Yoga does not attenuate speed, agility and change of direction deficit in professional football players

El Yoga no reduce la velocidad, la agilidad ni el déficit de cambio de dirección en futbolistas profesionales

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Abstract

Introduction: Yoga is a training methodology that may facilitate the physical and psychological restoration of football players.
Objectives: To evaluate the effects of Yoga on sprint speed, agility and change-of-direction (COD) deficit, hypothesising that Yoga would not negatively affect these abilities.
Methodology: A convenience sample of 18 professional football players from the Portuguese First League participated (age: 19.44 ± 1.98 years; height: 183.17 ± 5.95 cm; body mass: 76.36 ± 5.58 kg). Participants were randomly allocated to an experimental group (EG; n = 10) or a control group (CG; n = 8). The EG completed a 12-week Yoga training programme (two additional 60-minute sessions per week), including prāṇāyāma, āsana, yoganidrā and samyama, while the CG followed standard football training. Sprint speed (5, 10 and 20 m) and agility (zigzag test) were assessed pre- and post-intervention using photocell timing gates. Mixed-factor ANOVA and effect sizes (partial eta squared) were calculated, with significance set at $p < 0.05$.
Results: Both groups showed significant improvements from pre- to post-test across all variables. No significant group × time interactions were found for 5 m, 10 m, 20 m sprint, zigzag agility or COD deficit, indicating that Yoga did not impair performance.
Conclusions: Yoga represents a viable alternative to enhance mobility and support physical and psychological recovery without negatively affecting sprint speed, agility or COD in football players.

Keywords

Agility; change direction; football; velocity; yoga.

Resumen

Introducción: El Yoga es una metodología de entrenamiento que puede facilitar la recuperación física y psicológica de los futbolistas.
Objetivos: Evaluar los efectos del Yoga sobre la velocidad de sprint, la agilidad y el déficit de cambio de dirección (COD), con la hipótesis de que no afectaría negativamente a estas capacidades.
Metodología: Participaron 18 futbolistas profesionales de la Primera Liga portuguesa, seleccionados por conveniencia (edad: 19,44 ± 1,98 años; estatura: 183,17 ± 5,95 cm; masa corporal: 76,36 ± 5,58 kg). Fueron asignados aleatoriamente a un grupo experimental (GE; n = 10) o control (GC; n = 8). El GE completó un programa de Yoga de 12 semanas, con dos sesiones adicionales de 60 minutos semanales, que incluían prāṇāyāma, āsana, yoganidrā y samyama; el GC mantuvo el entrenamiento habitual. La velocidad de sprint en 5, 10 y 20 m y la agilidad en zigzag se evaluaron antes y después mediante células fotoeléctricas. Se aplicó un ANOVA de medidas mixtas y se calcularon tamaños del efecto mediante eta cuadrado parcial ($p < 0,05$).
Resultados: Ambos grupos mejoraron significativamente en todas las variables. No hubo interacciones significativas grupo × tiempo para los sprints de 5, 10 y 20 m, la agilidad en zigzag ni el déficit de COD, lo que indica que el Yoga no perjudicó el rendimiento evaluado.
Conclusiones: El Yoga puede ser una alternativa viable para favorecer la movilidad y apoyar la recuperación física y psicológica, sin afectar negativamente a la velocidad, la agilidad o el cambio de dirección en futbolistas profesionales, como complemento al entrenamiento convencional.

Palabras clave

Agilidad; cambio de dirección; fútbol; velocidad; yoga.

Introduction

Football is characterised by high technical, tactical, cognitive, and physical demands, requiring players to repeatedly perform sprints, accelerations, jumps, duels, and rapid changes of direction (COD) at varying intensities, often with limited recovery periods (Dolci et al., 2020; Sariati et al., 2020; Petr et al., 2022; Fernández-Baeza, Díaz-Ureña, & González-Millán, 2022; Pavlovic & Siryi, 2023; Hasan et al., 2024; Maciel et al., 2024; Alves Pereira et al., 2025; Bendo & Adili, 2025; Pavlovic et al., 2025). Professional players typically cover 9–14 km per match, with frequent high-intensity actions and short-duration sprint efforts (Dolci et al., 2020; Sarmento et al., 2014; Castillo et al., 2021). Consequently, acceleration, sprinting, and the ability to rapidly change direction are important components of football performance (Dragula et al., 2017; Freitas et al., 2019; Loturco et al., 2018). COD involves pre-planned changes in movement direction, whereas agility additionally requires perceptual and cognitive responses to unpredictable external stimuli (Popowczak et al., 2019; Neag et al., 2024). These capacities are highly relevant to football, where players repeatedly accelerate, decelerate, and reposition in response to continuously changing match situations (Duarte et al., 2019; Young et al., 2021, 2022). The COD deficit, defined as the additional time required to complete a COD task compared with linear sprinting over an equivalent distance, provides an indicator of the efficiency of directional-change performance (Kokstejn et al., 2019). Therefore, complementary training strategies capable of supporting physical fitness, movement control, balance, flexibility, coordination, and psychophysical regulation without impairing sprint performance may have practical relevance in football.

Yoga has increasingly been investigated as a complementary training modality in sport, with potential applications to physical fitness, movement quality, body awareness, breathing regulation, concentration, and psychophysical well-being (Polsgrove et al., 2016; Khan & Alam, 2016; Arbo et al., 2020; Kartal & Ergin, 2020; Alves Pereira et al., 2025). Rather than being considered solely as a philosophical or doctrinal system, Yoga can be understood in a sporting context as a structured psychophysical discipline incorporating physical postures, breathing techniques, relaxation, concentration, and attentional practices (Mallinson & Singleton, 2022; Calazans, 2020; DeRose, 2024; Alves Pereira et al., 2025). These components may provide a complementary approach to physical conditioning while addressing aspects of movement control and self-regulation that are relevant to athletes.

In football, however, the evidence concerning structured Yoga interventions remains limited. Previous studies have reported improvements in balance, flexibility, strength, and selected aspects of physical and motor performance in football players following Yoga-based interventions (Khan & Alam, 2016; Kartal & Ergin, 2020; Alves Pereira et al., 2025). Recent research has also examined Yoga as a structured physical stimulus in athletic populations, although outcomes and participant characteristics vary substantially between studies. At the same time, concerns regarding extensive static stretching and potential reductions in acute force or performance highlight the importance of determining whether Yoga-based training can be integrated into football conditioning without adversely affecting sport-specific performance (Freund et al., 2016; Raj et al., 2021).

From a health and performance perspective, this question is particularly relevant because professional football training requires the integration of physical conditioning with recovery and the management of repeated high-intensity demands. A structured Yoga intervention may therefore be considered not as a replacement for conventional football conditioning, but as a complementary training modality whose effects on relevant physical-performance outcomes require empirical investigation. Nevertheless, relatively few studies have examined the effects of a structured, football-specific Yoga programme on sprint performance, pre-planned COD, and COD deficit in professional male football players.

Therefore, the present study aimed to evaluate the effects of a 12-week Yoga intervention, added to regular football training, on speed, agility, and COD deficit in male professional football players. It was hypothesised that the Yoga intervention would improve COD-related performance and would not negatively affect linear sprint performance.

Method

Eighteen male professional football players from the Portuguese First League, including senior, Under-23, and B-team players, voluntarily participated in this study. The participants had a mean age of 19.44 ± 1.98 years, height of 183.17 ± 5.95 cm, body mass of 76.36 ± 5.58 kg, body mass index (BMI) of 22.76 ± 1.30 kg/m^2, fat mass of 10.06 ± 2.55%, and lean mass of 65.73 ± 4.67 kg (Table 1). Participants were randomly allocated by drawing lots to either the Experimental Group (EG; n = 10) or Control Group (CG; n = 8).

All participants were healthy, with no history of major lower-limb injury and no medication use at the time of the intervention. Written informed consent was obtained from all participants before the study, or from their parents or legal guardians in the case of underage players, after an oral explanation of the potential risks and benefits of participation.

The study was approved by the Ethics Committee of the Faculty of Physical Education and Sport of the Lusophone University of Lisbon, Portugal (Protocol D1221), and was conducted in accordance with the Declaration of Helsinki. The club did not provide data on regular training load or player position.

Participants

Participants were assessed before and after the 12-week intervention, which consisted of two 60-minute Yoga sessions per week, conducted by a certified Yoga teacher with more than 40 years of experience in Yoga instruction.

Table 1. Morphological characteristics of the sample.

Group	Experimental Group (n = 10)	Control Group (n = 8)	Total
	M ± SD	M ± SD	M ± SD
Age (years)	19.90 ± 1.91	18.88 ± 2.03	19.44 ± 1.98
Height (cm)	181.60 ± 5.30	185.13 ± 6.38	183.17 ± 5.95
Weight (kg)	75.80 ± 5.43	77.06 ± 6.06	76.36 ± 5.58
BMI (kg/m2)	23.00 ± 1.41	22.46 ± 1.16	22.76 ± 1.30
Fat Mass (%)	9.80 ± 2.53	10.38 ± 2.72	10.06 ± 2.55
Lean Mass (kg)	64.60± 4.01	67.15 ± 5.33	65.73 ± 4.67

Note. M = mean; SD = standard deviation; BMI = body mass index.

Procedure

Study design

Both groups participated in standard 90-minute football training sessions. Both groups participated in their standard 90-minute football training sessions. The EG additionally completed two 60-minute Yoga sessions per week immediately after football training for 12 weeks. The sessions were guided by a certified Yoga teacher with more than 40 years of experience in teaching Yoga to athletes and the general population and in training Yoga teachers. The Yoga intervention was specifically designed for football players and tailored to the objectives of the study. The techniques were selected and sequenced according to the target variables and included *prāṇāyāma* (breathing techniques), *kriyā* (abdominal contractions), *āsana* (physical postures), *yoganidrā* (guided relaxation), and *dháraná/dhyána* (concentration/meditation). The CG continued with standard football training only.

Instrument

Assessment

Body composition

The 1st Portuguese Football League, senior sub-23 and B-Team has provided the data on each of the 18 players. Anthropometric and body-composition data for all 18 players were provided by the club. Data collection followed the sequence of demographic, anthropometric, body-composition, and physical-fitness assessments. Height was measured using a wall-mounted measuring tape (Holtain Ltd., Crymych,

UK) to the nearest 0.1 cm. Body mass, fat mass, and lean mass were assessed using a digital body-composition monitor (TANITA Dual Frequency Body Composition Monitor RD-953-BK, Tanita Ltd., Amsterdam, the Netherlands).

Linear Sprint Tests

Linear sprint performance was assessed over 5, 10, and 20 m using wireless photoelectric timing cells (Wireless Sprint System, Brower Timing Systems, Salt Lake City, UT, USA). Tests were performed on synthetic turf while participants wore football boots. Participants adopted a staggered stance, with the front foot positioned 0.5 m behind the starting line. Two maximal-effort trials were performed, with 1 min of recovery between trials. The fastest trial was retained for analysis (Loturco et al., 2018; Pereira et al., 2018; Freitas et al., 2019; Loturco et al., 2019). Test-retest reliability in the present study was ICC = 0.810.

Zigzag change of direction test

Change-of-direction (COD) performance was assessed using the Zigzag COD test. The test was performed on the football field and consisted of four 5-m sections, covering a total distance of 20 m, with cones positioned at 100° angles (Freitas et al., 2019; Loturco et al., 2018; Pereira et al., 2018). The test required repeated acceleration and deceleration.

Two maximal-effort trials were performed, separated by 5 min of recovery. Participants started from a standing position, with the front foot positioned 0.3 m behind the first pair of photoelectric timing cells (Wireless Sprint System, Brower Timing Systems, Salt Lake City, UT, USA). They were instructed to complete the course as quickly as possible, crossing the second pair of timing cells located 20 m from the starting line. The fastest trial was retained for analysis. To quantify the additional time required to perform the COD task compared with linear sprinting, COD deficit was calculated as the difference between the Zigzag test time and the 20-m sprint time (Pereira et al., 2018; Nimphius et al., 2016): COD deficit (s) = Zigzag test time (s) − 20-m sprint time (s).

Test-retest reliability for the Zigzag COD test in the present study was ICC = 0.850.

Yoga Practice

The Yoga intervention was implemented immediately after standard football training on the football field for 12-weeks, 24 sessions, 2 times a week, with each session lasting 60 min. The intervention consisted of SwáSthya Yoga techniques selected and sequenced according to the study objectives and target variables. The sessions included breathing exercises (pránáyáma), abdominal contractions (kriyá), stable and comfortable physical position (ásana), relaxation (yoganidrá) and concentration/meditation (dháraná/dhyána).

Respiratory techniques (pránáyáma) was performed for approximately 8 minutes and included slow and rapid breathing. Slow breathing included abdominal (adhama pránáyáma) and complete breathing techniques (rajas pránáyáma), while rapid breathing included Ha breathing, bhastrikā, and kapālabhāti, together with selected bandha techniques.

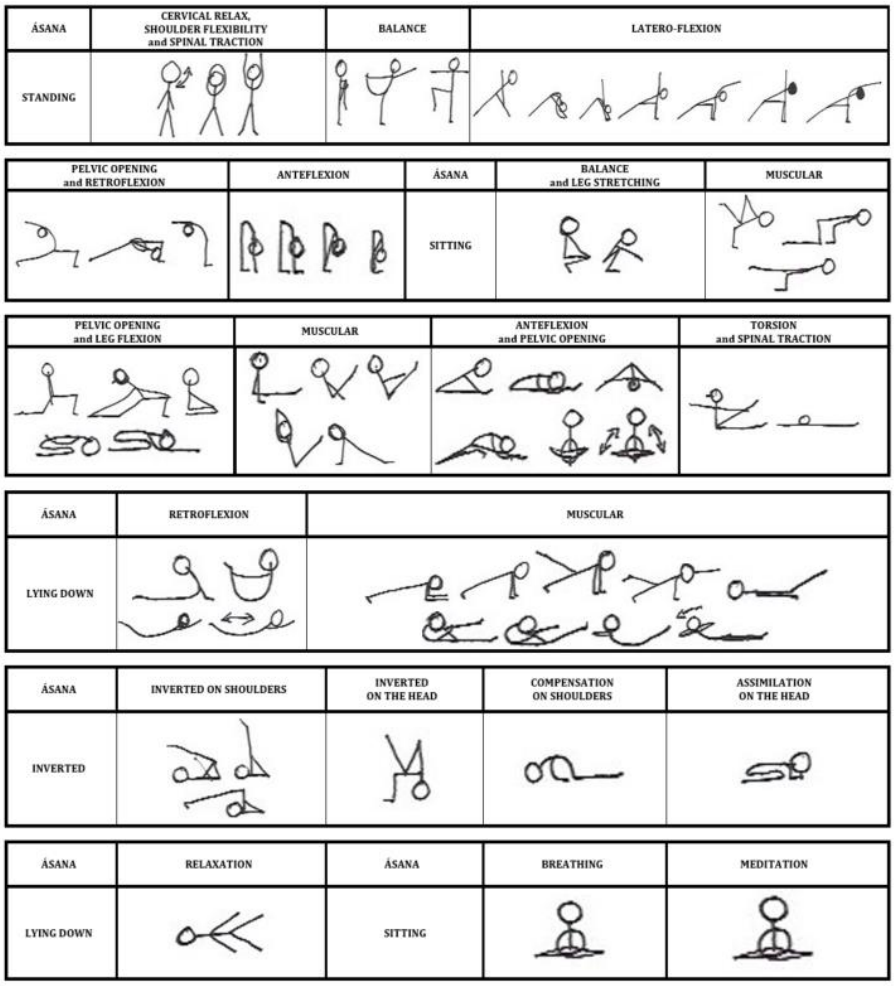
Abdominal contractions (uddiyāna bandha) were performed for approximately 1 min, comprising static and dynamic variations (tamas and rajas uddiyana bandha). Athletes performed these techniques in a standing position with the feet approximately shoulder-width apart, knees slightly flexed, trunk inclined forwards, and hands supported on the thighs. The contractions were performed following exhalation and maintained during breath retention according to the intervention protocol. The dynamic variant was executed identically, with the distinction that during lung emptiness, the abdomen was dynamically extended and contracted repeatedly until inhalation became necessary.

Stable and comfortable physical positions (ásana) as detailed in Table 2, were practiced during 40 minutes of each session in a balanced sequence without repetitions, incorporating standing, seated, supine, and inverted positions, as well as balance, lateral flexion, forward flexion, extension, spinal rotation, spinal traction, pelvic mobility, and muscular engagement exercises (Table 2). Stable and comfortable physical positions (ásana) were performed according to the principles of SwáSthya Yoga (Yoga of self-sufficiency), with participants instructed to maintain comfortable, unrestricted breathing and to avoid discomfort.

Relaxation (yoganidrá) was performed for approximately 10 min using a progressive head-to-toe relaxation sequence followed by visualisation. The visualisation component involved mentally rehearsing improvements in flexibility, balance, strength, sprint performance, and COD performance.

Finally, concentration/meditation (dháraná/dhyána) was performed for approximately 1 min, with attention directed towards respiratory awareness. Participants maintained conscious attention to breathing without deliberate cognitive analysis. The intervention techniques were performed with the eyes closed to facilitate concentration and body awareness.

Figure 1. Ásana Balancing



Statistical analyses

Statistical analyses were performed using IBM SPSS Statistics version 28 for Windows. Descriptive statistics included means and standard deviations (SD). The normality of distribution was analyzed with the Shapiro-Wilk test and the homogeneity of variances was assessed with Levene's test. When the homogeneity of variances was not satisfied, Student's t-test was used for independent samples with Welch correction. The Student's t-test for independent samples, the Student's t-test for paired samples, the Mann-Whitney test and the Wilcoxon test were used. A mixed-design analysis of variance (ANOVA) was used to examine the effects of Group (Experimental vs. Control), Time (pre-intervention vs. post-intervention), and the Group × Time interaction**.** Effect sizes (ES) for the ANOVA were expressed as partial eta squared (ηp^2), interpreted as small (0.01), medium (0.06), and large (0.14) effects. The statistical significance level was set at $p < 0.05$.

Results

At baseline, both groups were similar in all outcome variables (p > 0.05). There were no group-by- time interaction effects for all outcome variables (Table 3). However, there are significant time effects for several variables. Specifically, post hoc analysis revealed that the CG improved on 5 m sprint velocity, agility and COD, whereas the EG improved on the 5, 10, and 20 m sprint velocity, agility and COD (Table 2).

Table 2 illustrates the baseline and post-intervention performance parameters for both the Experimental Group (EG; n=10) and the Control Group (CG; n=8) following the 12-week intervention period. The Experimental Group (EG) demonstrated significant and consistent performance enhancements across all evaluated metrics: Significant reductions in sprint duration were recorded across all distance intervals. Specifically, 5m sprint duration decreased by -12.50% (1.04 ± 0.06 s to 0.91 ± 0.05 s, p = 0.002, large Effect Size); 10m duration improved by -4.07% (1.71 ± 0.07 s to 1.64 ± 0.05 s, p = 0 .023, large Effect Size); and 20m duration decreased by -3.79% (2.98 ± 0.08 s to 2.86 ± 0.07 s, p = 0.003, large Effect Size). Highly significant improvements were observed in the Zig-Zag test, with a time reduction of -12.24% (6.18 ± 0.21 s to 5.42 ± 0.25 s, p = 0.001, large Effect Size). Similarly, the Change of Direction (COD) deficit was markedly reduced by -19.94% (3.20 ± 0.28 s to 2.56 ± 0.29 s, p = 0.001, large Effect Size).

In contrast, the Control Group (CG) exhibited mixed results, showing significant gains in short-distance sprint, agility, and COD deficit, but no significant improvements over longer sprint distances. A significant time reduction of -8.82% was observed at the 5m mark (1.02 ± 0.10 s to 0.93 ± 0.06 s, p = 0.021). However, performance changes failed to reach statistical significance over 10m (-5.06%, 1.73 ± 0.10 s to 1.64 ± 0.05 s, p = 0.055, medium Effect Size) and 20m (-1.54%, 2.90 ± 0.10 s to 2.85 ± 0.07 s, p = 0.173, small-to-medium Effect Size). Highly significant performance improvements were recorded in both the Zig-Zag test (-9.78%, 6.13 ± 0.35 s to 5.52 ± 0.30 s, p = 0.001, large Effect Size) and the COD deficit (-16.94%, 3.23 ± 0.36 s to 2.67 ± 0.30 s, p = 0.001, large Effect Size).

Table 2. Evolution of performance variables in the Experimental Group (Grupo 1) (10 football players) and Control Group (Grupo 2) (8 football players) from baseline (Moment 1), to the final assessment (Moment 2), after the Yoga intervention.

Variables			Pretest	Posttest	95% CI		Diff (%)	P-Value
			M ± SD	M ± SD	LL	UL		
Sprint duration (s)	5m	EG	1.04 ± 0.06	0.91 ± 0.05	0.063	0.194	-12.50	0.002**
		CG	1.02 ± 0.10	0.93 ± 0.06	0.018	0.169	-8.82	0.021*
	10m	EG	1.71 ± 0.07	1.64 ± 0.05	0.013	0.129	-4.07	0.023*
		CG	1.73 ± 0.10	1.64 ± 0.05	-0.003	0.191	-5.06	0.055
	20m	EG	2.98 ± 0.08	2.86 ± 0.07	0.055	0.172	-3.79	0.003**
		CG	2.90 ± 0.10	2.85 ± 0.07	-0.025	0.119	-1.54	0.173
Agility (s)	ZigZag	EG	6.18 ± 0.21	5.42 ± 0.25	0.520	1.000	-12.24	0.001***
		CG	6.13 ± 0.35	5.52 ± 0.30	0.412	0.798	-9.78	0.001***
Deficit Change Direction (s)	COD	EG	3.20 ± 0.28	2.56 ± 0.29	0.381	0.912	-19.94	0.001***
		CG	3.23 ± 0.36	2.67 ± 0.30	0.339	0.777	-16.94	0.001***

M – Average SD – Standard deviation * p ≤ .05 ** p ≤ .01 *** p ≤ .001

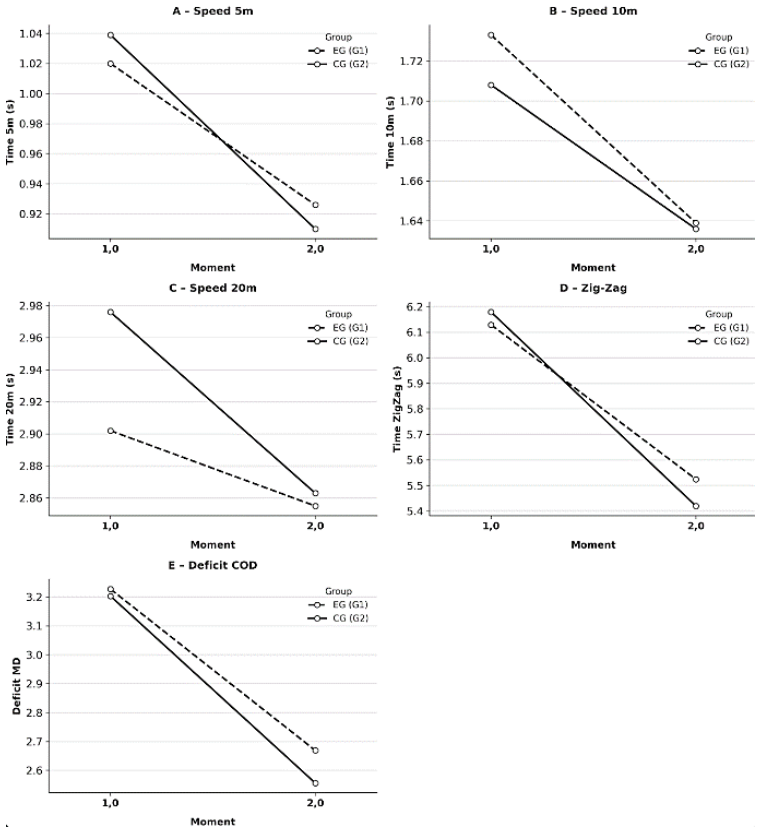
To examine the effects of Group and Time, a 2 × 2 mixed-model ANOVA was conducted on V5, V10, V20, Zig-Zag, and COD. A statistically significant main effect of Time was observed for all variables ($p <$ 0.001), with high effect sizes ($\eta_p^2 = 0.574$ -0.921) and statistical power (0.992-1.000): V5 ($F = 41.09$), V10 ($F = 52.76$), V20 ($F = 21.58$), Zig-Zag ($F = 77.55$), and COD ($F = 186.21$). In contrast, no statistically significant main effects of Group ($p \geq 0.238$) nor Group × Time interaction effects ($p \geq 0.140$) were found for any parameter. All variables show a decrease from the pre-test to the post-test moment in both groups, indicating an improvement in performance times and a reduction in the deficit. The trendlines for Group 1 and Group 2 in Figure 2 display very similar slopes across almost all variables (confirming the absence of a statistically significant Group × Time interaction). For the 5m, 10m, and 20m speed variables (v5, v10, and v20), both groups converge to virtually identical mean values at the post-test moment. Statistical details are summarized in Table 3 and Figure 2.

Table 3. Analysis of the influence of Yoga on physical fitness tests by ANOVA for the parameters: V5, V10, V20, Zig-Zag and COD.

Physical Parameters	Factors	Statistics		Effet Size	Power
		F	P-Value	ηp²	
V5	Group	0.006	0.94	0.000	0.051
	Time	41.09	<0.001***	0.72	1.000
	Group x Time	0.502	0.489	0.03	0.103
V10	Group	0.222	0.644	0.014	0.073
	Time	52.76	<0.001***	0.767	1.000
	Group x Time	1.542	0.232	0.088	0.215
V20	Group	1.5	0.238	0.086	0.21
	Time	21.58	<0.001***	0.574	0.992
	Group x Time	1.462	0.244	0.084	0.206
Zig-Zag	Group	0.128	0,725	0.008	0.063
	Time	77.55	<0.001***	0.829	1.000
	Group x Time	0.64	0.435	0.038	0.118
COD	Group	0.179	0.678	0.011	0.068
	Time	186.21	<0.001***	0.921	1.000
	Group x Time	2.419	0.14	0.131	0.311

V5 – Time 5m sprint duration; V10 – Time 10m Sprint duration; V20 – Time 20m Sprint duration.
Group – control vs. experimental. Time – before vs. after 12 weeks.

Figure 2. Group x time interaction of variables, at both moments: A – Speed 5m; B – Speed 10m; C – Speed 20m; D – Zig-Zag; E – Deficit COD. G1 = EG; G2 = CG.



Discussion

The ability to change of direction (COD) is a critical component of football, enabling players to accelerate, redirect their body, and decelerate rapidly. This is essential for improving one-on-one outcomes and facilitating effective defensive actions during match play (Neag et al., 2024).

This study examined whether adding a 12-week, football-specific Yoga intervention to regular football training influenced sprint and pre-planned change-of-direction (COD) performance in professional male football players.

The Yoga intervention was performed after football training and incorporated respiratory techniques

(*pránáyáma*), stable and comfortable physical positions (*ásana*), relaxation (*yoganidrā*), and concentration/meditation (*dháraná/dhyána*) with attention directed towards respiratory awareness.

It was hypothesised that Yoga training would not adversely affect speed, agility, or change of direction (COD) ability, thereby representing a viable methodology to support athletic performance and recovery. The findings partially corroborate this hypothesis. Within the limits of the present design, no statistically significant evidence of a detrimental effect on sprint performance was detected.

While the inclusion of Yoga did not enhance physical capacities beyond the adaptations observed in the control group, it is noteworthy that it did not compromise running speed, agility, or change of direction (COD) deficit in the experimental group, in line with football players who combined Yoga practices, including *ásanas* (stable postures), *práṇáyáma* (breathing exercises), and *dhyána* (meditation), with standard soccer training demonstrated superior performance compared to a control group (Sathiyamoorthy & Karthikeyan, 2019).

Both groups significantly improved Zigzag COD time and COD deficit. As with sprint performance, these changes were not significantly different between groups. COD performance involves acceleration, braking, force production, balance, and movement coordination, and assessing it requires clearly defined, reliable testing procedures (Avilés Vicente et al., 2026). The Experimental Group (EG) significantly reduced 5-m, 10-m, and 20-m sprint times, whereas the Control Group (CG) significantly improved over 5 m. These within-group changes should not, however, be interpreted as evidence of a specific Yoga effect because the between-group changes were not significantly different.

The improvements observed in both groups may reflect adaptations to regular football training, repeated exposure to acceleration tasks, test familiarisation, or other uncontrolled aspects of the training programme, according to recent research on improvements in sprint and other physical-performance variables following different training interventions in football players (Bernate et al., 2026; Ibarguen Hincapié et al., 2026), although differences in populations and protocols limit direct comparison. Although the EG showed a numerically greater reduction in COD deficit, the difference between groups was not statistically significant; consequently, the data do not demonstrate a specific effect of Yoga on the efficiency of changing direction relative to linear sprinting. However, the Yoga intervention did not attenuate performance metrics, which addresses concerns raised in the literature about potential performance decrements associated with Yoga practice among football players (Raj, Hamlin, Elliot, 2021).

These findings suggest that extended Yoga interventions, applied over multiple weeks, may be more effective than short-term protocols for enhancing football-specific performance indicate that integrating Yoga protocols into periodised training programmes could serve as a complementary modality for athletes, facilitating physical and psychological recovery without attenuating performance outcomes.

Study limitations

Several limitations modify the scope of the present study, notably the restricted sample size per group (n = 18). Whilst this is an acknowledged logistical constraint when engaging professional cohorts, it nonetheless compromises the generalisability of the empirical findings. The lack of both position-specific analyses and robust strength assessment protocols represents a further limitation, as these variables could have provided a more granular understanding of Yoga's influence on physical performance capacity. Consequently, future investigations should utilise larger sample sizes, monitor internal and external training loads, and control for playing position. Longitudinal research systematically comparing different Yoga protocols, frequencies, durations, and strategic integration within the football microcycle is required to fully determine its viability as a complementary training modality.

Practical Implications

The practical implications of this research suggest that Yoga can be implemented in professional football with a flexible, tailored approach. Its protocols should be adapted to specific training objectives and organisational structures, allowing for delivery as collective or individualised sessions, either pre- or

post-training, or as standalone recovery. When designed in collaboration with technical staff, this strategic integration of Yoga can optimise athletic performance, improve physical recovery, and enhance mental and psychological well-being, which are essential for elite-level play.

Conclusions

This study concludes that a 12-week Yoga intervention did not negatively impact sprint velocity, agility, or COD deficit in professional footballers. While both the Yoga and control groups showed significant performance improvements, no differential effects were observed. This indicates that Yoga can be safely integrated into training programmes for elite football athletes without compromising speed or COD. Therefore, considering Yoga's established benefits for flexibility, recovery, and psychological well-being, its inclusion as a complementary training modality is recommended for holistic athlete development and the maintenance of sport-specific performance outcomes.

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