or lifestyle choice, then the long life spans of those generations were humanly possible. Kaplan writes that linking long life with diet, as seen in Josephus's writing, indicates that "even unusually long lifespans are within the realm of physical possibility" [3].

With recent scientific discoveries in the field of aging, there is increasing evidence that genetics play a role in the aging process. Dr. Aviezer states that a "scientific consensus is emerging that the root cause of all aging processes is genetic." He quotes Professor Mark Azbel who claims that there is "a genetically programmed probability to die at a given age." Aviezer also discusses Professor Tom Johnson of the University of Colorado, who performed research to alter a single gene and successfully doubled the life span of a small nematode worm. Similarly, Professor Michael Rose of the University of California designed a new genetic strain of fruit flies that were healthier and stronger at every age and lived twice as long as the standard fruit fly [1].

In addition, Professor Michal Jazwinski, quoted by Aviezer, was able to introduce genes into *Saccharomyces cerevisiae* (yeast) which lengthened life span as well as maintained its "youth" for a longer period of time. Aviezer explains how some animals, such as some species of turtles and marine birds, maintain a low mortality rate throughout their lives. Turtles remain fertile their entire lives and a colony of marine birds maintain their female fertility with no decline until the age of 40. Professor Leonard Hayflick of the University of California explains, "Non-aging animals experience a peak in their physiological functions at some point, but these functions do not seem to decline...non-

aging animals do not live forever because of accidents, disease, and predation" [1].

If we apply the phenomena of non-aging to human beings of ancient times, this would mean that people could still die, due to accidents or violence or sickness, but that the mortality rate would remain constant throughout one's life, independent of age. Thus, age would not increase one's chances of dying. Aviezer writes, "This is how human society would appear if one could eliminate all the genetic defects that cause aging." Aviezer proposes that the immortality of Adam and Eve was due to their lack of genetic defects (termed genetic purity). Since there was no violence, sickness, or other non-genetic causes of death in the Garden of Eden, they would essentially be immortal. However, once they sinned and were expelled from the Garden of Eden, they entered the outside world where they were exposed to non-genetic causes of mortality. Therefore, they became susceptible to dying [1].

Aviezer writes, "In the absence of aging, the average human life span would be about 1300 years. Thus, we really have to explain why the early Biblical life spans were so short!" Aviezer attributes the shorter life spans of the generations between Adam and Noah to diseases for which we now have antibiotics to cure. The phenomena of non-aging also explains the old ages of childbearing fathers in the generations between Adam and Noah. For example, Methuselah and Lemach were about 200 years when they fathered children and Noah was about 500 years old. Also, Noah was expected to be strong enough, mentally and physically, to build the ark at the age of 600 years [1].

Rabbi Kaplan discusses how longevity declined in the generations after Adam. He explains an opinion in the Talmud, which states that there were 974 generations before Adam (*Hagigah* 13b-14a). He cites a *midrash in Beresheit Rabbah* 3:7, stating, "G-d created worlds and destroyed them." Based on this, Kaplan writes, "[I]t would seem man already had the physical and mental capacities that we possess as early as 974 generations before Adam." He continues, "Thus, even though pre-Adamic man had a 'normal' lifespan, Adam was created without his biological clock being set for eventual death." Even after Adam sinned, the "biological clock was set through which the body would ultimately terminate its own life processes." Thus even after he sinned, Adam maintained exceptional longevity [3].

Rabbi Kaplan writes how Adam's descendants inbred to maintain this trait for longevity (*e.g.*, Cain married his twin sister according to *Pirkei de-Rabbi Eliezer* 21(48a-b)). He explains that this seclusion is why Cain was afraid of the outside world, stating, "All who find me will kill me" (Genesis 4:14). According to Rabbi Kaplan, his longevity was subsequently reduced due to interbreeding. Genesis (6:2) reads, "The sons of G-d saw the daughters of

man that they were fair, and they took for themselves wives of all whom they chose.” According to *Beresheit Rabbah* (26:5) the “sons of G-d” were the descendants of Adam. Kaplan writes, “The decedents of Adam began to intermarry with the surrounding primitive human stock, and this interbreeding resulted in the reduction in the group’s average lifespan” [3].

After the Flood, there was inbreeding between Noah’s descendants, which maintained their longevity, stabilizing the average lifespan to about half of Adam’s. Rabbi Kaplan explains that Noah’s descendants interbred once they journeyed east to Babylon, decreasing the longevity of their descendants. This continued until the point where the highest expected lifespan was reduced to 120 years, as it is written in Genesis (6:3), “My spirit shall not abide in man, for he is mere flesh, but his days shall be 120 years.” However, the life span did not decrease right away, for after this statement, Abraham lived to 175 years. *Ibn Ezra* explains that this verse means that the human longevity would decrease over time until the human lifespan reached 120 years [3].

Aviezer understands this third verse in the sixth chapter of Genesis as “meaning that the genes for aging were introduced into the human gene pool at the time of Noah.”

He explains that it took time for these aging genes to spread and take effect, and therefore 16 generations passed from the time that statement was pronounced by G-d until it was fulfilled in the time of Moshe. During that time, the average human lifespan gradually declined [1].

As human beings increasingly gain knowledge of the aging process, we are confronted with the possibility of extreme longevity. It is important to recognize that this extreme longevity is not unprecedented. In ancient Biblical times, people lived close to a thousand years. The decrease of the average lifespan since that time period can be explained using the principles of genetics. If, as Kaplan and Aviezer write, humans originally experienced extreme longevity due to purity in their genetic makeup, then perhaps this longevity could be attained once again with genetic purity in the times of Messiach. In this search for long life, only time will tell.

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The difference between prophecy and prophesy - Free interactive online grammar lesson.Â Prophecy / Prophesy, however honest, is generally a poor substitute for experience. (Benjamin Cardozo). Q2. Select the correct version. I venture to prophecy / prophesy that there lies before us a bitter and an evil time. (Auberon Herbert). Q3. Select the correct version. Experience is the only prophecy / prophesy of wise men. (Alphonse de Lamartine). How to print and send this test. This prophecy seemed wrong. There was nothing edifying, encouraging, or consoling about it (1 Corinthians 14:3). John wisely said nothing about it to NoÃ«l. The child was born a boy, and mother and baby came through just fine.Â And I would say the less common way Christians experience prophecy is through receiving revelatory dreams, visions, and what are often called "prophetic words." This is why Paul could encourage everyone in a local church to earnestly desire to prophesy (1 Corinthians 14:1). Many prophecies are dual in nature. Dual prophecy consists of pronouncements that have both a smaller and much larger fulfillment (known also as type and anti-type).Â Did the generation who heard him utter his prophecies experience what he predicted? The concept of duality helps explain his predictions. The generation who heard Jesus speak did experience a type or smaller fulfillment of the events yet to occur in the End Time.