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Investigation of the Relationship Between Life Span in Successful Athletes and Life Expectancy at Birth

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ORIGINAL RESEARCH

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Abstract

Humanity's quest for immortality has necessitated the struggle for longevity. The way to live better and longer is health. At this point, sports emerge as a tool for a healthy and long life. The aim of this study is to reveal the relationship between life expectancy at birth and the life span of successful athletes. The sample of the study consisted of all athletes who received medals on behalf of Turkey in the Olympics and died until 2021. The expected life span of the athletes at the date of birth was estimated with the help of the exponential equations created in Excel. In the light of these obtained data, graphs were created comparing the ages of death of the athletes with the life expectancy at birth in Turkey, Europe, Asia, Eurasia and the World. As a result, we can say that life expectancy at birth in Turkey, where the sample group is located, is generally low when compared to Europe, Asia, Eurasia and the World, of which Turkey is a part. However, life expectancy at birth of athletes was found to be above the life expectancy in Turkey, Europe, Asia, Eurasia and the World, considering the age of death. This result indicates that sports can be used as a tool that makes a positive contribution to life expectancy.

Keywords: Life Expectancy at Birth, Life Span, Successful Athlete, Turkey.

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Başarılı Sporcularda Yaşam Süresi ve Doğumda Beklenen Yaşam Süresi Arasındaki İlişkinin İncelenmesi

Öz

İnsanlığın ölümsüzlük arayışı, uzun yaşam mücadelesini zorunlu kılmıştır. Daha iyi ve daha uzun yaşamanın yolu sağlıktır. Bu noktada spor, sağlıklı ve uzun yaşamın bir aracı olarak karşımıza çıkmaktadır. Bu çalışmanın amacı başarılı sporcuların doğumda beklenen yaşam süresi ile yaşam süreleri arasındaki ilişkiyi ortaya koymaktır. Araştırmanın örneklemini olimpiyatlarda Türkiye adına madalya alan ve 2021 yılına kadar hayatını kaybeden tüm sporcular oluşturmuştur. Sporcuların doğum tarihlerindeki beklenen yaşam süreleri Excel'de oluşturulan üstel denklemler yardımıyla tahmin edilmiştir. Elde edilen bu veriler ışığında Türkiye, Avrupa, Asya, Avrasya ve Dünya'da sporcuların ölüm yaşları ile doğuşta beklenen yaşam sürelerini karşılaştıran grafikler oluşturulmuştur. Sonuç olarak örneklem grubunun yer aldığı Türkiye'de doğuşta beklenen yaşam süresinin, Türkiye'nin de dahil olduğu Avrupa, Asya, Avrasya ve Dünya ile karşılaştırıldığında genel olarak düşük olduğunu söyleyebiliriz. Ancak sporcuların doğumda beklenen yaşam süresinin, ölüm yaşı dikkate alındığında Türkiye, Avrupa, Asya, Avrasya ve Dünya'da beklenen yaşam süresinin üzerinde olduğu belirlendi. Bu sonuç sporun yaşam beklentisine olumlu katkı sağlayan bir araç olarak kullanılabileceğini göstermektedir.

Anahtar kelimeler: Doğumda Beklenen Yaşam Süresi, Yaşam Süresi, Başarılı Sporcu, Türkiye.

Introduction

For human beings, a healthy and long life span is vital importance today as it was in the past. Health is the cornerstone of a better and longer life. The existence of the necessary conditions for a healthy life is also accepted as a prerequisite for a long life. People's longing for immortality has paved the way for the development of environmental and economic factors as well as the effort to sustain life with protective and therapeutic methods in order to achieve immortality.

When the literature is scanned, it is seen that studies on life expectancy are mostly done by health scientists. The same is true for studies conducted in Turkey. This indicates the need for both multidisciplinary and interdisciplinary approaches in studies on life expectancy.

When the studies on life expectancy are examined, it is seen that the life expectancy progresses by drawing an increasing graph from the past to the present, and while the first quarter of the 21st century is completed, people live longer than they did centuries ago.

Although the life expectancy of today's people is longer than in the past, the fact that people are under the influence of factors that encourage sedentary life from the feudal society to the industrial revolution, from the industrial revolution to the technological innovations of today's information and communication era, the frightening increase in the place that virtual environments occupy in human life in terms of time, inevitably created a restrictive effect on the living space of sports.

It is known that healthy people live longer and sports directly or indirectly affect human health positively. In today's world, where sports are a part of human life and turn into a lifestyle, sports can be considered as a safe tool that leads to a healthy and long life.

The linear relationship between the life expectancy of elite athletes and life expectancy at birth will make studies that emphasize the importance of creating a society where sports are a lifestyle more valuable. The lack of a linear relationship between the life expectancy of elite athletes and life expectancy at birth may cause a decrease in the attractiveness of being successful in sports by displaying a high level of performance in terms of life span. However, this does not mean that the importance of physical activity as a concept surrounding sports will decrease. Because although sport is a physical activity, every physical activity is not within the scope of sport.

Considering that sport is a lifestyle especially for elite athletes, the relationship between high performance level and sportive efficiency in athletes and being healthy increases the importance of studies that will clearly reveal the link between sport and life expectancy.

Sports and Success

Sport is a concept that is often used synonymously with physical activity (Vural et al., 2010; Akbayrak and Kaya, 2012). Whereas, all bodily movements produced by skeletal muscles that require energy expenditure are defined as physical activity (Akyol et al., 2008; WHO, 2020). Sports is defined as the activities that; to develop human, which is the basic element of economic, social and cultural development in terms of physical and mental health; to ensure the development of personality and character traits; to facilitate adaptation to the environment by enabling people informed as well as skills and abilities; to unite, to establish peace and to cooperate among nations, societies and individuals; in addition to increasing one's fighting power, to fight within the scope of competition according to certain rules, to get excited, to compete and to prevail in the competition (Aydın et al., 2007).

Başar (2001) defines success as reaching the goal by believing that one can do it willingly, motivated and working in a planned and programmed way. Therefore, sporting success can be defined as reaching the goals in the field of sports as a result of a deliberate and planned effort (Aykın and Sarıkol, 2020). Although economic, cultural and sociological factors are effective in sporting success, the success of a country or athlete in a sports organization is determined by the sum of the medals won (Altun and Koçak, 2015).

People who are social beings benefit from various symbols in communication with each other (Özger, 2018). At this point, medals show the feature of being an indicator symbolizing success. This has resulted in the use of medals as a tool to determine the success of athletes and countries in sports.

Life Span and Longevity

The life span, expressing the life course of an organism, is a characteristic evolved life story and a unique and singular event that ends with death, (Carey, 2003). Lifetime or longevity refers to the length of time a species can exist under optimal conditions. Development takes a lifetime and change occurs throughout life (Lally and Valentine, 2019).

Whether the lifespan of organisms evolved is a fundamental question of aging, and if they do, what forces govern their evolution (Kaplan et al., 2003). The existence of many questions to be answered requires us to better understand what our evolutionary knowledge reveals about life and lifespan. Some evolutionary biologists advocate the need to incorporate evolutionary insights into aging and lifespan research, including the design and implementation of treatments for geriatric diseases (Orzack, 2003).

The duration of that individual's life is the life span of an individual. For humans, life spans are usually measured from birth. Interaction with the uncertainty of the environment determines the length of life after breeding (Vaupel, 2003). Changes in both life expectancy and life span equality are weighted sums of progress rates in reducing mortality. The key to increasing both life expectancy and life span equality is to save lives at ages below life expectancy (Aburto et al., 2020).

Average lifespan indicates the calculated average life span of an organism in a given population. The maximum life span is the longest observed life span of such an organism (Ehni, 2015). The potential increase in maximum human life span is mostly due to slowing age-related mortality (Finch and Pike, 1996). Maximum life span and average life span in developed countries have increased significantly in the past century (Christensen and Vaupel, 1996).

About a quarter of the change in lifespan in developed countries can be attributed to genetic factors. But, there is no genetically determined evidence of lifespan. However, the impact of both genetic and environmental factors on longevity can potentially be altered by medical treatment, behavioral changes, and environmental improvements (Christensen and Vaupel, 1996).

It should also be noted that studies on lifespan and longevity may yield different results. Gaillard et al. (2003) asserted that there is a positive correlation between body mass and lifespan in large herbivorous mammal populations, meaning that heavier is better for surviving longer. In other words, body mass has a serious effect on lifespan. On the other hand, Finch and Pike (1996) argue that if the degree of mortality slowing achieved by dietary restriction in mice is applied to humans, the average human life expectancy will approach the maximum life span of 120 years. However, it should be noted that lifespan varies considerably among species (Horiuchi, 2003).

Adult lifespan variation in most western countries has slackened since the 1960s despite continued improvements in longevity. Although the average life expectancy of all occupational classes is increasing, it is seen that high occupational groups are under pressure of death rate and the variation in lifespan of physical workers over time has stagnated. These differences are due to different trends in early adult mortality: all occupation classes experienced similar trends in life span variation at later ages, but variation in early adult mortality increased for all classes except the highest category (Raalte et al., 2012). Industry-wide problems experienced by chief executive officers (CEO) during their tenure affect longevity. Working under stricter corporate governance regimes can lead to worse health outcomes and earlier deaths (Borgschulte et al., 2019).The high and stagnant life span variation of the manual worker class is mainly due to the high early adult mortality rate from external causes (Raalte et al., 2012). As a result of progress made in saving lives at certain ages, there is a

strong correlation between life expectancy and lifespan equality. And the more lives saved at the youngest age, the relationship becomes stronger (Aburto et al., 2020).

Wherever we are in life, we need a life plan. Thus, many cognitive abilities that are assumed to decrease throughout life can be preserved and in some cases, the decline can be reversed (APA, 2018). The extraordinary longevity gains made by low-fatality countries over the past two centuries are a direct result of continued progress in tackling a wide variety of diseases (Diaconu et al., 2016). Beyond the ever-increasing gains in life expectancy, Spain has managed to push longevity for the majority of its people to the limits of what is possible in the current economic, social and scientific context. For example, beyond the ever-increasing gains in life expectancy, Spain has managed to push longevity for the majority of its people to the limits of what is possible in the current economic, social and scientific context (Redondo and Boe, 2005).

Much can be argued that longevity will be extended if underlying social conditions that contribute to health are also improved (Schanzenbach et al., 2016). In the United States between 2001 and 2014, higher income was related with longer life and differences in life expectancy among income groups increased over time. However, the relationship between life expectancy and income differed significantly across fields. This differences in life expectancy have been associated with health behaviors and local area characteristics (Chetty et al., 2016).

The gains in longevity can be ascribed to a number of factors, including rising living standards, better nutrition, better drinking water and sanitation facilities (OECD, 2018). Increasing longevity is a clear sign of progression in a population (Isaacs and Choudhury, 2017).

High-income societies are facing a new demographic transition; longevity transition (Eggleston and Fuchs, 2012). Decreases in life expectancy variability play a role in changes in mortality rates (Bergeron-Boucher et al., 2015). Countries that are most successful in reducing premature deaths have the highest life expectancies and the greatest equality in the lifespans of individuals. Association between high life expectancy and low life span variation stems from progress in reducing premature deaths (Vaupel et al., 2011).

Mortality and Life Expectancy

Death rate; it is an evolved quantity that is the result of natural selection that affects growth, behavior and reproductive patterns (Mangel, 2003). Life expectancy is the estimated number of years that a person born in a given time period can reasonably expect to live (Vogt and Johnson, 2016; Isaacs and Choudhury, 2017). Life expectancy is a statistical measure of the average number of years a person is expected to live, relative to among other things, death rates (Schanzenbach et al., 2016; Marshall et al., 2019; OECD, 2011).

Globally improving mortality rates observed in the twentieth century have always been regarded as a positive change for a country's socio-economic progress (Rabbi and Mazzuco, 2018). Since the early 2000s, the modal age at death has gained increasing scientific interest in tracking reductions in all-cause mortality in advanced age in economically developed countries (Diaconu et al., 2016).

Many of the gains in life expectancy are the result of reducing inequalities in how long people live by preventing premature death. Progression in reducing mortality rates for people living longer than average has had little effect on life inequality levels and has contributed only modestly to life expectancy gains. Countries that are most successful in reducing premature deaths have the highest life expectancy and the maximum equality in the lifespan of individuals (Vaupel et al., 2011). From this perspective, it is not surprising that the country with the highest life expectancy in the world is Japan (Robine and Saito, 2003).

The existence of centenarians living among us indicates a continuous evolution against mortality (Wachter, 2003). In general terms; death rate has decreased over the years due to developments in the physical and social environment (Robine, 2003; Bergeron-Boucher et al., 2015; Schanzenbach, 2016). Although there are inequalities by geography, the improvement in mortality rates continues today (Marshall et al., 2019). Continuing to do so requires tackling the high early adult mortality rate of low socioeconomic groups, particularly high mortality from exterior causes (Raalte et al., 2012).

Infant mortality is an important factor in life expectancy. The decrease in infant mortality contributes to the increase in life expectancy. Looking at the life tables that collect information on mortality, life expectancy and life inequality, it is seen that mortality rates have decreased and life expectancy has increased (Redondo and Boe, 2005; Singh and Ladusingh, 2016; Schanzenbach, 2016; Németh and Missov, 2018).

Around 5.3 million people died in the EU-28 in 2017. The annual number of deaths is the highest observed in the last fifty years. The crude death rate, the number of deaths per 1.000 inhabitants, was 10.3 in the EU-28 in 2017. In 2017, around 18,200 children died before the age of one in the EU-28; this was equivalent to an infant mortality rate of 3.6 per 1.000 live births (Eurostat, 2020).

There are notable differences in mortality levels, age patterns and time trends between countries and regions.

The socioeconomic impacts, dramatic changes and potential future trends of various death levels and age patterns are critical to Sustainable Development. The goal of “Global Health and

Wellbeing" in Sustainable Development is a goal that directly contributes to increasing life expectancy. However, progress towards each of the Sustainable Development Goals contributes to healthier and longer lives by improving living conditions for all (UN, 2017).

The contribution of increased life expectancy to living standards is significant and of a similar vastness as the contributions of the growth of GDP (Gross Domestic Product) per capita. Improvements in living standards were dominated by increases in GDP, although the increase in life expectancy did not play a insignificant role. Differences in the role of life expectancy in terms of standard of living are related to the level of economic development (Haacker, 2020). In addition to economic development measured by GDP per capita, social status measured by education level also significantly affects life expectancy (Bilas et al., 2014). Although there are improvements in life expectancy with economic development, it is known that there is a difference in life expectancy between the richest and the poorest (Marshall et al., 2019). However, there does not seem to be a simple income cutoff point at which life expectancy gains do not increase with income (Isaacs and Choudhury, 2017).

The life expectancy of people in developed countries is higher compared to people in developing countries of the world. Low standard of living, poor healthcare facilities, poor government health policies, high population level, terrorism and low education are the factors responsible for low life expectancy in developing countries (Khan et al., 2016).

Life expectancy at age 65 in the United States and other high-income countries has increased significantly over the past 50 years. Other high-income countries have also made large gains in life expectancy in recent years (Chen et al., 2017). However, towards the end of this 50-year period, while the level of increase in life expectancy in the United States has contracted, large increases have been observed in countries such as Turkey and Korea (OECD, 2011).

When life expectancy is considered by gender, it can be said that there are differences between men and women (Pattison et al., 2012). It should also be noted that there are significant regional differences in gender gap for both life expectancy and life inequality (Singh and Ladusingh, 2016). In general, it is seen that women tend to live longer than men (Klenk et al., 2007; Kent County Council, 2020). Although women live longer, they spend more time with disability (Mathers et al., 2001).

Although the levels of increase in life expectancy depend on different factors and at different levels, it can be said that life expectancy has increased in the 20th and 21st centuries in general (Eggleston and Fuchs, 2012; Bergeron-Boucher et al. , 2015; Crimmins, 2015, Lindgren, 2016).

Future life expectancy will be shaped by the lifetime experiences of today's population (Marshall et al., 2019).

Health and Healthy Life Expectancy

Health; it refers to the complete physical, mental and social well-being of individuals beyond the absence of disease and disability (WHO, 2014). Healthy life expectancy (HLE) is among the most widely used criterions of population health. Healthy life expectancy is a popular measure of population health that provides a snapshot of the hypothetical life years spent in good or bad health (Riffe et al., 2018).

The determinants of people's health are the social, economic, environmental and commercial conditions of people's lives. The complex and interrelated nature of these determinants of health makes it difficult to measure the impact of any of them on mortality. Life expectancy is a major example of this. (Marshall et al., 2019).

Healthy life expectancy is increasing at a greater rate than total life expectancy across countries as average per capita levels of health expenditure increase. This shows that reductions in mortality rates are accompanied by reductions in disability. Reducing disability levels is possible with the contribution of health systems (Mathers et al., 2001). Reducing the death rate alone reduces the total life years with disability (Riffe et al., 2018). Achieving this depends on improving health conditions. Because health conditions affect the mortality rate (Luy et al., 2020).

Many factors, from obesity to smoking and alcohol use, from working conditions to various diseases, from providing sanitation and clean water to medicines and nutrition, affect health and accordingly, healthy life expectancy.

The increasing prevalence of obesity negatively affects life expectancy and health. Increasing awareness of obesity can contribute to the solution against obesity, which can reduce the decrease in mortality rates (Lindgren, 2016). Reducing the harmful effects of obesity is important. Because the negative effects of obesity have reached a level that surpasses the positive effects of quitting smoking (Chen et al., 2017). Most regional differences in life expectancy are related to differences in health behaviors, including smoking, obesity, and exercise (Chetty et al., 2016). There is a need to focus on trends that can increase mortality and inequalities such as obesity, smoking, alcohol and drug use (Crimmins, 2015; Marshall et al., 2019).

There is a medical consensus that health and life expectancy are adversely affected by overuse of a number of products including alcohol, tobacco, sugar-sweetened beverages, and illegal or prescription drugs (Schanzenbach et al., 2016).

Unexpected changes in the working environment and work-related problems can negatively affect health in terms of life expectancy (Borgschulte et al., 2019). In addition, a decrease in the mortality rate in lung and colorectal cancer (Klenk et al., 2007); some reductions in the prevalence of physical disability and dementia (Crimmins, 2015); HIV (Human immunodeficiency virus) and AIDS (Acquired immunodeficiency syndrome) (Haacker, 2020); Improvements in clean water, sanitation, vaccines, good nutrition and many other factors (Schanzenbach et al., 2016) affect health and healthy life expectancy.

Life Expectancy at Birth

Life expectancy at birth is the average number of years a newborn will live if the death patterns prevailing at birth remain the same throughout their life (Johansson and Lindgren, 2014; Bilas et al., 2014; OECD Family Database, 2019). Life expectancy at birth reflects the overall mortality rate of a population, abstracts the pattern of death across all age groups (WHO, 2006).

Life expectancy at birth is a well-known demographic dimension of population longevity. Rationally, life expectancy at birth should be more than life expectancy at any age. But it is also a well-known fact that historically, life expectancy at birth was lower than one year old. High infant and child mortality rates result in lower life expectancy at birth than older age. One of the features of the demographic transition is the increase in life expectancy at birth. In this transition period, unbalanced life tables may emerge for developing countries (Canudas-Romo and Becker, 2011; Rabbi, 2013).

Life expectancy at birth is an important artificial indicator to evaluate the economic and social development of a country or region (Bilas et al., 2014). From this point of view, it is not surprising that Japan is the country with the highest life expectancy at birth in the world (Robine and Saito, 2003).

Increase in life expectancy at birth and decrease in life inequality are higher in women (Singh and Ladusingh, 2016). However, during the 20th century, life expectancy at birth for both men and women has increased (Aburto et al., 2020) and continues to increase (Schanzenbach et al., 2016). This reflects declines in mortality rates at all ages, particularly among infants and children (OECD, 2018).

Although Haacker (2020) argues that life expectancy at birth is not an accurate indicator of the health status of the population; Life expectancy at birth is the most well-known measure of the health status of the population and is often used to measure the health progress of a country (OECD, 2018).

Although the increase in life expectancy at birth is decelerating (Gallop, 2020), this time reflecting the success of human development exceeded 71 in 2015 (UN, 2017) and still continues to increase (Kent County Council, 2020). However, life expectancy at birth is unlikely to reach levels above 95 unless there is a fundamental change in our ability to delay the aging process (Crimmins, 2015).

As a result, people live longer in richer, more developed countries (Mathers et al., 2001). Because the high standard of living, availability of health facilities, standard government health policies and standard education provision are the main factors responsible for the high life expectancy of the developed countries of the world (Khan et al., 2016).

Method

The sample of the research consists of all the athletes who received medals for Turkey in the Olympics and died until 2021. Life expectancy at birth in Turkey, Europe, Asia, Eurasia and the World were included in the study. Asian and European average scores were used to calculate life expectancy at birth in Eurasia. The data in Table 1 regarding the achievement levels, dates of birth and age of death of the athletes were compiled from internet sources (SHGM, 2022; TMOK, 2022; VİKİPEDİ, 2022).

For the estimation of historical data between 1912 and 1949, data from 1950 to 2019 were used. These data were provided by Roser et al. (2019) obtained from the study. Unknown historical data was estimated with the help of exponential equations created in Excel. Estimation of data on life expectancy at birth between 1912 and 1949 was made with the help of the following equations:

For World: $y = 35{,}186e^{0{,}0064x}$

For Eurasia: $y = 42{,}384e^{0{,}0051x}$

For Asia: $y = 28{,}855e^{0{,}0085x}$

For Europe: $y = 58{,}015e^{0{,}0025x}$

For Turkey: $y = 25{,}703e^{0{,}0099x}$

Table 1

Athlete Information

	Name of Athletes	Level of Success	Date of Birth	Age of Death
1	Yaşar Erkan	1	1912	74

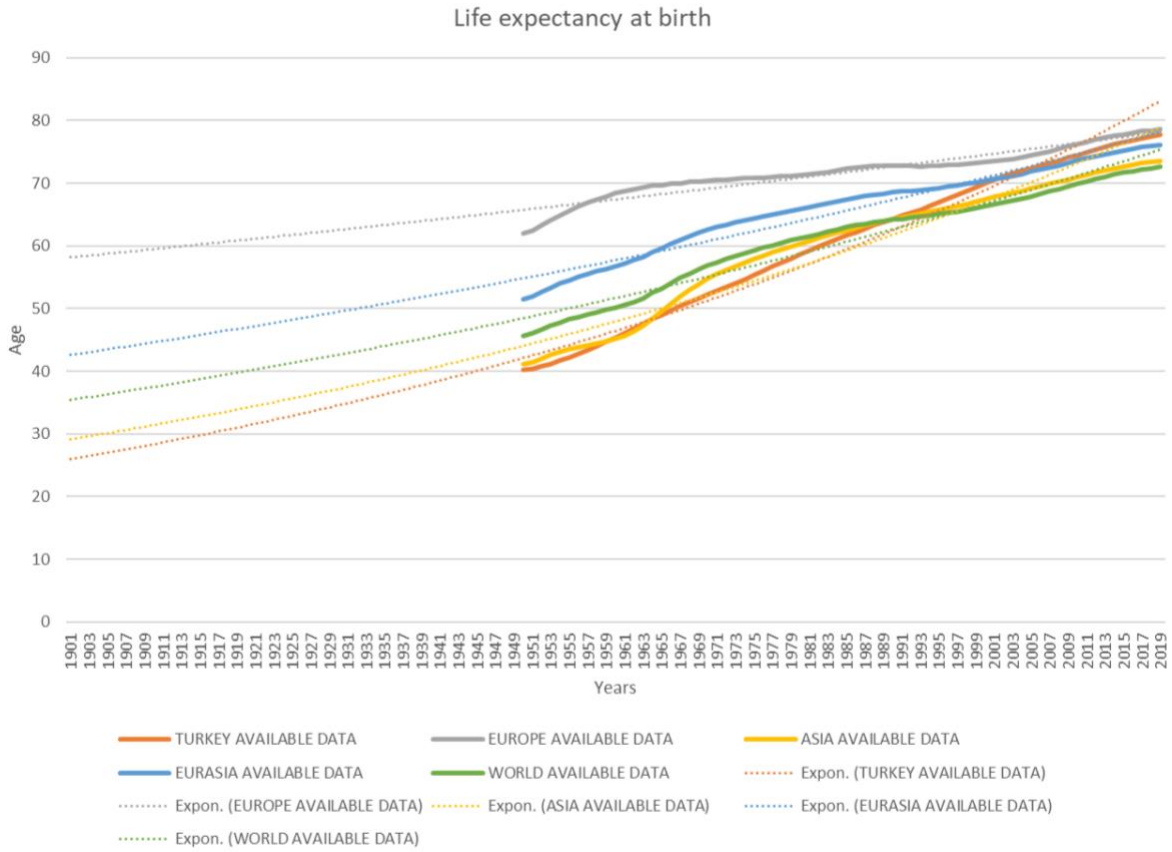
2	Yaşar Doğu	1	1913	48
3	Celal Atik	1	1918	61
4	Gazanfer Bilge	1	1924	84
5	Nasuh Akar	1	1925	59
6	Ahmet Kireççi	1	1914	64
7	Mehmet Oktav	1	1917	79
8	Bayram Şit	1	1930	89
9	Hasan Gemici	1	1927	74
10	Mithat Bayrak	1	1929	85
11	Hamit Kaplan	1	1933	43
12	Tevfik Kış	1	1934	85
13	Müzahir Sille	1	1931	85
14	İsmet Atlı	1	1931	83
15	Hasan Güngör	1	1934	77
16	Ahmet Bilek	1	1932	39
17	Kazım Ayvaz	1	1937	83
18	Mahmut Atalay	1	1934	70
19	Naim Süleymanoğlu	1	1967	50
20	Muhlis Tayfur	2	1922	86
21	Halit Balamir	2	1922	87
22	Adil Candemir	2	1917	72
23	Rıza Doğan	2	1931	73
24	İbrahim Zengin	2	1931	82
25	Hüseyin Akbaş	2	1933	56
26	Vehbi Akdağ	2	1949	71
27	Ruhi Sarıalp	3	1924	77
28	Adil Atan	3	1929	60
29	Dursun Ali Eğribaş	3	1933	81

In this study; The survey model (Kuzu, 2013), which is a research approach that aims to describe a situation that has taken place in the past or currently exists, was used. This research is a retrospective and cohort study.

Ethics of the Research

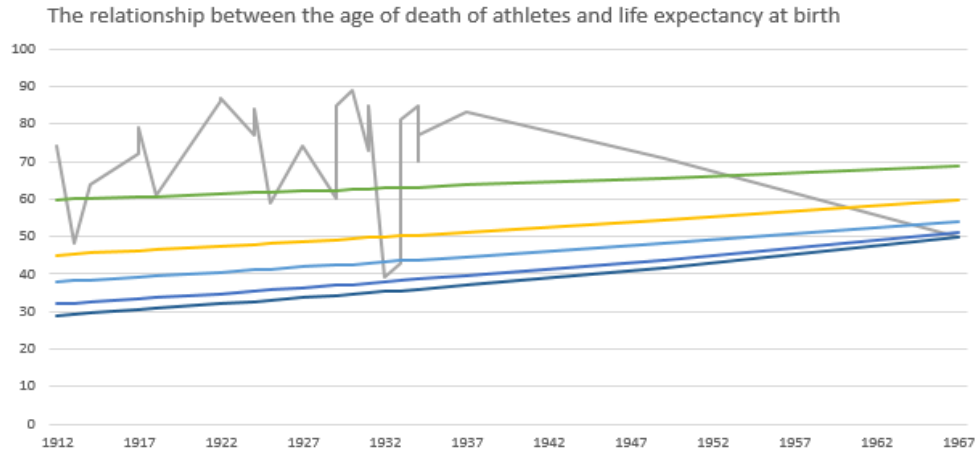
Ethics Committee Permission for our research was granted with the Ethics Committee Decision dated 05.04.2021 and numbered 03 of Hatay Mustafa Kemal University Social and Human Sciences Scientific Research and Publication Ethics Committee. In this direction, scientific ethics, principles and rules were followed in our research.

Results



Graphic 1. 1950-2019 Data and 1901-1949 Estimates of Life Expectancy at Birth

As seen in the graphic above, life expectancy at birth in Europe by years is above the average of Turkey, Asia, Eurasia and the world.



	1912	1913	1914	1917	1917	1918	1922	1922	1924	1924	1925	1927	1929	1929	1930	1931	1931	1931	1931	1932	1933	1933	1933	1934	1934	1934	1937	1949	1967
AGE OF DEATH OF ATHLETES	74	48	64	72	79	61	86	87	77	84	59	74	60	85	89	73	82	83	85	39	43	56	81	85	70	77	83	71	50
LIFE EXPECTANCY AT BIRTH (WORLD)	38	38	38	39	39	39	41	41	41	41	41	42	42	42	43	43	43	43	43	43	43	43	43	44	44	44	45	48	54
LIFE EXPECTANCY AT BIRTH (EURASIA)	45	45	46	46	46	46	47	47	48	48	48	49	49	49	49	50	50	50	50	50	50	50	50	50	50	50	51	54	60
LIFE EXPECTANCY AT BIRTH (ASIA)	32	32	33	33	33	34	35	35	35	35	36	36	37	37	37	38	38	38	38	38	38	38	38	39	39	39	40	44	51
LIFE EXPECTANCY AT BIRTH (EUROPE)	60	60	60	61	61	61	61	61	62	62	62	62	62	62	63	63	63	63	63	63	63	63	63	63	63	63	64	66	69
LIFE EXPECTANCY AT BIRTH (TURKEY)	29	29	30	30	30	31	32	32	33	33	33	34	34	34	35	35	35	35	35	35	36	36	36	36	36	36	37	42	50

Graphic 2. The Relationship Between the Age of Death of Athletes and Life Expectancy at Birth

As can be seen in the graphic above, it can be stated that the death years of the athletes in general are greater than the life expectancy at birth.

Discussion and Conclusion

Although the levels of increase in life expectancy depend on different factors and at different levels, it can be said that life expectancy has increased in the 20th and 21st centuries in general (Eggleston and Fuchs, 2012; Boucher et al. , 2015; Crimmins, 2015, Lindgren, 2016). Maximum life span and average life span in developed countries have increased significantly in the past century (Christensen and Vaupel, 1996).

The extraordinary longevity gains made by low-fatality countries over the past two centuries are a direct result of continued progress in tackling a wide variety of diseases (Diaconu et al., 2016). However, during the 20th century, life expectancy at birth for both men and women has increased (Aburto et al., 2020) and continues to increase (Schanzenbach et al., 2016).

Life expectancy at birth is an important artificial indicator to evaluate the economic and social development of a country or region (Bilas et al., 2014). Increasing longevity is a clear sign of progression in a population (Isaacs and Choudhury, 2017). Globally improving mortality rates observed in the twentieth century have always been regarded as a positive change for a country's socio-economic progress (Rabbi and Mazzuco, 2018). Much can be argued that longevity will be extended if underlying social conditions that contribute to health are also improved (Schanzenbach et al., 2016).

As a result, we can say that life expectancy at birth in Turkey, the country where the sample group is located, is generally low when compared to Europe, Asia, Eurasia and the World. However, life expectancy at birth of athletes was found to be above the life expectancy in Turkey, Europe, Asia, Eurasia and the World, considering the age of death. This result indicates that sports can be used as a tool that makes a positive contribution to life expectancy.

In addition to raising healthy generations, the rehabilitative role of sports in individuals with health loss and the fact that it contributes positively to life expectancy shows that sports can be used effectively in creating healthy and long-lasting societies. In this direction, creating a world where sports are widely practiced and made into a lifestyle in order to increase the expected life span as a healthy society is an important area of responsibility for the individuals who make up the society as well as the states.

Ethical Considerations

Ethics review board: Mustsafa Kemal University Social and Human Sciences Scientific Research and Publication Ethics Board

Date of ethics assessment document: 05.04.2021

Issue number of the ethics evaluation document: 06/03

Researcher's Contribution

The entire study was conducted by a single author.

Conflict of Interest

The author does not have a statement of conflict regarding the research.

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