

Morphological and Postural Characteristics of Marathon Runners: A Large-Scale Field Study from the Gallipoli Marathon

Características Morfológicas y Posturales de Corredores de Maratón:
Un Estudio de Campo a Gran Escala de la Maratón de Galípoli

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SUMMARY: This study was conducted to examine the morphological characteristics of marathon athletes according to foot biomechanics, age group and regular exercise status. Runners who participated in the Gallipoli Marathon organized in 2024 were included in the study. In this context, 571 (300 male, 271 female) marathon runners aged 18 and over participated in the study. A mixed research design was used in the study. In this context, morphological measurements and foot posture of the runners were analyzed. SPSS 25 program was used for data analysis. The normality test of the data was performed with Skewness-Kurtosis values. In the research findings, no significant difference was found in morphological characteristics according to foot posture status ($p>0.05$). Significant differences were found in body mass index (BMI), fat percentage (Fat%), fat mass (Fat Mass), fat free mass (FFM), total body mass (TBM), Staheli Arch Index ($p<0.05$), while no significant difference was found in basal metabolic rate (BMR) ($p>0.05$). According to age groups, significant differences were found in BMI, Fat%, Fat Mass, FFM, CPC, Staheli Arch Index ($p<0.05$), while no difference was found in basal metabolic rate ($p>0.05$). As a result of the research, it was seen that regular exercise and age group were effective in the morphological characteristics of marathon runners, but flat feet were not effective.

KEY WORDS: Marathon Running; Body Composition; Anthropometry; Flatfoot.

INTRODUCTION

In recent years, there has been a significant increase in participation in marathon races (Nikolaidis *et al.*, 2021). Marathons are nowadays not only events in which professional athletes participate, but also amateur runners. This has increased the popularity of marathon running. The increasing popularity has also been reflected in scientific studies and many researches have been conducted. In this context, studies have investigated the body morphology, physiological and psychological profiles of marathon runners and the factors determining their performance (Nikolaidis & Knechtle, 2018). Body morphology and its relationship with performance have been the subject of many studies. Previous studies have shown that a low body fat percentage is an important success factor in ultra-endurance races (Nikolaidis *et al.*, 2021). This is associated with large metabolic demands and is recognized as one of the main factors influencing endurance performance (Clemente-Suárez, 2015). In addition, research suggests that marathon

runners have a lower BMI. The reason for this is that marathon athletes have improved aerobic capacity due to prolonged running (Molla, 2017). In addition to BMI, many studies have focused on parameters such as basal metabolic rate (BMR), fat free mass (FFM) and body fat percentage. In addition to body morphology, another research topic focused on marathon runners is foot biomechanics. Indeed, the act of running is performed with the feet. The vertical impact forces calculated during running reach approximately 2.5-2.8 times the body weight, making the role of the foot structure more important in endurance sports. This situation causes various changes in the foot structure. The most prominent of these is the changes in the arch of the foot. Research in the literature defines a below normal arch of the foot as flat feet. The running biomechanics of individuals with flat feet also change (Sharma & Upadhyaya, 2016). This situation causes individuals with flat feet to adopt a sedentary life by distancing them from sports (Dabholkar &

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Agarwal, 2020). Many studies have found that the morphological measurements of individuals with flat feet are more negative than individuals with healthy foot arches (Kurniagung *et al.*, 2020). However, it is also stated that the morphological structures of marathon athletes may differ according to regional races. This is because climate, geographical structure, training ground and characteristics of competition courses can have an impact on the body structures of athletes (Partyka & Wąskiewicz, 2024). In this context, regional analyses provide a better understanding of the performance and morphological characteristics of marathon runners and contribute to the development of strategies to encourage participation in sports. In addition, the fact that the individuals participating in local organizations are usually amateur athletes is valuable in terms of accommodating a wider age range and physical diversity (Nikolaidis *et al.*, 2021). This situation necessitates a broader perspective of athlete profiles. Therefore, studies on individuals participating in local races have the potential to provide more inclusive data, going beyond traditional approaches that focus only on elite athletes.

Considering all these situations, research on marathon runners has addressed many different issues. However, studies examining morphology and foot biomechanics together are in the minority in the literature. This situation is important to address this issue together. Our aim in this study is to examine the morphological characteristics of individuals participating in marathon running according to foot biomechanics, age group and regular exercise status. Our hypothesis is that the physical parameters will differ significantly in terms of the selected conditions (foot biomechanics, age group, exercise status).

MATERIAL AND METHOD

Method and Participants: In the study, scale method and experimental design methods, which are quantitative research methods, were used. Individuals participating in the Gallipoli Marathon organized in 2024 participated in the study. In the sampling dimension of the research, calculations were made by accepting the confidence interval as more than 0.80 and the margin of error as 0.10 regarding the representation of the sample. As a result of these calculations, the total participation in the Gallipoli marathon is 2405 people. In this research, 241 people participating in the research within the scope of 10 % confidence interval is sufficient for the power to represent the universe. In this context, 571 (300 males, 271 females) amateur/recreational marathon runners aged 18 years and over, participated in the study. Morphological measurements and foot posture analysis were used to determine the physical status of the individuals participating in the study. The demographic

information form consisted of a form containing information such as age, gender, and regular exercise status of the individuals participating in the study. All participants provided written informed consent after being briefed on the study procedures. The study was conducted by the ethical principles outlined in the Declaration of Helsinki and was approved by the relevant institutional ethics committee (Çanakkale Onsekiz Mart University, E-84026528-050.99-2400243563. 2024.13/12).

Morphological measurements: Height, body weight, body mass index (BMI), body mass index (BM), basal metabolic rate (BMR), fat percentage (Fat%), fat mass, fat free mass (FFM), total body mass (TBM) values were evaluated. Height was measured with a stadiometer (SECA, Germany) with a precision of 0.1 mm. Measurements were taken in cm with the heels of the feet together, head upright and eyes facing forward. Body weight, body mass index (BMI), basal metabolic rate (BMR), fat percentage (Fat%), fat mass, fat free mass (FFM), total body mass (TBM) values will be analyzed using bioelectrical impedance method (BIA) (Inbody, 270). In this context, body mass index (BMI) was calculated by dividing the body weight of the individual in kg by the square of the height in m. In the literature, BMI ranges are as follows: <16.00 kg/m² "severely underweight", 16.00-16.99 kg/m² "moderately underweight", 17.00-18.49 kg/m² "slightly underweight", 18.5-24.99 kg/m² "normal", 25.00-29.99 kg/m² "obese", 30.00-34.99 kg/m² are defined as "Grade 1 obese, 35.00-39.99 kg/m² as "Grade 2 obese", and 40.00 kg/m² as "Grade 3 obese" (Ozer, 2009). Basal metabolic rate (BMR), is the minimum amount of energy an individual expends at rest to maintain basic vital functions. Fat percentage (Fat%) is the percentage of an individual's body weight that is composed of adipose tissue, fat mass is the value in kg of adipose tissue in the body, fat free mass (FFM) is the total weight of all tissues other than fat, and total body mass (TBM) is the sum of fat mass and fat free mass. These measurement calculations were performed automatically by the bioelectrical impedance device.

Analysis of foot biomechanics: For the analysis of foot biomechanics, a foot sole imaging (podoscope) device with dimensions of 46 x 55 x 33 s, weighing 15 kg and a maximum weight bearing capacity of 200 kg with product code 02990 of Italian brand was used. During the measurements, shoes and socks were removed from the individuals. Then, the obtained foot biomechanics were evaluated according to the Staheli Index (Staheli *et al.*, 1987). Accordingly, a foot base ratio of 0.29 and below is defined as pes cavus, between 0.30 and 0.70 as normal, between 0.71 and 1.0 as pes planus (flexible), and 1.01 and above as pes planus (rigid) (Staheli *et al.*, 1987).

Statistical Analysis: SPSS 25 program was used for data analysis. First of all, the normality assessment of the data obtained was made with Skewness-Kurtosis values. It was determined that the data showed a normal distribution (+1.5 to -1.5). Descriptive statistic was used for descriptive analysis, independent sample t-test and ANOVA tests were used for other analyses. Tukey-HSD tests were preferred for analyzing the difference between groups in ANOVA. The significance value for this study was determined as $p < 0.05$.

RESULTS

Table I. Distribution of the physical conditions of the individuals who participated in the Gallipoli Marathon.

	N	Min	Max	X	Sd.
Height (cm)	571	137,00	192,00	169,91	9,50
Body Weight (kg)	571	27,70	114,20	72,83	14,07
BMI	571	14,80	37,60	25,12	4,00
BMR	571	1080,00	2387,00	1599,74	249,07
Fat%	571	2,20	47,30	23,74	8,71
Fat Mass	571	1,50	44,00	17,59	7,98
FFM	571	25,00	85,80	55,23	11,14
TBM	571	18,30	62,80	40,43	8,15

*BMI: Body Mass Index, BMR: Basal Metabolism Rate, FFM: Fat Free Mass, TBM: Total Body Mass.

The findings obtained in the research are as follows.

In Table I, it was determined that the mean height of the athletes participating in the Gallipoli marathon was 169.91 ± 9.50 cm, mean body weight was 72.83 ± 14.07 kg, mean BMI was 25.12 ± 4.0 kg/m², mean BMR was 1599.74 ± 249.07 , mean Fat% was 23.74 ± 8.71 , mean Fat Mass was 17.59 ± 7.98 , mean FFM was 55.23 ± 11.14 and mean TBM was 40.43 ± 8.15 .

Figure 1 shows that Body Mass Index (BMI), Basal Metabolism Rate (BMR), Fat% and Fat Mass values of the athletes participating in the Gallipoli marathon were analyzed according to their regular exercise in their daily lives. Accordingly, significant differences were found in Body Mass Index (BMI) (-1.74 to -10.95 % CI; $t = -2.225$; $p < 0.027$), Fat% (-6.19 to -2.72 95 % CI; $t = -5.045$; $p < 0.000$) and Fat Mass (-5.28 to -2.07 95 % CI; $t = -4.516$; $p < 0.000$) values according to regular exercise status. There was no significant difference in Basal Metabolism Rate (BMR) (-53.44 to 233.96 95 % CI; $t = 1.235$; $p > 0.218$).

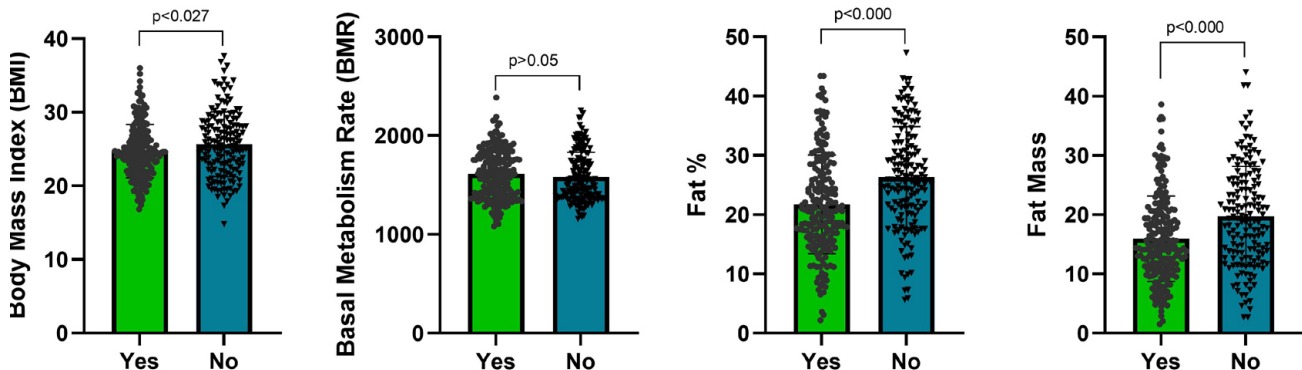


Fig. 1. BMI, BMR, Fat% and Fat Mass Analysis in Regular Exercisers (yes) and Non-Exercisers (no).

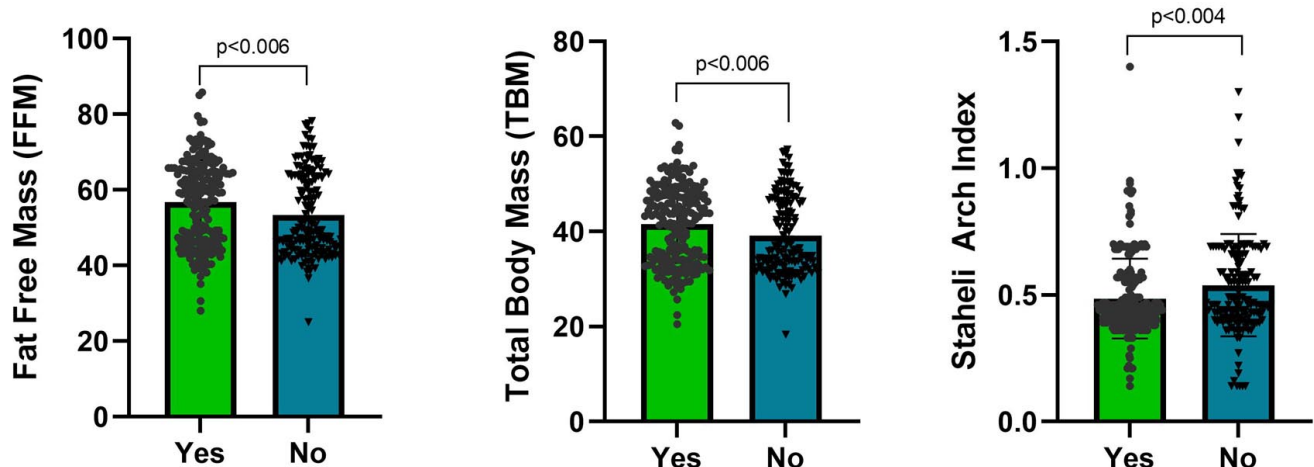


Fig. 2. FFM, TBM and Staheli Arch Index Analysis in Regular Exercisers (yes) and Non-Exercisers (no).

Figure 2 shows that Fat Free Mass (FFM) (0.94 to 5.48 95 % CI; $t = 2,782$; $p < 0.006$), Total Body Mass (TBM) (0.68 to 4.01 95 % CI; $t = 2,781$; $p < 0.006$), Staheli Arch Index (-0.08 to -0.016 95 % CI; $t = -2,859$; $p < 0.004$) according to regular exercise.

Figure 3 shows that Body Mass Index (BMI), Basal Metabolism Rate (BMR), Fat% and Fat Mass values were analyzed according to the foot posture of the athletes participating in the Gallipoli marathon. Accordingly, Body Mass Index (BMI) (-0.55 to 1.99 % CI; $t = -0.030$; $p < 0.976$), Basal Metabolism Rate (BMR) (-144.19 to 301.74 95 % CI; $t = 0.504$; $p > 0.615$), Fat% (-3.09 to 2,47 95 % CI; $t = -0.895$; $p > 0.371$) and Fat Mass (-2,08 to 3.01 95 % CI; $t = -0.616$; $p > 0.538$) values according to flat feet status.

Figure 4 shows that there was a significant difference in the Staheli Arch Index (-0.30 to -0.20 95 % CI; $t = -19.779$; $p < 0.000$) values of the athletes participating in the Gallipoli

Marathon according to the foot posture status. Fat Free Mass (FFM) (-1.50 to 5.59 95 % CI; $t = 0.754$; $p > 0.452$), Total Body Mass (TBM) (-1.10 to 4.09 95 % CI; $t = 0.749$; $p > 0.454$) values were not significantly different according to the status of doing sports (Fig. 4).

As a result of the analysis of the physical status of the individuals participating in the Gallipoli Marathon according to age groups in Table II, significant differences were found in Body Mass Index (BMI), Fat%, Fat Mass, Fat Free Mass (FFM), Total Body Mass (TBM) values ($p < 0.05$). As a result of the post-hoc analysis performed to determine between which groups the difference obtained was between, the difference in Body Mass Index (BMI) was found to be between the age groups below 20 years (a) and 21-31 years (b), below 20 years (a) and 31-40 years (c), below 20 years (a) and 41-50 years (d), Under 20 years (a) to 51-60 years (e), under 20 years (a) to over 60 years (f), 21-31 years (b) to 41-50 years (d), 21-31 years (b) to 51-60

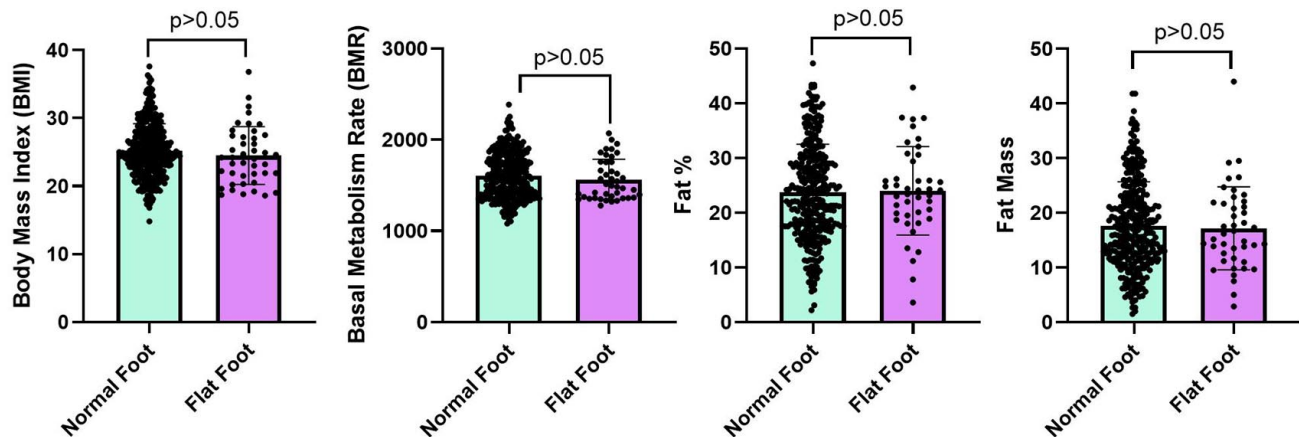


Fig. 3. BMI, BMR, Fat% and Fat Mass Analysis according to foot posture.

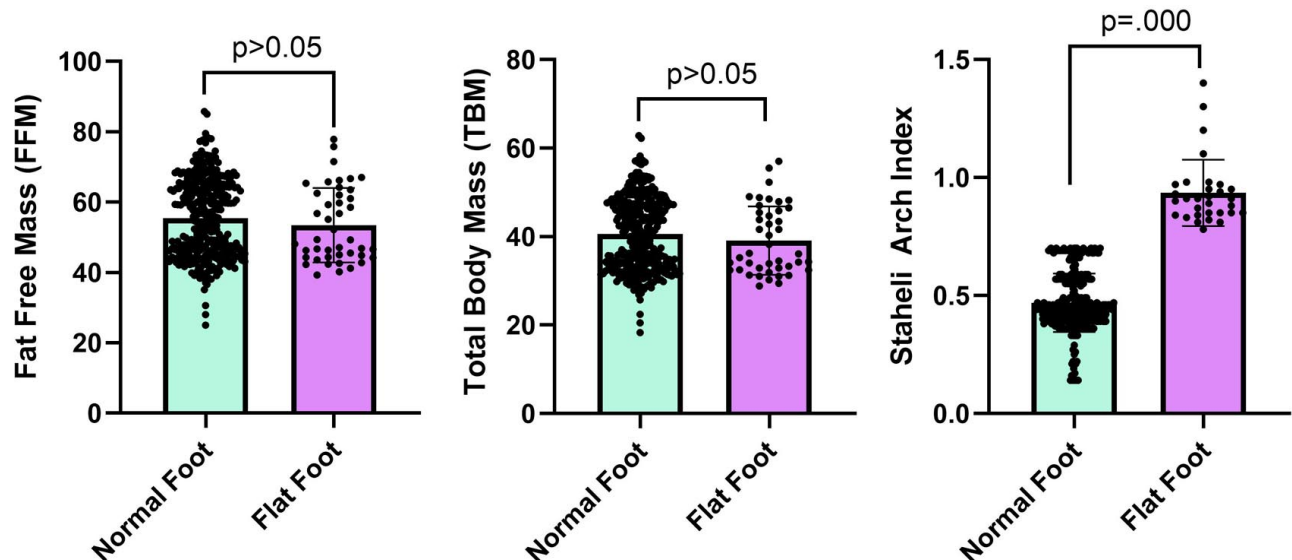


Fig. 4. FFM, TBM and Staheli Arch Index Analysis according to foot posture.

years (e), 21-31 years (b) to over 60 years (f), 31-40 years (c) to 41-50 years (d), 31-40 years (c) to 51-60 years (e) and 31-40 years (c) to over 60 years (f), Differences in Fat% and Fat Mass were observed between under 20 years of age (a) and 21-31 years of age (b), under 20 years of age (a) and 31-40 years of age (c), under 20 years of age (a) and 41-50 years of age (d), under 20 years of age (a) and 51-60 years of age (e), under 20 years of age (a) and over 60 years of age (f), 21-31 years of age (b) and 31-40 years of age (c), 21-31

years of age (b) and 41-50 years of age (d), 21-31 years (b) and 51-60 years (e), 21-31 years (b) and over 60 years (f), 31-40 years (c) and 51-60 years (e), and 31-40 years (c) and over 60 years (f), while the differences in Fat Free Mass (FFM) and Total Body Mass (TBM) were found to be between under 20 years (a) and 41-50 years (d).

There was no significant difference in Basal Metabolism Rate (BMR) according to age group ($p>0.05$)

Table II. Analysis of the physical condition of the individuals participating in the Gallipoli Marathon according to age groups.

		N	X	Sd.	F	P	Post-hoc	
BMI	Under 20 (a)	69	20.77	3.16	21.647	.000*	a-b,	a-c,
	21-31 Years (b)	89	23.69	3.74			a-d,	a-e,
	31-40 Years (c)	150	24.68	3.50			a-f,	b-d,
	41-50 Years (d)	111	26.45	3.17			b-e,	b-f,
	51-60 Years (e)	75	27.29	3.59			c-d,	c-e,
	Over 60 Years (f)	77	27.29	4.17			c-f	
BMR	Under 20 (a)	69	1616.36	243.51	1.247	.286	-	
	21-31 Years (b)	89	1660.01	293.42				
	31-40 Years (c)	150	1729.20	1190.5				
	41-50 Years (d)	111	1646.87	212.02				
	51-60 Years (e)	75	1497.38	223.49				
	Over 60 Years (f)	77	1473.29	230.13				
Fat%	Under 20 (a)	69	14.83	6.85	19.441	.000*	a-b,	a-c,
	21-31 Years (b)	89	19.80	7.12			a-d,	a-e,
	31-40 Years (c)	150	24.21	7.24			a-f,	b-c,
	41-50 Years (d)	111	24.58	8.22			b-d,	b-e,
	51-60 Years (e)	75	28.87	8.93			b-f,	c-e,
	Over 60 Years (f)	77	28.49	8.76			c-f	
Fat Mass	Under 20 (a)	69	8.90	5.03	20.660	.000*	a-b,	a-c,
	21-31 Years (b)	89	13.95	6.31			a-d,	a-e,
	31-40 Years (c)	150	17.78	6.91			a-f,	b-c,
	41-50 Years (d)	111	19.35	7.46			b-d,	b-e,
	51-60 Years (e)	75	21.57	7.72			b-f,	c-e,
	Over 60 Years (f)	77	21.95	8.50			c-f	
FFM	Under 20 (a)	69	51.23	12.23	2.819	.016*	a-d	
	21-31 Years (b)	89	56.38	12.97				
	31-40 Years (c)	150	55.14	10.42				
	41-50 Years (d)	111	58.40	9.49				
	51-60 Years (e)	75	53.14	11.49				
	Over 60 Years (f)	77	53.75	10.71				
TBM	Under 20 (a)	69	37.50	8.96	2.817	.016*	a-d	
	21-31 Years (b)	89	41.27	9.50				
	31-40 Years (c)	150	40.37	7.63				
	41-50 Years (d)	111	42.75	6.94				
	51-60 Years (e)	75	38.90	8.41				
	Over 60 Years (f)	77	39.35	7.84				

* $p<0,05$, BMI: Body Mass Indeks, BMR: Basal Metabolism Rate, FFM: Fat Free Mass, TBM: Total Body Mass.

As a result of the analysis of the physical condition of the individuals participating in the Gallipoli Marathon according to their age groups in Table III, a significant difference was found in the Staheli Index value ($p<0.05$). As a result of the post-hoc analysis performed to determine

between which groups the obtained difference was between, it was determined that the difference in the Staheli Index was between the age groups under 20 years (a) and 41-50 years (d), under 20 years (a) and 51-60 years (e), and under 20 years (a) and over 60 years (f).

Table III. Analysis of foot biomechanics according to age groups of individuals participating in the Gallipoli Marathon.

		N	X	Sd.	F	P	Post-hoc
Staheli Index	Under 20 (a)	69	.42	.15	4.023	.001*	a-d, a-e, a-f,
	21-31 Years (b)	89	.50	.20			
	31-40 Years (c)	150	.48	.18			
	41-50 Years (d)	111	.53	.16			
	51-60 Years (e)	75	.54	.13			
	Over 60 Years (f)	77	.56	.18			

*p<0.05

DISCUSSION

The aim of this study was to examine the physical characteristics of individuals participating in marathon running according to the foot biomechanics, age group and regular exercise status of the athletes. The results of the study generally showed that there were differences in morphological characteristics according to age groups and regular exercise status in their daily lives except for marathon. However, there were no differences in morphological characteristics according to foot biomechanics.

The findings of the present study showed that flat-footed individuals showed similar body mass index characteristics compared to non-flat-footed individuals according to foot biomechanics, but basal metabolic rate was slower in flat-footed individuals, fat percentage and fat mass were higher in flat-footed individuals, and fat-free mass was lower in flat-footed individuals. Although these results were similar to the studies in the literature comparing the morphologic characteristics of flat-footed and non-flat-footed individuals, these findings were not significant in our study (Figs. 3 and 4). However, studies in the literature show that there are significant differences between individuals with and without flat feet (Shibuya *et al.*, 2010; Ezeukwu *et al.*, 2018). In addition, while there were significant differences between the morphological characteristics of individuals with and without flat feet in the literature, there were very small differences in our study (Figs. 3 and 4). Previous studies have indicated that when body mass index and fat mass increase, individuals will experience more muscle fatigue while running. It also states that this will have negative effects on foot biomechanics and that the arch of the foot will begin to collapse over time as the feet carry more load (Aphale *et al.*, 2025). Studies in the literature indicate that marathon runners with normal foot biomechanics have low fat mass, low fat percentage, low body mass index (Molla, 2017). For example, in a study, the average body mass index of individuals over the age of 60 with flat feet was found to be 31.45 ± 5.55 kg/m² and 28.40 ± 4.17 kg/m² in individuals without flat feet (Pita-Fernandez *et al.*, 2017). In another study, the body mass indexes of individuals with flat feet were found to be

26.52 ± 5.42 kg/m² and 25.07 ± 4.71 kg/m² in individuals without flat feet (Shibuya *et al.*, 2010). Again, in a different study, it was found that the body fat percentage of flat-footed individuals was higher than flat-footed individuals, and muscle mass was lower than flat-footed individuals (Wyszyn'ska *et al.*, 2020). Previous research indicates that individuals with flat feet have higher BMI, TFM, total skeletal muscle mass, fat-free mass, and fat-free mass index than individuals without flat feet (Tanamas *et al.*, 2012). However, in some studies conducted on children in the literature, there are studies that did not detect significant differences in body mass indices according to flat feet. In addition, in some research findings, there are studies in which the body mass indexes of individuals with flat feet are lower than those without flat feet (Evans, 2011).

The present study found that body mass index, fat percentage, fat mass of individuals who exercised regularly were lower than marathon runners who did not exercise regularly, while fat free mass and total body mass were higher than individuals who did not exercise regularly. When the findings of the same study were analyzed in terms of basal metabolic rate, no significant difference was found between regular exercisers and non-regular exercisers (Figs. 1 and 2). Studies in the literature support this situation (Leite *et al.*, 2014; Aksoy & Selen, 2018; Rangel-García *et al.*, 2025). The existing literature states that regular exercise has many positive effects on the human body (Chang & Etnier, 2009). It also states that this effect shows the same effect in different age groups, between genders and according to various sports branches (Aksoy & Selen, 2018; Dzhanuzakov *et al.*, 2025). In addition, studies indicate that the body fat tissues of those who do not exercise regularly will increase over time, bone and muscle tissues will weaken, in short, their morphological characteristics will deteriorate (Ellis, 2000). In our study, basal metabolic rate showed that there was no significant difference between marathon runners who exercised regularly and marathon runners who did not exercise regularly (Fig. 1). However, literature findings indicate that there is a significant difference between the two groups (Aksoy & Selen, 2018). In addition, it is stated that the basal

metabolic rate of the group that exercises regularly will be higher than those who do not exercise regularly (Aksoy *et al.*, 2017). In addition, it is stated that having more muscle mass increases the basal metabolic rate of individuals (Aksoy & Selen, 2018). There may be several reasons for this difference. The first of these is thought to be due to the difference between the sample group in our study and the findings of previous research. In addition, the age group of the sample in the previous study includes men between the ages of 18-25. In our study, the age group includes marathon runners older than 60 years. Secondly, although the individuals participating in the marathon race are individuals who do not exercise regularly, we do not have information that they have never exercised. For this reason, it is thought that individuals who do not exercise regularly, may be due to the fact that, except for the marathon, they do participate in sports, but do not exercise regularly. In addition, according to the Staheli Arch index, which is the flat feet index, the findings of this research show that individuals who do not exercise regularly have a higher score in the Staheli index than individuals who exercise regularly. Previous studies in the literature support this situation (Molla, 2017; Aphale *et al.*, 2025). This may be thought to be due to the fact that regular exercise ensures that individuals are in a good condition in terms of morphological characteristics. As a matter of fact, it is stated that increasing fat mass and body mass index create more load on the feet of individuals and these reasons may play an important role in the collapse of the arches of the feet of individuals (Aphale *et al.*, 2025)

The findings of the present study showed that there was a significant difference in body mass index, fat percentage, fat mass, fat free mass and total body mass of marathon runners in terms of age groups, while there was no significant difference in basal metabolic rate according to age groups. Accordingly, the findings of this study showed that body mass index, fat percentage and fat mass of marathon runners increased with increasing age, while fat-free mass and total body mass decreased with increasing age. Studies in the literature support this situation (Navaratnarajah & Jackson, 2017; Young & Maguire, 2019). Morphological characteristics weaken with the increasing age of individuals, regardless of sports. The main reason for this situation is aging. As a matter of fact, the percentage of fat and fat mass in the human body increases with aging. Accordingly, the body mass index also increases (Navaratnarajah & Jackson, 2017). Again, weakening of cellular functions occurs with aging. This is reflected on the whole body. Individuals produce less energy, basal metabolism decreases, muscle ratio decreases and bone density decreases (Navaratnarajah & Jackson, 2017). Again, the current research finding showed that there is a difference between the Staheli indices of individuals. This may be due

to the deformations that occur in the musculoskeletal system of the individual with increasing age. In addition, increasing fat mass and body mass index with age may play a role in the collapse of the arch of the foot (Aphale *et al.*, 2025).

CONCLUSIONS

As a result of the research, it was seen that the number of flat feet in marathon runners was in the minority, flat feet were not effective in morphological characteristics, regular exercise and age group were effective. The study consists of 571 people who participated in the Gallipoli marathon and voluntarily participated in this study. This makes it difficult to generalize the study. Another limitation is related to morphological characteristics. Morphological characteristics also include different parameters such as total body water, skeletal muscle mass, body density, distribution of water inside and outside the cell and body circumference, ratios and indices. The measurement tool used in this study provided information about BMI, BMR, Fat%, Fat Mass, FFM, CPC parameters. Another limitation is that the majority of the runners participating in the study were recreational marathon runners. This makes it difficult to fully define professional athletes.

SANAL, A.; AÇAK, M.; YALÇIN, E. & ACAR, K.B. Características morfológicas y posturales de corredores de maratón: Un estudio de campo a gran escala de la maratón de Galípoli. *Int. J. Morphol.*, 43(5):1470-1477, 2025.

RESUMEN: Este estudio se realizó para examinar las características morfológicas de los atletas de maratón según la biomecánica del pie, el grupo de edad y el estado de ejercicio regular. Se incluyeron en el estudio corredores que participaron en la maratón de Galípoli organizada en 2024. En este contexto, participaron 571 corredores de maratón (300 hombres, 271 mujeres) mayores de 18 años. Se utilizó un diseño de investigación mixto. Se analizaron las mediciones morfológicas y la postura del pie de los corredores. Se utilizó el programa SPSS 25 para el análisis de datos. La prueba de normalidad de los datos se realizó con valores de asimetría-curtosis. En los resultados de la investigación, no se encontraron diferencias significativas en las características morfológicas según el estado postural del pie ($p > 0,05$). Se encontraron diferencias significativas en el índice de masa corporal (IMC), el porcentaje de grasa (% grasa), la masa grasa (% grasa), la masa libre de grasa (MLG), la masa corporal total (MCT) y el índice de arco de Staheli ($p < 0,05$), mientras que no se encontraron diferencias significativas en la tasa metabólica basal (TMB) ($p > 0,05$). Según los grupos de edad, se encontraron diferencias significativas en el IMC, el % grasa, la masa grasa, la MLG, el CPC y el índice de Staheli ($p < 0,05$), mientras que no se encontraron diferencias en la tasa metabólica basal ($p > 0,05$). Como resultado de la investigación, se observó que el ejercicio regular y el grupo de edad fueron efectivos en las características morfológicas de los corredores de maratón, pero no así en el pie plano.

PALABRAS CLAVE: Maratón; Composición corporal; Antropometría; Pie plano.

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