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Body Composition and Physical Performance by Playing Position in Amateur Female Soccer Players

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Abstract: This study analyzed differences in body composition, jump performance, running speed, and ball-kicking speed according to playing position in amateur female soccer players. This cross-sectional study involved 160 females distributed into groups of goalkeepers (n = 20), defenders (n = 38), midfielders (n = 52), and forwards (n = 50), with a mean age of 27.1 ± 3.23 years. They were assessed for body fat percentage (BFP), fat-free mass (FFM), squat jump, countermovement jump, drop jump (DJ), and running sprint speed for 10 m, 20 m, and 30 m, and ball-kicking speed (BKS) with both feet. Significant differences were found between groups in FFM ($F_{(3,96)}$ = 17.4; p = 0.000) and BFP ($F_{(3,96)}$ = 7.00; p = 0.000), with a higher FFM in midfielders with respect to goalkeepers (p = 0.00; ES = 1.77; Δ = 27%), defenders (p = 0.00; ES = 2.14; Δ = 26.5%), and forwards (p = 0.00; ES = 1.13; Δ = 15.8%), and a lower BFP in midfielders with respect to goalkeepers (p = 0.00; ES = 1.41; Δ = 26.7%) and forwards (p = 0.00; ES = 1.05; Δ = 27%). In addition, significant differences were found between groups in DJ ($F_{(3,96)}$ = 20.8; p = 0.000), with midfielders achieving greater height compared to goalkeepers (p = 0.00; ES = 1.94; Δ = 25.1%), defenders (p = 0.00; ES = 1.59; Δ = 19%), and forwards (p = 0.00; ES = 1.73; Δ = 16.3%). Significant differences were found between groups in BKS for dominant ($F_{(3,96)}$ = 5.84; p = 0.001) and non-dominant ($F_{(3,96)}$ = 3.29; p = 0.02) feet, and these were lower in goalkeepers than defenders (p = 0.00; ES = 0.99; Δ = 8.83%) and midfielders (p = 0.00; ES = 1.21; Δ = 11.8%). In conclusion, midfielders presented significantly better body composition and physical performance than other playing positions.

Keywords: sports; team sports; football; body fat; muscle strength; athletic performance

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1. Introduction

Soccer is the world's most popular sport, with more than 260 million participants worldwide, of which 30 million are women [1]. Female participation in soccer has increased in recent years worldwide, reaching a total of 13.3 million players in 2019, and it is expected to reach 60 million by 2026 [2].

This sport requires multiple actions, such as running, turning, kicking, and jumping [3]. Soccer-specific technical and tactical qualities, like muscular strength, power, speed, endurance, and the capacity to sprint repeatedly, determine a player's success in the game [3].

In official matches, between 150 and 250 intense actions of short duration are executed, interspersed with periods of low-intensity actions [4]. Players perform between 1350 and 1650 movement changes, such as passing, tackling, catching, and dribbling [5], covering distances ranging from 10 km, of which 1.7 km are performed at high speeds (>18 km-h^{-1}) [5]. Similarly, body fat, such as fat-free mass, should be controlled, as adequate levels allow players to move more efficiently during training and matches [6]. Conversely, alterations in body composition can lead to undesirable changes in physique, which could affect physical performance and injury risk [6]. However, it should be noted that the game's physical demands vary depending on the level of play (i.e., youth, amateur, professional) [1].

Nevertheless, several studies have reported [6–8] that there are differences in body composition and physical performance according to playing position in soccer players. In a study conducted by Bernal-Orozco et al. [6] on professional male soccer players in the second division of the Mexican league, significant reductions ($p < 0.05$) were observed in the body fat percentage, with it being higher in goalkeepers than in central defenders and forwards. In terms of physical performance, Chena Sinovas et al. [7] reported significantly improved results ($p < 0.05$) in squat jump (SJ) and countermovement jump (CMJ), presenting a greater vertical jump height in defenders compared to center midfielders and forwards in amateur male soccer players. In contrast, Lamond et al. [9] reported no significant differences in linear acceleration in female college league soccer players according to playing position.

Although there is evidence of differences in body composition and physical performance according to playing position in male and female soccer players [6–9], these studies have been conducted at the professional level and in college league soccer players [8,9] and are so far unknown in amateur female soccer players. Therefore, this study aimed to analyze the differences in body composition, jump performance, running speed, and ball-kicking speed according to playing position in amateur female soccer players. Our hypothesis is that the results of our study would reflect the findings of previous studies [6–8], in the sense that there would be clear differences in body composition and physical performance according to playing position in amateur female soccer players.

2. Methods

2.1. Study Design

This study presents a cross-sectional, descriptive, and comparative design. Female soccer players from the amateur soccer league of Osorno, Chile, were invited to participate in this research. They were distributed according to their playing position (goalkeepers, defenders, midfielders, and forwards). Measurements of body composition (body fat percentage and fat-free mass), physical performance (SJ, CMJ, drop jump [DJ], running sprint speed for 10 m, 20 m, and 30 m, and ball-kicking speed with both feet) were performed. Body composition measurements were performed in the morning while fasting in a laboratory under controlled conditions with a temperature between 21 °C and 24 °C, while physical performance measurements were performed in the afternoon in the same place. These were carried out during the opening season of the amateur soccer league of Osorno, Chile. This is presented in Figure 1.

2.2. Participants

The sample size calculation indicates that the ideal number of participants is 80 females, of which 20 are in each group [10]. An alpha level (α) of 0.05 was considered, with a power of 80% (β) and a large effect size (d = 0.40). G*Power software (version 3.1.9.6, Franz Faul, Universiät Kiel, Kiel, Germany) was used to calculate statistical power. A total of 160 female soccer players (27.1 $\pm$ 3.23 years) were selected and distributed by playing position: goalkeepers (n = 20), defenders (n = 38), midfielders (n = 52), and forwards (n = 50). Amateur soccer players were considered those who did not play soccer as a profession and/or were in the youth series of professional teams. The inclusion criteria were the following: (i) female amateur soccer players aged $\geq$ 18 years old; (ii) with a minimum of

2 years of experience in the practice of soccer; and (iii) not being in any treatment for an injury. The exclusion criteria were the following: (i) professional or elite women soccer players; (ii) that they practice another sport apart from soccer; (iii) that they play in more than one soccer club; (iv) who are undergoing any pharmacological treatment that may affect physical performance or alter body composition; (v) that they are taking some sports supplementation that can maximize physical performance. Figure 2 shows the sample selection process.

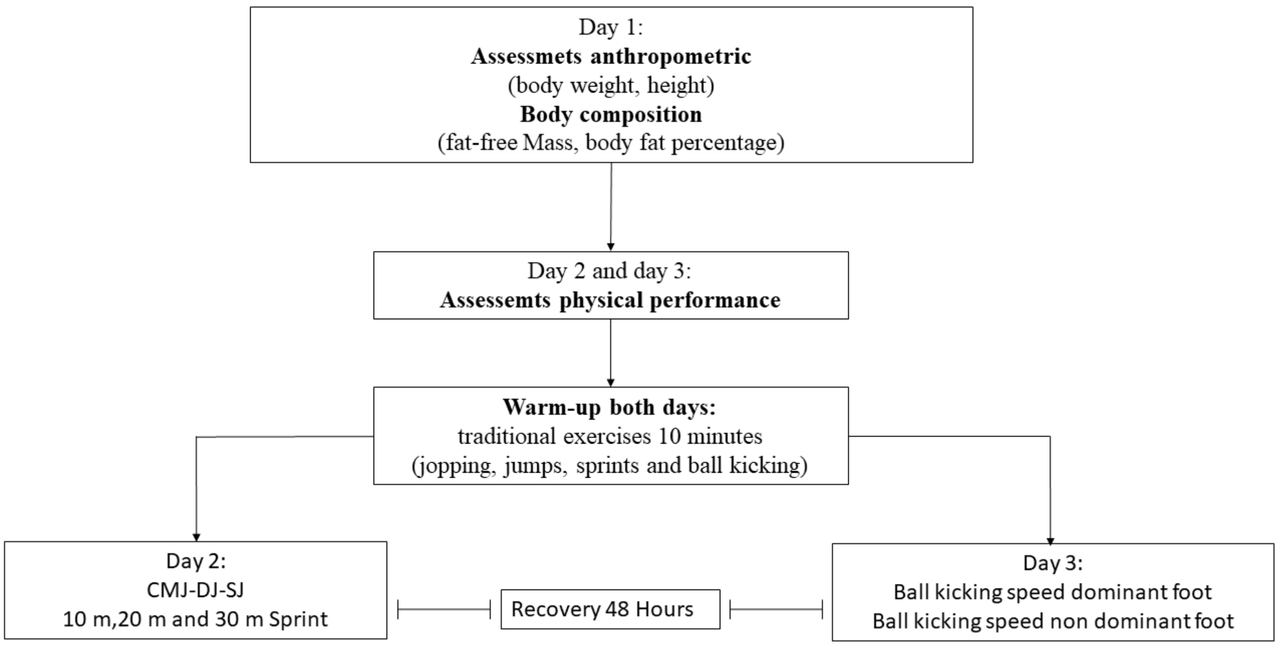

Figure 1. Procedure for measuring body composition and physical performance according to playing position in amateur female soccer players.

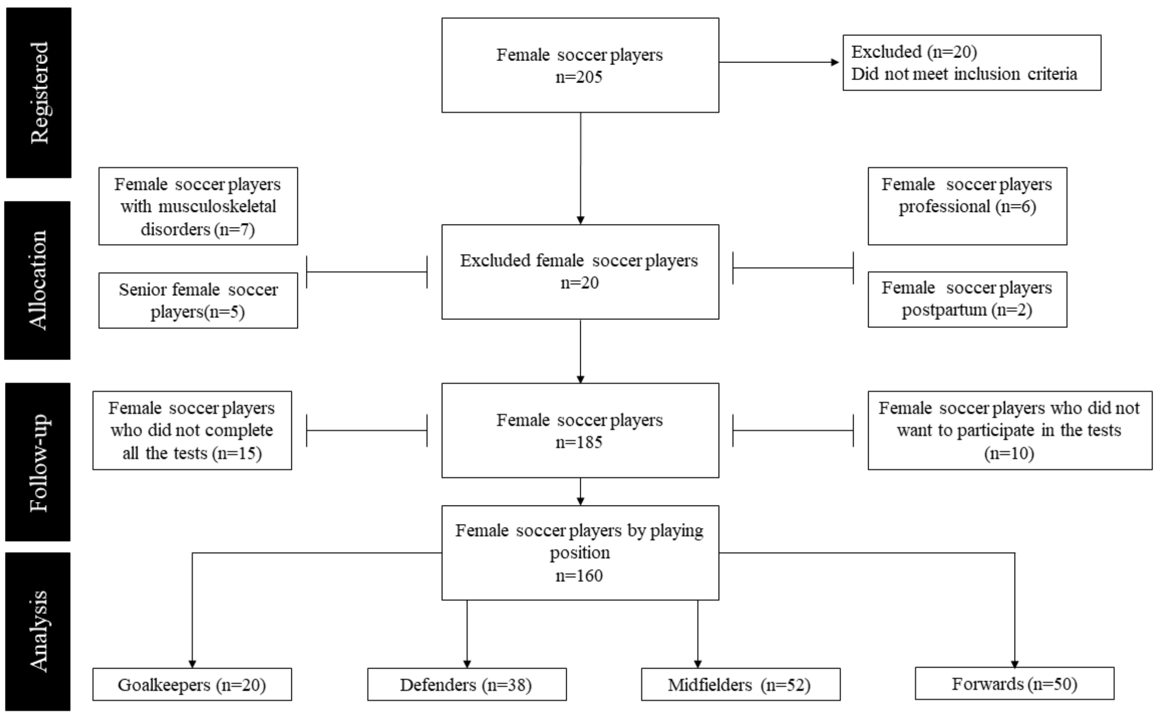

Figure 2. Flowchart of the recruitment process.

By signing an informed consent form or an assent form, respectively, all participants agreed to the terms for handling and utilizing the data, allowing their use for scientific research. The Universidad Autónoma de Chile's Scientific Ethics Committee examined and approved the study protocol (approval number: 126/18). The protocol was created in accordance with the Helsinki Declaration's recommendations for research involving human beings.

2.3. Body Composition

With the barest minimum of clothing on, body weight was determined using a mechanical scale (Scale-tronix, Chicago, IL, USA; accuracy to 0.1 kg) and bipedal height was measured with a stadiometer (Seca model 220, SECA, Hamburg, Germany; accuracy to 0.1 cm). Tetrapolar bioimpedance (InBody 570®, Seoul, Republic of Korea) with eight tactile point electrodes was used to calculate the body fat percentage and fat-free mass. For every measurement, the International Society for the Advances in Kinanthropometry (ISAK) guidelines were adhered to [11].

2.4. Jump Performance

Every test involving jumping was carried out in compliance with earlier guidelines [12]. Soccer players performed maximal-effort leaps with their arms crossed over their iliac crests on an Ergojump® Globus mobile contact platform (ErgoTest, Codogne, Italy) for the CMJ. Players performed complete knee and ankle extensions during the flight phase, and takeoff and landing were standardized at the same spot. The players walked onto the contact platform for the SJ. They raised their arms above their iliac crests and semi-flexed their knees to a 90° angle. Once they were given the "stop" signal, they maintained this posterior stance to perform the maximum leap.

During the flight phase, the subjects executed total knee and ankle extensions, and the takeoff and landing were standardized at the exact same position. In the DJ test, participants were told to descend from a 20 cm box with the least amount of ground contact time (<250 ms) [13]. In CMJ, SJ, and DJ tests, the best three jumps were recorded, with a one-minute break in between each attempt. A high reliability of 0.96 was found for the data collected for the SJ, CMJ, and DJ.

2.5. Running Sprint Speed

Single-beam timing gates were used to calculate sprint time to the closest 0.01 s using a Timing System Brow-er® (Salt Lake City, UT, USA). First, female soccer players lined up behind the starting line for their preferred toe-off. The player started the test, which set off the timing automatically, and started the sprint. The 10 m, 20 m, and 30 m sprints as well as the start (0.3 m in front of the competitor) had timing gates. They were positioned at hip level, or about 0.7 m above the ground. With this approach, trunk movement can be recorded instead of a limb being falsely triggered. There was a one-minute break in between each of the three sprint attempts, with the best of the three being recorded [14]. It was found that the maximum speed data for the 10 m, 20 m, and 30 m sprints had a high reliability of 0.98.

2.6. Ball-Kicking Speed

After running two steps with a size five soccer ball (Molten Vantaggio 5000®, FIFA PRO approved, Hiroshima, Japan), participants executed a maximal instep ball strike with both their dominant and non-dominant legs. The Radar Gun Speed SR3600 (Sports Radar®, Homosassa, FL, USA) was used to measure the maximum speed. A one-minute break was taken between each of the three attempts, with the best attempt being recorded [15]. It was found that the ball striking speed data had a high dependability of 0.94.

2.7. Statistical Analysis

Mean, standard deviation (SD; ±), and relative delta (Δ) were used to present descriptive statistics. The Shapiro–Wilk test was used to determine the normality of the data, while Levene's test was used to determine the homogeneity of variance. A normal distribution was observed in the data; thus, to compare the positions of goalkeepers, defenders, midfielders, and forwards in terms of body composition and physical performance, the one-way ANOVA test was used with Tukey post hoc testing. The effect size (ES) was calculated with Cohen's *d* [16] considering a *small* (0.20 to 0.49), *moderate* (0.50 to 0.79), or *large* (>0.80) effect; the formula used was $d = (M^1 - M^2)/SD$ [17]. The α level was set at $p < 0.05$ for statistical significance. Data were analyzed with SPSS 25.0 statistical software (SPSS 25.0 for Windows, SPSS Inc., Chicago, IL, USA).

3. Results

The primary characteristics and classification of the groups according to playing position are presented in Table 1. In terms of body composition by playing position, significant differences were reported in fat-free mass between groups ($F_{(3,96)} = 17.4$; $p = 0.000$), in favor of midfielders vs. goalkeepers ($p = 0.00$; ES = 1.77, *large effect*, Δ = 27%) and defenders ($p = 0.00$; ES = 2.14, *large effect*; Δ = 26.5%) and forwards ($p = 0.00$; ES = 1.13, *large effect*; Δ = 15.8%). Meanwhile, no significant differences were found when comparing goalkeepers vs. defenders (ES = 0.03; *small effect*; Δ = 0.3%), goalkeepers vs. forwards (ES = 0.65; *moderate effect*; Δ = 6.9%), and defenders vs. forwards (ES = 0.40; *small effect*; Δ = 6.5%).

Table 1. Characteristics and physical profiles of the female soccer players according to playing position.

	Goalkeepers (n = 20)	Defenders (n = 38)	Midfielders (n = 52)	Forwards (n = 50)
Age (years old)	26.7 ± 3.82	27.8 ± 3.12	26 ± 3.08	27.9 ± 2.90
Body mass (kg)	71.2 ± 5.5	63.4 ± 6.2	61.5 ± 9.3	64.1 ± 8.1
Height (m)	1.73 ± 4.2	1.68 ± 5.3	1.65 ± 8.1	1.67 ± 6.2
BMI (kg/m^2)	23.8 ± 5.3	22.5 ± 7.4	22.6 ± 7.9	23.0 ± 4.2
Fat-free mass (kg)	25.9 ± 3.90	26 ± 2.17	32.9 ± 4.00	27.7 ± 5.08
Body fat (%)	37.4 ± 6.77	32.9 ± 10.6	27.4 ± 7.33	34.8 ± 6.65
CMJ (cm)	29.8 ± 4.79	31.8 ± 5.26	30.4 ± 4.93	28.9 ± 4.12
SJ (cm)	26.9 ± 3.12	29.4 ± 3.30	30.4 ± 2.13	28.5 ± 2.15
DJ (cm)	19.5 ± 2.48	20.5 ± 2.34	24.4 ± 2.56	20.4 ± 2.02
Ball-kicking speed, dominant foot (km/h)	53.2 ± 4.13	57.9 ± 5.29	59.5 ± 6.03	57.4 ± 5.54
Ball-kicking speed, non-dominant foot (km/h)	51.3 ± 4.58	53.2 ± 3.83	55.2 ± 5.08	53.0 ± 3.88
10 m sprint (s)	2.61 ± 0.47	2.58 ± 0.46	2.37 ± 0.41	2.44 ± 0.49
20 m sprint (s)	5.53 ± 0.08	5.41 ± 0.93	5.33 ± 0.86	5.39 ± 0.08
30 m sprint (s)	8.54 ± 1.17	8.49 ± 1.18	7.71 ± 1.30	7.82 ± 1.38

Note: BMI = body mass index; CMJ = countermovement jump; SJ = squat jump; DJ = drop jump.

In terms of lower body fat percentages, significant differences were reported between groups ($F_{(3,96)} = 7.00$; $p = 0.000$), in favor of midfielders vs. goalkeepers ($p = 0.00$; ES = 1.41, *large effect*; Δ = 26.7%) and forwards ($p = 0.008$; ES = 1.05, *large effect*; Δ = 27%), but no significant differences were reported between midfielders and defenders (ES = 0.60; *moderate effect*; Δ = 4.4%). Furthermore, no significant differences were found when comparing goalkeepers vs. defenders (ES = 0.05; *small effect*; Δ = 6.7%), goalkeepers vs. forwards (ES = 0.65; *moderate effect*; Δ = 6.9%), and defenders vs. forwards (ES = 0.40; *small effect*; Δ = 5.7%). Figure 3 presents the comparison of body composition by playing position.

In terms of physical performance in the CMJ and SJ test, no significant differences were found between groups in CMJ ($F_{(3,96)} = 1.61$; $p = 0.19$) and SJ ($F_{(3,96)} = 3.32$; $p = 0.23$): comparing goalkeepers vs. defenders in CMJ (ES = 0.35, *small effect*; Δ = 6.7%) and SJ (ES = 0.77, *moderate effect*; Δ = 9.2%), vs. midfielders in CMJ (ES = 0.12; Δ = 2.0%) and SJ (ES = 1.31, *large effect*; Δ = 13%), vs. forwards in CMJ (ES = 0.20, *small effect*; Δ = 3.0%) and SJ

(ES = 0.59, *moderate effect*; Δ = 5.9%); defenders vs. midfielders in CMJ (ES = 0.28, *small effect*; Δ = 4.4%) and SJ (ES = 0.36, *small effect*; Δ = 3.4%), vs. forwards in CMJ (ES = 0.64, *moderate effect*; Δ = 9.11%) and SJ (ES = 0.32, *small effect*; Δ = 3.0%); and midfielders vs. forwards in CMJ (ES = 0.33, *small effect*; Δ = 4.9%) and SJ (ES = 0.88, *large effect*; Δ = 6.2%). However, in DJ, there were statistically significant differences between groups ($F_{(3,96)}$ = 20.8; p = 0.000): comparing midfielders vs. goalkeepers (p = 0.00; ES = 1.59, *large effect*; Δ = 9.2%%), vs. defenders (p = 0.00; ES = 1.21, *large effect*; Δ = 25.1%); and vs. forwards (p = 0.00; ES = 1.73, *large effect*; Δ = 16.3%), showing a greater jump height in favor of midfielders, but no significant differences were recorded when comparing goalkeepers vs. defenders (ES = 0.41, *small effect*; Δ = 5.1%), goalkeepers vs. forwards (ES = 0.39, *small effect*; Δ = 4.6%), or defenders vs. forwards (ES = 0.04; Δ = 0.4%).

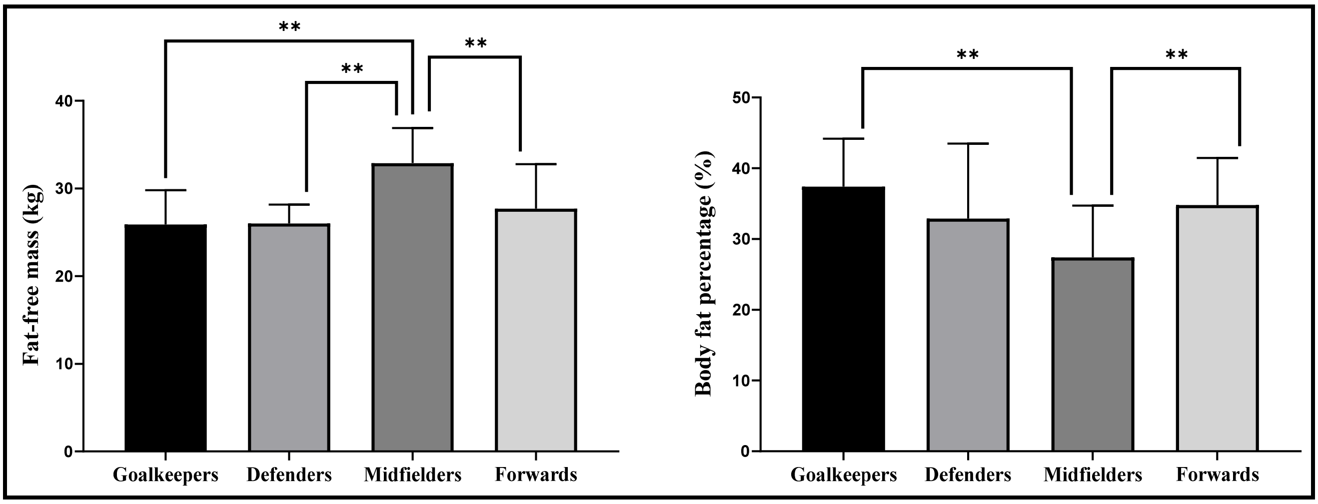

Figure 3. Comparison of body composition by playing position in female soccer players. Legends: * = $p < 0.05$. ** = $p < 0.01$.

Similarly, in the 10 m, 20 m, and 30 m sprints, there were no significant differences in 10 m ($F_{(3,96)}$ = 2.94; p = 0.30), 20 m ($F_{(3,96)}$ = 1.50; p = 0.21), or 30 m ($F_{(3,96)}$ = 0.21; p = 0.88): comparing goalkeepers vs. defenders in the 10 m sprint (ES = 0.06; Δ = 1.1%), 20 m sprint (ES = 0.18; Δ = 2.1%), and 30 m sprint (ES = 0.04; Δ = 0.5%), vs. midfielders in the 10 m sprint (ES = 0.54, *moderate effect*; Δ = 9.1%), 20 m sprint (ES = 0.32, *small effect*; Δ = 3.6%), and 30 m sprint (ES = 0.67, *moderate effect*; Δ = 9.7%), vs. forwards in the 10 m sprint (ES = 0.35, *small effect*; Δ = 6.5%), 20 m sprint (ES = 1.75, *large effect*; Δ = 2.5%), and 30 m sprint (ES = 0.56, *moderate effect*; Δ = 8.4%); defenders vs. midfielders in the 10 m sprint (ES = 0.48, *moderate effect*; Δ = 8.1%), 20 m sprint (ES = 0.08; Δ = 1.4%), and 30 m sprint (ES = 0.62, *moderate effect*; Δ = 9.1%), vs. forwards in the 10 m sprint (ES = 0.57, *moderate effect*; Δ = 5.4%), 20 m sprint (ES = 0.03; Δ = 0.3%), and 30 m sprint (ES = 0.52, *moderate effect*; Δ = 7.8%); and midfielders vs. forwards in the 10 m sprint (ES = 0.15; Δ = 2.9%), 20 m sprint (ES = 0.09; Δ = 1.1%), and 30 m sprint (ES = 0.08; Δ = 1.4%).

In ball-kicking speed with the dominant foot, significant differences were observed between the groups ($F_{(3,96)}$ = 5.84; p = 0.001): comparing goalkeepers vs. defenders (p = 0.02; ES = 0.99, *large effect*; Δ = 8.8%), vs. midfielders (p = 0.00; ES = 1.21, *large effect*; Δ = 11.8%); and vs. forwards (p = 0.04; ES = 0.40, *small effect*; Δ = 7.8%), with goalkeepers showing a lower ball-kicking speed with their dominant foot compared to the other positions. In contrast, no significant differences were reported when comparing defenders vs. midfielders (ES = 0.44, *small effect*; Δ = 2.7%), vs. forwards (ES = 0.05; Δ = 0.8%); or midfielders vs. forwards (ES = 0.48, *small effect*; Δ = 3.5%). Significant differences were recorded in ball-kicking speed with the non-dominant foot between groups ($F_{(3,96)}$ = 3.29; p = 0.02). Comparing goalkeepers vs. midfielders (p = 0.01; ES = 0.81, *large effect*; Δ = 7.6%), goalkeepers showed a lower ball-kicking speed in their non-dominant foot. Meanwhile, no significant differences were reported when comparing goalkeepers vs. defenders (ES = 0.45, *small effect*; Δ = 3.7%), vs. forwards (ES = 0.40, *small effect*; Δ = 3.9%); or defenders vs. midfielders (ES = 0.44, *moderate effect*; Δ = 3.7%), vs. forwards (ES = 0.05; Δ = 0.3%); or midfielders vs. forwards (ES = 0.48, *small effect*; Δ = 3.9%). These results of physical performance by playing position are presented in Figure 4.

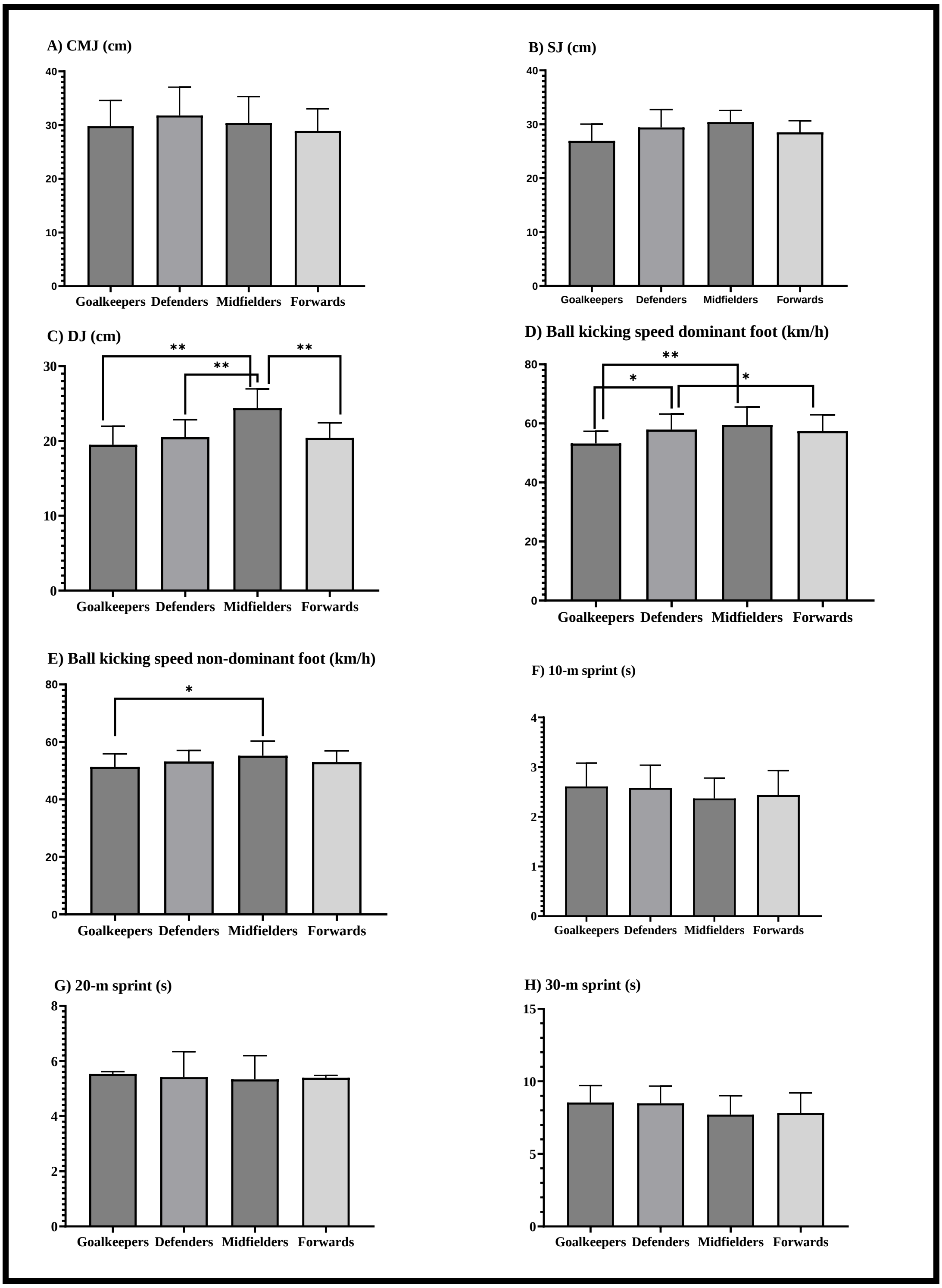

Figure 4. Comparison of physical performance by playing position in female soccer players. Note: CMJ = countermovement jump; SJ = squat jump; DJ =drop jump; m = meters; cm = centimeters; km/h = kilometers per hour; s = seconds; * = $p < 0.05$; ** = $p < 0.01$.

4. Discussion

This study analyzed differences in body composition and physical performance according to playing position in amateur female soccer players. Among the main results, midfielders were reported to have a significantly higher fat-free mass than goalkeepers, defenders, and forwards and a significantly lower body fat percentage than goalkeepers and defenders. Regarding physical performance, midfielders had a significantly higher jump height in DJ compared to the other positions, and goalkeepers showed a significantly lower ball-kicking speed for the dominant foot compared to the other playing positions. Meanwhile, midfielders only presented significantly higher ball-kicking speeds than goalkeepers in the non-dominant foot. However, no significant differences were reported in CMJ, SJ, and the 10 m, 20 m, and 30 m running sprint speeds by playing positions in amateur female soccer players.

Our findings showed that midfielders had a higher fat-free mass than goalkeepers, defenders, and forwards. However, in the study conducted by Zabaloy et al. [18] on elite female soccer players, it was observed that forwards exhibited a significantly higher fat-free mass compared to midfielders ($p = 0.04$); this was similar to results reported by Sebastiá-Rico et al. [19] in a meta-analysis conducted on male soccer players showing that goalkeepers had a significantly higher fat-free mass with respect to defenders, midfielders, and forwards ($p = 0.009$). On the contrary, Nikolaidis [20] reported no significant differences in first-division female soccer players in fat-free mass. The discrepancies in the studies may be because, physiologically, the demands of soccer vary according to the level of performance of the players, the style of play adopted by the teams, and the playing position [21–23]. For example, goalkeepers cover approximately 50% less total distance and <10% less distance at a high-intensity speed (>19.8 km/h) than field players [21,24,25], including also very brief explosive movements in matches. The lower energy expenditure during matches and training may influence their body composition, specifically the lower fat-free mass. In addition, midfielders cover a greater total distance (km) and perform more high-intensity running actions than defenders, while wide midfielders run greater distances than those in the line of defense, which could explain our findings [21].

Another result of the present study was that goalkeepers and defenders had higher body fat percentages than midfielders. These results are similar to those reported by Nikolaidis [20], who reported that goalkeepers have a significantly higher body fat percentage than defenders ($p = 0.03$) in first-division female soccer players. However, they found no significant differences between elite female soccer players [18] and professional males [19] in body fat percentage by playing position. Similar to fat-free mass, our findings of higher body fat percentages in goalkeepers and defenders compared to midfielders can be explained by the physical demands of each playing position [21]. During training sessions, the weekly training load accumulated by field players is greater than that of goalkeepers, which influences their energy expenditure and, consequently, their body fat percentage [26]. An excess in body fat percentage, on the other hand, may present an advantage in the melee actions often experienced by defenders [21], who often have to retain the ball and protect it while dueling against the opponent seeking to get the ball. In contrast, midfielders were the leanest players, which favored their dynamically demanding role on the field [21].

Regarding the physical performance according to playing position, there were no significant differences in the vertical jump height for the CMJ test. These results are similar to those found in male professional soccer players [27] and fourth-division players [28]. However, the Zabaloy et al. [18] study reported significant differences in CMJ in favor of defenders ($p = 0.002$) and forwards ($p = 0.01$) compared to midfielders in elite female soccer players. It should be considered that goalkeepers frequently perform greater vertical and lateral jumping actions during training and matches compared to defenders, midfielders, and forwards [29]. Despite this, our findings did not report significant differences in CMJ height according to playing position. In this regard, it is essential to mention that CMJ height alone may not be sensitive enough to analyze the neuromuscular characteristics of an athlete in comparison to other CMJ metrics, such as explosiveness, fatigue, and adaptive response ability [30,31]. In this sense, the analysis of specific variables of the eccentric phase can provide valuable information about the neuromuscular characteristics of soccer players or their adaptations induced by acute/chronic training or competition stimuli [30,31]. It has been suggested that maximal strength and power are strongly associated with muscle strength, linear velocity, and direction changeability [32]. Considering what has been mentioned, a more exhaustive CMJ analysis can help better discriminate neuromuscular differences between soccer players of different positions.

About the SJ, no significant differences in terms of playing position were found. Similar results were found in semi-professional female soccer players [33] and male fourth-division players [28]. However, in a study carried out by Lockie et al. [34] on first-division collegiate soccer players, it was found that defenders had a greater jump height in SJ compared to midfielders, and these differences were significant ($p < 0.01$). Based on our findings, given that the sample was made up of amateur-level female soccer players from the same city, there is a possibility that they have been subjected to the same type of training, presenting similar improvements in their physical performance. In soccer, the quadriceps muscle group is considered to play an important role in jumping and kicking the ball, while the hamstring controls running activities and stabilizes the knee during turns or tackles [35]. Along these lines, it has been shown that the level of maximum force and the rate of force development are crucial variables that influence both jump height and sprint performance [36]. However, Morin et al. [37] have mentioned that maximum SJ and CMJ height are poor indicators of maximum lower extremity power in trained populations, providing weak associations between SJ or CMJ height and peak power. Therefore, considering this, jump height may not be a good discriminator of performance between different playing positions in amateur female soccer players [37].

However, in the present study of the DJ, it was reported that midfielders had significantly higher jump heights than goalkeepers and defenders. Ioannis [38] has reported significant differences ($p < 0.05$) in the reactive muscle strength index between amateur elite soccer players compared to middle- and lower-class soccer players. No studies have reported differences in DJ in amateur female soccer players from different playing positions. Midfielders can be classified into central defensive midfielders, central midfielders, and central attacking midfielders [39]. Central attacking midfielders have exhibited greater total distances ($m \cdot min^{-1}$) and high-speed running distances ($m \cdot min^{-1}$) than other positions; these findings are consistent with those reported in other studies [40]. In this sense, being able to generate changes in speed explosively is essential in elite soccer, along with the ability to decelerate and change direction quickly, which can be associated with an optimal and rapid stretch–shortening cycle of the muscles of the lower body [38] that may have manifested itself in the greater DJ jump height in the midfielders in our study compared to the goalkeepers, defenders, and forwards.

In 10 m, 20 m, and 30 m sprints, no significant differences by playing position were reported in the present study. These results are similar to those Lockie et al. [34] reported in division collegiate female soccer players, where no significant differences were reported in the 10 m sprint and 30 m sprint according to playing position. Likewise, Silva et al. [10], in a study of elite youth male soccer players, reported no significant differences in 10 m, 20 m, and 30 m sprints according to playing position. However, in a study conducted by Marques et al. [41] on semi-professional male soccer players, it was observed that defenders performed worse in 20 m and 30 m sprints compared to forwards, with these differences being significant ($p \leq 0.002$). Sprinting is one of the main actions in soccer, although it only constitutes between 1% and 12% of the total average distance traveled by a player during a match, that is, only 0.5% to 3% of the time of play in a match [42]. During a competitive match, players perform long sprints of 2 s to 4 s every 90 s to 180 s on average [42]. Regarding the player's playing position, training experience, and various tracking methods in individual intensity phases, the average sprint distance covered during a match is between 200 m and 1200 m [42,43]. In modern soccer, a highly developed acceleration skill is required, given that the player's acceleration ability manifests itself at distances of no more than 30 m [42]. Although our findings do not report differences in the 10 m, 20 m, and 30 m sprints depending on the playing position, it is crucial to consider that the number of sprint actions has been shown to vary according to each position on the field. For example, according to Andrzejewski et al. [42], in the sprints from 0 to 10 m, the greatest number of sprints are performed by the outside defenders and the outside midfielders (difference of 0.9 ± 1.0 m). In the sprints from 10.1 m to 20.0 m, the central defenders and the central midfielders perform fewer sprints, with differences in total distance of 3.9 ± 2.5 m and 4.5 ± 2.6 m, respectively, than outside midfielders, with a difference of 7.1 ± 2.4 m, and forwards, with a difference of 7.8 ± 2.9 m ($p < 0.05$). In sprints over 20 m, the majority are performed by forwards, with a difference in distance of 7.4 ± 3.7 m, and outside midfielders, with a difference of 6.9 ± 3.2 m, vs. defenders, with a difference of 4.1 ± 1.9 m ($p < 0.05$). With all of the above, it is recommended that the training of forwards and outside midfielders should include running sprint speed components to a much greater extent than the loads for defenders and midfielders. Furthermore, running distances in training, in particular between 10.1 m and 20.0 m and over 20 m, should be adapted based on the playing positions of the soccer players [42].

Another result found in the present study was that goalkeepers showed a significantly lower ball-kicking speed in the dominant foot compared to defenders, midfielders, and forwards, while for the non-dominant foot, there was presented a significantly higher ball-kicking speed only in midfielders compared to goalkeepers. These results are similar to those reported by Marques et al. [41], where it was found that defenders had a lower ball-kicking speed compared to midfielders and forwards, with these differences being significant ($p < 0.05$) in semi-professional youth male soccer players. However, in the study by Zabaloy et al. [18], no significant differences were reported in the ball-kicking speed according to the playing position of elite female soccer players. To increase the probability of scoring a goal, players must achieve the highest possible ball-kicking speed, which depends on variables such as foot speed at the moment of impact and the quality of the ball serve–foot impact [44,45]. Furthermore, if the shot presents a faster velocity, it is less likely that the goalkeeper or opposing player will have enough time to react [46,47]. An analysis of kicking motion has shown that the side kick is more accurate, while the instep kick is the fastest type in soccer [48]. The greater ball-kicking speed of the midfielders reported in our study may be due to the greater number of short and long passes made during the matches [39]. In addition to setting the pace of the game through changes of front or taking possession of the ball and directing it towards the opposite field, they often shoot at the goal from outside the area [39,49]. Rodríguez Lorenzo et al. [50] have reported that between 15 and 19 years of age, the kick pattern is completely achieved (with a maximum kick speed = 80 to 103 km/h) [44,51]. In addition, the speed of the ball is significantly faster after a kick with the dominant leg compared to the non-dominant one, with results from young subjects (86 vs. 74 km/h), amateurs (77 vs. 70 km/h), and expert soccer players (98 vs. 86 km/h) [44,52]. The level of competition proves to be a factor that affects the maximum ball-kicking speed [44,53], probably due to the influence of experience. On the other hand, it has been reported that the ball-kicking speed with the instep in female players is significantly lower than that of male athletes ($p < 0.05$) [54]. Additionally, the average maximum values of knee and hip joint torque for female players were also significantly lower than those for male players ($p < 0.05$), suggesting that women athletes may experience greater technical issues regarding energy transfer between the thigh and leg than male athletes [54].

4.1. Limitations and Strengths

The limitations of the study are the following: (i) it had a cross-sectional study design that cannot provide cause/effect results; (ii) it did not compare within the same playing positions the physical performance according to tactical approach (e.g., central defense vs. lateral defense or other profiles such as forward, for example); (iii) comparisons were not made between levels of play (amateur, elite, among others), nor were analyses performed such as those regarding body composition and physical performance at different stages of the season (preseason and once the championship is over), nor those detecting the frequency of training sessions carried out by the different clubs; (iv) it did not include psychoemotional variables that may influence physical performance, such as detecting the menstrual cycle of the players; (v) it did not include a dietary control or eating regimen for the players, which may affect body composition; (vi) it did not analyze physiological variables that may influence physical performance; (vii) we did not perform a more comprehensive CMJ analysis, which may help to better discriminate neuromuscular differences between players of different positions.

Among the strengths are the following: (i) the entire amateur female soccer league of Osorno participated; (ii) the players' physical performance was analyzed on the field being used for practice, and their body composition was measured in laboratory conditions, and assessed in terms of playing position; (iii) the study was conducted with amateur players to address a lack in the limited existing evidence. Identifying position-specific play patterns may help develop tactical strategies for coaches and player-specific skills, which could help customize training and game strategies. This study could provide valuable information on developmental and training strategies that could effectively improve players' performance at this level, benefiting coaches and training programs for amateur female soccer players.

4.2. Practical Applications

Based on our findings, we can suggest some recommendations for coaches based on the playing position of amateur female soccer players. For example, goalkeepers had a significantly higher percentage of body fat than midfielders, so we suggested the inclusion of high-intensity interval training along with a nutritional plan to optimize their body composition. On the other hand, the similarities in the CMJ, SJ, and 10 m, 20 m, and 30 m running sprint speed test results for the different playing positions in amateur soccer players could allow coaches and coaching staff a greater range of possibilities to make more tactical substitutions during matches. However, given the demands on the field of play for female defenders and midfielders, we suggest that they include high-intensity running components in their training to a greater extent than forwards and goalkeepers to ensure good performance in offensive and defensive running actions during the games.

5. Conclusions

Midfielders presented a significantly higher fat-free mass than goalkeepers, defenders, and forwards, while goalkeepers and forwards presented a significantly higher body fat percentage than midfielders. In terms of physical performance, midfielders presented a significantly higher jump height in the DJ and ball-kicking speed in the dominant foot compared to goalkeepers, defenders, and forwards. Meanwhile, midfielders only presented significantly higher ball-kicking speeds than goalkeepers in the non-dominant foot. These results can help to build better training plans to maximize the performance of amateur female soccer players.

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Data Availability Statement: The datasets generated during and/or analyzed during the current research are available from the corresponding author upon reasonable request.

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