PERCEIVED BARRIERS AND PSYCHOLOGICAL CHARACTERISTICS IN THE DUAL CAREER OF YOUNG ATHLETES: A GENDER-BASED ANALYSIS

BARRERAS PERCIBIDAS Y CARACTERÍSTICAS PSICOLÓGICAS EN LA CARRERA DUAL DE ATLETAS JÓVENES: ANÁLISIS SEGÚN EL GÉNERO

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Título Abreviado:
Barriers and Psychological Characteristics in Young Athletes' Dual Careers

How to cite this article:
Vélez-Alcaraz, A., Peñalver-Asensio, A,, Garcia-Roca, J. A. & Vaquero-Cristobal, R. (2025). Perceived barriers and psychological characteristics in the dual career of young athletes: a gender-based analysis. *Cultura, Ciencia y Deporte, 20*(66), 2526. https://doi.org/10.12800/ccd.v20i66.2526

Received: 27 May 2025 / **Accepted:** 19 September 2025

Abstract

The sporting career of the elite athlete spans five to ten years, during which time their main objective is to achieve success in their discipline. However, this interrupts their development in areas outside of sport. Currently, alternatives such as dual academic-sport career are used, allowing athletes to develop in a comprehensive manner. This study aimed to analyze gender differences in the perception of barriers and balance within the dual career of high-performance athletes-in-training, as well as in their athletic identity, psychological traits, and importance given to academic achievement. A total of 119 track and field athletes from the U-16 (n = 59), U-18 (n = 38), and U-20 (n = 22) categories who had competed in Spanish championships participated in the study (61 males, age = 18.31 ± 2.31; 58 females, age = 17.27 ± 1.44). Athletes completed the AIMS, the CPRD questionnaire, and selected items from the ESTPORT model. The results showed that females perceived greater academic-sport interference (p = 0.005-0.001) and fatigue (p = 0.009) and placed higher value on academic success (p=0,035). In contrast, males showed higher scores in stress control (p=0,001) and performance evaluation (p=0,035). Differences in athletic identity were minimal, although females expressed greater emotional sensitivity to sport failure (p = 0.025). Team cohesion was higher among females (p = 0.032). These findings suggest that female athletes perceive more barriers to dual career development, while also placing greater emphasis on academic goals. Understanding these gender differences may help institutions and professionals design more effective support strategies tailored to the needs of young athletes pursuing both academic and athletic excellence

Keywords: Adolescent, athlete, dual career, gender, psychological characteristics.

Resumen

La carrera deportiva de los atletas de élite dura entre cinco y diez años, durante los cuales su principal objetivo es alcanzar el éxito en su disciplina. Sin embargo, esto interrumpe su desarrollo en áreas ajenas al deporte. Actualmente, se utilizan alternativas como la doble carrera académica-deportiva, que permite a los atletas desarrollarse de manera integral. Este estudio tuvo como objetivo analizar las diferencias de género en la percepción de barreras y equilibrio dentro de la carrera dual de los atletas en formación de alto rendimiento, así como en su identidad como deportistas, características psicológicas y la importancia atribuida al rendimiento académico. Participaron 119 atletas de atletismo de las categorías sub-16 (n = 59), sub-18 (n = 38) y sub-20 (n = 22) que habían competido en campeonatos de España (61 varones, edad = 18.31 ± 2.31; 58 mujeres, edad = 17.27 ± 1.44). Los participantes completaron la escala AIMS, el cuestionario CPRD y una selección de ítems del modelo ESTPORT. Los resultados mostraron que las mujeres percibieron una mayor interferencia entre estudios y deporte (p = 0.005-0.001), así como mayor fatiga (p = 0.009), y valoraron más el éxito académico (p = 0.035). Por el contrario, los hombres obtuvieron puntuaciones más altas en control del estrés (p = 0.001) y evaluación del rendimiento (p = 0.035). Las diferencias en identidad deportiva fueron mínimas, aunque las mujeres mostraron mayor sensibilidad emocional ante el fracaso deportivo (p = 0.025). La cohesión de equipo fue superior en las mujeres (p = 0.032). Estos hallazgos sugieren que las atletas perciben más barreras en el desarrollo de la carrera dual, mientras otorgan mayor importancia a los logros académicos. Comprender estas diferencias puede ayudar a diseñar estrategias de apoyo más eficaces adaptadas a las necesidades de los jóvenes deportistas

Palabras clave: Adolescente, atleta, características psicológicas, carrera dual, género.

Introduction

Elite athletes spend most of their sporting lives training with the aim of achieving success in their sport, leading to a financial and time expenditure that interrupts their growth in other areas outside sport (Aquilina, 2013). The elite sporting career spans five to ten years, reaching the peak of his or her athletic level before the age of 30. Thus, it is common for most athletes to have another job after the end of their sporting life (Alfermann & Stambulova, 2012). In addition, for most athletes, the financial gain or reward in most cases is not sufficient, which means that most of them are not able to live exclusively on the income derived from their performance in their sporting career (Aquilina, 2013). For this reason, there is currently a strong emphasis on alternatives such as the dual academic-sporting career, where athletes can simultaneously make progress in academics and sport, developing a comprehensive profile and a better adaptation for the post-sporting phase (Stambulova & Wylleman, 2015).

Previous studies have highlighted the benefits of the dual academic-sport career, particularly in terms of facilitating post-sport employment. This model offers greater security and well-being for athletes after their retirement from sport (Barriopedro et al., 2018). This multidimensional identity aids in the transition from elite sport to the sport retirement process (Defruyt et al., 2020). Furthermore, the dual career generates different possibilities for personal, economic, social, and health growth, which facilitates the learning of different skills that can be extrapolated to different areas of their lives (Graczyk et al., 2017).

However, despite the underlying benefits of dual careers at sporting, educational, and personal levels, there are barriers that hinder the success of dual study-sport careers (Gavala-González et al., 2019; López de Subijana et al., 2015). Different studies have categorized the main barriers as external to the athlete and internal to the athlete (López de Subijana et al., 2015). With regard to external barriers, there is the lack of flexible structures to coordinate the academic and sporting programs (Rodrigues Da Costa et al., 2021); the low flexibility to regulate academic and sport schedules (Fuchs et al., 2021; López de Subijana et al., 2021), and the scarcity of tools for the good structuring of their schedule (Cosh & Tully, 2014); the inability to attend class because of extended sport concentrations (Gavala-González et al., 2019); the lack of academic support staff to orient and guide the student-athlete throughout the process (Stambulova & Wylleman, 2015); the distance that exists in most cases between the study center and the training center (Guirola Gómez et al., 2018); or the dilemma of financing sport and studies (Condello et al., 2019), due to the fact that a large percentage of student-athletes receive some type of institutional scholarship based on both sporting and academic results, where scholarships do not usually cover all the expenses incurred (Gavala-González et al., 2019). As for internal barriers, time management (López de Subijana et al., 2015) and stress (Ríos-Garit et al., 2024) are the main aspect highlighted by student-athletes. Not surprisingly, the accumulation of acute phases of stress derived from periods of competition or exams can lead the athlete to abandon the dual career (Baron-Thiene & Alfermann, 2015), especially when this period of stress is coupled with the feeling of not having enough time to study or train, which prevents them from achieving success in one or both of these facets (Hanton et al., 2008). Therefore, the student-athletes who consider their sporting facet to be more important, which is more common among high-performance athletes (Cartigny et al., 2021), put the sporting dimension above the academic one (Hanton et al., 2008).

Within the areas of performance involved in competitive sport, psychological variables play a very important role, such as motivation, attention, stress, anxiety, self-confidence, mood, self-control and self-regulation, cohesion, interpersonal skills and emotional adjustment, in line with previous research (García et al., 2006; Gimeno et al., 2001). Therefore, the study and use of these variables can help athletes optimize their performance with the aim of increasing their chances of achieving better sporting results, while reducing the incidence of variables that may influence their long-term continuity in competitive sport (Gimeno et al., 2001).

In addition, gender could be a factor that influences the perceived barriers and importance attached to dual career success (Sánchez-Pato et al., 2018), as females have fewer opportunities to be professional athletes than men (International Working Group on Females and Sport, 2012; Pfister, 2010). This could result in females thinking of sport less as a career outlet, and placing greater importance on dual careers and the possibility of working in a position related to their academic studies (Fuchs et al., 2021; López de Subijana et al., 2021). In addition, the barriers to successful dual study-sport careers may be even greater for athletes in individual sports such as athletics, given the long training hours involved in this type of sport (López de Subijana et al., 2021), which may make time management difficult (López de Subijana et al., 2015). However, there are no studies that have analysed these issues in high-performance athletes in their formative years, a particularly

sensitive stage due to the significant impact that the decisions made may have on professional development and present and future psychological well-being (Lupo et al., 2015).

Given the above, this study aimed to: 1) determine gender differences in the perception of balance and barriers to achieving success in the dual career; and 2) analyse gender differences in athletes' identity, psychological traits related to performance, and the importance placed on academic performance in high level athletes-in-training. The hypotheses were: a) females would perceive more barriers and face greater obstacles in achieving success in both sport and academics; and b) males would score higher on their identity as athletes and certain psychological traits, while females would place more importance on academic performance.

Material and Methods

Study Design

The present research employed a cross-sectional descriptive-correlational design, approved by the institutional Ethics Committee of [blind for review] (protocol code: CE 052303), and was conducted in accordance with the Declaration of Helsinki. The manuscript adhered to the STROBE Statement (Cuschieri, 2019). Informed consent was obtained from parents and athletes if they were minors, and for athletes of legal age, before the start of the study. A list of the study's independent and dependent variables is provided in Table 1.

Table 1

Research Model

Variable type	Construct	Variables or groups included
Independent	Gender	Male; Female
Dependent	Sociodemographic	Sporting experience; current training data
Dependent	Perceptions of balance and barriers to success in dual study-sport careers	Interference and study/sport priority; Support; Overall perception of balance; Barrier towards achieving a good balance between sporting life and studies
Dependent	Athlete identity	Individual items of the athletic identity measurement scale
Dependent	Psychological characteristics	Stress control; Influence performance; Motivation; Mental ability; Team relationship
Dependent	School performance	Importance given to school performance

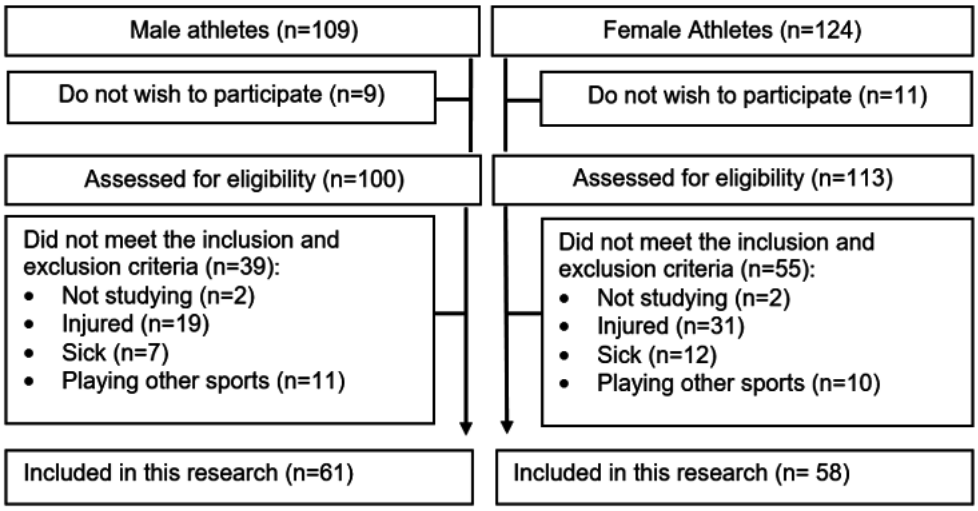
Participants

The Rstudio software (version 3.15.0, Rstudio Inc., Boston, MA, USA) was used to calculate the sample size. The significance level was set a priori at $\alpha = 0.05$. The standard deviation was set in accordance with previous studies that analysed perceived barriers in the dual career for male and female high-performance athletes ($SD = 0.75$ for males; $SD = 0.83$ for females) (Mateo-Orcajada et al., 2022). With an estimated error (d) of 0.21 for the variable perceived barriers in the dual career, the minimum sample size of the present research was 51 athletes for males and 58 athletes for females with a confidence interval of 95% and a statistical power greater than 0.80, achieving a calculated power of 0.96, which is considered high.

The sample was selected using non-probability convenience sampling method. It included athletes from the U-16 (n = 59), U-18 (n = 38), and U-20 (n = 22) categories from the Region of Murcia who had participated individually in at least one Spanish athletics championship. The sample consisted of 119 athletes, composed of 61 males (age = 18.31 ± 2.31 years) and 58 females (age = 17.27 ± 1.44 years). The inclusion criteria were: (a) being federated in athletics, (b) belonging to the U-16, U-18, or U-20 categories, (c) participating in one of the following athletics disciplines: running, jumping, throwing, or combined events, and (d) having competed in at least one Spanish individual athletics championship. The exclusion criteria included: (a) having an injury in the last three months that prevented normal training or competition, (b) having an illness that hindered training or competition in the last three months, (c) missing more than 20% of the training sessions in the last month, (d) being a federated athlete in another sport, (e) failing to complete any of the research questionnaires, and (f) not being a student. The sample flow chart is shown in Figure 1.

Figure 1

Sample Selection Flow Chart



Measurements

Socio-Demographic and Sporting Variables

With the aim of collecting information about socio-demographic aspects and in relation to their athletics practice and training, and their degrees, the athletes completed a questionnaire used in previous research (Albaladejo-Saura et al., 2022), in which they were asked about their age and gender; years of experience as federated athletes; days and hours of athletics training per week; hours of gym training per week; whether they had suffered any injury or incapacitating illness in the last three months that might have prevented them from training or competing normally; whether they played any other sport as a federated athlete; and how many training sessions they had missed in the last month. Information was also collected on whether they were studying, and if so, what degrees they were pursuing.

Balance and Barriers to Success in Dual Career Student-Athletes and Importance Given to School Performance

The questionnaire about the perceptions of dual career student-athletes (ESTPORT) (Sánchez-Pato et al., 2016) was used. More specifically, athletes completed items 16, 17, 19, 20, 24 to 28, 31, 34 to 37, and 45 to 58, corresponding to the interference and study/sport priority, support perception of balance, perception of barriers and importance given to school performance dimensions (*Cronbach's Alpha* = 0.79-0.83) (Conde et al., 2021). Items 20, 26-28, 31, 34-37, and 45-48 followed a 5-point Likert scale from 1 (strongly disagree or never) to 5 (strongly agree or always), while items 16, 17, 19, 24, and 25 had a dichotomous response (yes or no).

The interference and study/sport priority dimension contains five closed-ended dichotomous questions (yes or no) and one closed-ended dichotomous question (sport or studies). With regard to the perception of balance dimension, following the 5-point Likert scale from 1 (strongly disagree or never) to 5 (strongly agree or always), athletes can achieve a maximum score of 45 points and a minimum of 9 points. A high score in this dimension describes an athlete who has a lower perception of balance between studies and sport. As for the dimension of perception of barriers and importance given to academic performance, following the same procedure as above, a maximum score of 70 points and a minimum of 14 points can be obtained. If the athlete has high values in this dimension, it indicates that importance is given to academic performance and obtaining an academic degree (Conde et al., 2021).

Athletic Identity

Athletes self-completed the athletic identity measurement scale (AIMS) (Brewer et al., 2001). The AIMS is a 7-item instrument that assesses three subscales: social identity, exclusivity, and negative affectivity (Brewer et al., 1993). This questionnaire has shown good internal reliability (α = 0.81) (Brewer et al., 2001). The 7 items were scored with a 7-point Likert scale, ranging from 1 (strongly disagree) to 7 (strongly agree). Items 1, 2, and 3 corresponded to indicators of social identity; items 4 and 5

to indicators of exclusivity; and items 6 and 7 to indicators of negative affectivity (Brewer et al., 1993). The athletic identity of the subjects is established by means of a total composite score obtained by adding up the scores for the seven questions. High scores on the AIMS indicate greater identification with the role of athlete (Visek et al., 2008).

Psychological Variables

The Questionnaire on Characteristics Related to Sports Performance (CPRD) was completed (Gimeno et al., 2001). The questionnaire consists of 55 items with a Likert scale from 1 (strongly disagree) to 5 (strongly agree), which classifies the characteristics into five subscales: stress control (SC) (related items; 1, 3, 6, 8, 10, 12, 13, 14, 17, 19, 20, 21, 24, 26, 30, 32, 36, 41, 43, and 54); influence of performance evaluation (IPE) (related items; 9, 16, 28, 34, 35, 35, 42, 42, 44, 46, 47, 51, 52, and 53); motivation (M) (related items; 4, 15, 29, 31, 33, 39, 49, and 55); mental skills (MSK) (related items; 2, 7, 23, 25, 37, 40, 45, 48, and 50); and team cohesion (TCOH) (related items; 5, 11, 18, 22, 27, and 38) (Olmedilla et al., 2019). Within the SC dimension, the maximum score that can be achieved is 80 points. If the athlete obtains a high score, it reveals that the athlete has sufficient ability to control those stressful aspects of the competition. In addition, they are able to maintain their focus on the most relevant stimuli. The dimension related to IPE has a maximum score of 45 points. A high score on this scale demonstrates that the athlete can withstand the impact of a negative assessment of their performance. The M dimension has a maximum score of 31 points, and a high score indicates that the athlete is highly motivated to practice sport. With regard to the MSK dimension, the maximum possible score is 34 points. In this case, if the athlete achieves high scores, they are described as an athlete with a multitude of resources that favors improvement in the development of sporting performance. Finally, we find the TCOH dimension, where the maximum score of 24 points can be achieved. A high score in this dimension indicates integration and a willingness on the part of the athlete to work with the group (Gimeno et al., 2001).

The final score for each dimension is obtained through the direct sum of the items belonging to each category. A conversion of the direct scores on each scale into percentile scores was used (Gimeno et al., 2001). This scale has shown optimal internal consistency values for the total scale ($\alpha = 0.85$) and for most of the subscales ($\alpha SC = 0.88$; $\alpha IPE = 0.72$; $\alpha M = 0.67$; $\alpha TCOH = 0.78$; $\alpha MSK = 0.34$) (Gimeno et al., 2001).

Protocol

For data collection, athletes were summoned to their usual training venue, prior to one of the weekly training sessions the athletes usually attended. Athletes were directed to an isolated room to self-administer the questionnaires. A researcher was present in the room at all times to resolve any pertinent doubts, and in this case, they were resolved without conditioning the athletes' response. The athletes took an average of 30 minutes to complete all the questionnaires, which were completed in random order.

Statistical Analysis

The statistical analysis was performed with the SPSS statistical package (v.25.0; SPSS Inc., Chicago, IL, USA). Normality, homogeneity, and sphericity of the data were assessed using the Kolmogorov-Smirnov and Levene's tests, respectively. The descriptive analysis of quantitative variables showed mean values and standard deviations, while frequencies and percentages were calculated for qualitative variables. A Student's t-test was performed to analyse differences in sociodemographic and sport variables; perception of barriers and barriers; athlete identity; psychological characteristics; and importance given to academic performance as a function of gender. Effect size was calculated using Cohen's d test, defined as small when $d < 0.2$; moderate when $d < 0.8$; and large when $d > 0.8$ (Cohen, 2013). The chi-square analysis made possible the establishment of the differences in the questions related to interference and study/sport priority, and support according to gender. Cramer's V was used for the post hoc comparison of the 2x2 tables, and the contingency coefficient was used in the 2xn tables, to obtain the statistical value. The maximum expected value was 0.707; $r < 0.3$ indicated a low association; $r < 0.5$ indicated a moderate association; and $r > 0.5$ indicated a high association (Cramér, 1946). A value of $p < 0.05$ was established to determine statistical significance.

Results

Table 2 shows the gender differences between men and females in socio-demographic and sporting characteristics, highlighting that there were no differences in any of the variables analysed according to gender ($p > 0.05$).

Table 2

Gender Differences in the Socio-Demographic and Sporting Characteristics

	Gender		Statistical analysis			
	Males (*n* = 61)	**Females (*n* = 58)**				
	Mean ± SD	***Mean ± SD***	***t***	***p***	***d***	***95% CI***
Age (year-old)	16.90±3.30	16.02±3.40	1.40	0.175	3.35	-0.40;2.10
Years of experience (years)	6.30±3.60	6.30±3.70	0.30	1.000	3.60	-1.30;1-35
Athletics training days (days)	4.80±0.90	4.60±0.90	1.65	0.101	0.89	-0.05;0.60
Athletics training hours (hours)	9.10±3.30	8.00±2.45	1.95	0.056	2.90	-0.30;2.10
Gym training hours (hours)	4.00±3.00	3.60±2.45	0.75	0.465	2.70	-0.60;1.35

Table 3 shows the differences in the general perception of balance related to the dual study-sport career and the barriers to achieving this balance as a function of gender. Within the category of interference and priority between study/sport, significant gender differences were found for both the interference of studies with sport performance and sport performance with studies, with females showing a higher perception of interference (62.1% vs. 29.5% and 55.2% vs. 29.5%, respectively (p = 0.005-0.001) in both cases. However, no gender differences were found as to whether they considered their studies or sport to be a higher priority (p = 0.612), or the perception of support from coaches, family members, and professionals as a function of gender (p = 0.164-0.733).

No gender differences were found in the perception of balance (p = 0.230). Regarding the barriers to achieving balance in the dual study-sport career, it was found that females obtained a higher score in the variable 'I am usually tired' (p = 0.009). No differences were found in the remaining barriers (p > 0.05) (Table 3).

Table 3

Gender Differences in the Overall Perception of Balance in the Dual Career and Barriers to Achieving That Balance

		Gender				Statistical analysis		
Category	**Variable**	**Males (*n* = 61). n (%)**	***R***	**Females (*n* = 58). n (%)**	***R***	***p***	***η²***	***V***
Interference and study/sport priority	My studies interfere with my sporting perfor-mance	Yes: 18 (29.5%)	-1.8	Yes: 36 (62.1%)	1.9	<0.001	0.327	0.327
		No: 43 (70.5%)	1.7	No: 22 (37.9%)	-1.7			
	Sporting perfor-mance interfere with my studies	Yes: 18 (29.5%)	-1.5	Yes: 32 (55.2%)	1.5	0.005	0.260	0.260
		No: 43 (70.5%)	1.3	No: 26 (44.8%)	-1.3			
	Priority in the dual career	Studies: 46 (75.4%)	-0.2	Studies: 46 (79.3%)	0.2	0.612	0.047	0.047
		Sport: 15 (24.6%)	0.3	Sport: 12 (20.7%)	-0.3			

Table 3 (cont.)

Gender Differences in the Overall Perception of Balance in the Dual Career and Barriers to Achieving That Balance

		Gender				Statistical analysis		
Category	**Variable**	**Males (*n* = 61). n (%)**	***R***	**Females (*n* = 58). n (%)**	***R***	***p***	***η²***	***V***
Support	Do you have support from your trainer to study and train?	Yes: 53 (86.9%)	-0.2	Yes: 54 (93.1%)	0.2	0.260	0.103	0.103
		No: 8 (13.1%)	0.6	No: 4 (6.9%)	-0.6			
	Do you have support from your family to study and train?	Yes: 59 (96.7%)	-0.1	Yes: 58 (100.0%)	0.1	0.164	0.127	0.127
		No: 2 (3.3%)	1.0	No: 0 (0.0%)	-1.0			
	Do you have support from your teachers to study and train?	Yes: 36 (59.0%)	-0.1	Yes: 36 (62.1%)	0.2	0.733	0.031	0.031
		No: 25 (41.0%)	0.2	No: 22 (37.9%)	-0.2			
Overall perception of balance (from 1 to 5)	How easy/ difficult is it for you to balance your sporting life with your academic life?	2.60±0.80		2.80±1.00	-1.20	0.230	0.92	-0.55;0.15
	The university is far from my home	2.50±1.40		2.20±1.35	1.20	0.240	1.40	-0.20;0.80
	The university is far from my training site	2.75±1.50		2.70±1.55	0.35	0.725	1.55	-0.45;0.65
	I find myself unable to balance study and training time	1.55±0.95		1.80±1.00	-1.50	0.135	0.97	-0.65;0.10
	I am usually tired	2.35±1.25		3.00±1.22	-2.70	0.009	0.97	-1.05;-0.15

Table 3 (cont.)

Gender Differences in the Overall Perception of Balance in the Dual Career and Barriers to Achieving That Balance

		Gender			Statistical analysis			
Category	**Variable**	**Males (*n* = 61). n (%)**	***R***	**Females (*n* = 58). n (%)**	***R***	***p***	***η²***	***V***
	The cost of education is high	2.45±1.40		2.35±1.40	0.45	0.655	1.40	-0.40;0.65
	I do not have enough school support	2.40±1.30		2.85±1.45	-1.70	0.096	1.35	-0.90;0.10
Barrier towards achieving a good balance between sporting life and academics (from 1 to 5)	Student schedules are not flexible	2.45±1.40		3.00±1.55	-2.00	0.050	1.50	-1.10;0.00
	Training schedules are not flexible	2.10±1.40		1.90±0.95	1.10	0.280	1.20	-0.20;0.70

Table 4 shows the gender differences of the identity as an athlete. It was found that females obtained significantly higher values in the variable 'I feel bad about myself when I do poorly in sports' (p = 0.025), with no differences in the remaining variables (p > 0.05).

On the psychological characteristics of sports performance, it was found that males obtained significantly higher values on the variables stress control (p = 0.001) and influence of performance evaluation (p = 0.035), while females obtained significantly higher values on the variable team relationship (p = 0.032). No gender differences were found in motivation (p = 0.865) or mental ability (p = 0.900).

Table 4

Gender Differences in the Overall Perception of Balance in the Dual Career and Barriers to Achieving That Balance

Category	Variable	Gender		Statistical analysis			
		Males (n = 61)	Females (n = 58)				
		Mean ± SD	*Mean ± SD*	*t*	*p*	*d*	*95% CI*
Athletic identity measurement scale (scale:1 to 7)	I consider myself an athlete	6.40±1.20	6.15±1.20	1.15	0.250	1.20	-0.20;0.70
	I have many goals related to sports	6.40±0.80	6.05±1.30	1.85	0.070	1.10	-0.05;0.75
	Most of my friends are athletes	5.40±1.40	5.20±1.70	0.75	0.470	1.55	-0.35;0.75
	Sports are the most important part of my life	5.30±1.75	5.30±1.40	0.00	1.000	1.60	-0.55;0.60
	I spend more time thinking about sports than anything else	4.75±1.75	4.60±1.75	0.55	0.600	1.75	-0.50;0.80
	I feel bad about myself when I do poorly in sports	5.00±1.80	5.70±1.30	-2.35	0.025	1.60	-1.25; -0.10
	I would be very depressed if I were injured and could not compete in sports	5.75±1.70	6.00±1.50	-0.80	0.435	1.60	-0.80;0.35
Psychological characteristics of sports performance (scale: 0 to 100)	Stress control (percentile)	61.65±25.00	44.60±28.40	3.50	0.001	26.70	7.35;26.70
	influence of performance evaluation (percentile)	74.20±25.15	63.80±28.00	2.15	0.035	26.60	0.76;20.10
	Motivation (percentile)	73.60±25.00	72.80±22.90	0.20	0.865	24.01	-8.00;9.50
	Mental ability (percentile)	46.70±25.40	47.30±27.75	-0.15	0.900	26.55	-10.25;9.00
	Team relationship (percentile)	44.00±26.35	54.10±24.10	-2.20	0.032	25.30	-19.30; -0.10

Table 5 shows the gender differences in the importance given to school performance. Females obtained significantly higher values in 'The achievement of an academic degree is important to enrich my knowledge' (p = 0.035), and ´I have some doubts about my ability to achieve high grades in my studies´ (p = 0.035), with no significant differences in the remaining items (p > 0.05).

Table 5

Gender Differences in Importance Given to School Performance

Category	Variable	Gender		Statistical analysis			
		Males (*n* = 61)	Females (*n* = 58)				
		Mean ± SD	*Mean ± SD*	*t*	*p*	*d*	*95% CI*
Importance given to school performance (scale:1 to 5)	It is important for me to learn what is taught in my studies	4.25±0.95	4.30±0.90	-0.20	0.860	0.95	0.40;0.30
	I am willing to invest time to achieve excellent grades in my studies	4.30±0.90	4.40±0.85	-0.30	0.755	0.90	-0.40;0.30
	I will be able to use what is taught in my studies in different aspects of my life outside school	4.10±0.85	4.00±1.15	0.70	0.480	1.01	-0.25;0.50
	I get more satisfaction from getting a high grade in a subject than from being successful in my sport	2.95±1.35	2.75±1.10	0.95	0.360	1.25	-0.25;0.70
	I have some doubts about my ability to achieve high grades in my studies	2.25±1.20	2.75±1.35	-2.15	0.035	1.30	-0.95; -0.40
	I am sure I can get a university degree	4.30±0.90	4.40±0.95	-0.80	0.420	0.90	-0.50;0.20
	It is not important for me to do better than other students in my studies	3.15±1.45	3.10±1.35	0.040	0.970	1.40	-0.50;0-50
	The content of most of my subjects is interesting to me	3.30±1.20	3.35±1.30	-0.20	0.850	1.30	-0.50;0.40
	The most important reason I'm in school is to get a degree	3.60±1.35	3.70±1.25	-0.55	0.560	1.30	-0.60;0.35

Table 5 (cont.)

Gender Differences in Importance Given to School Performance

Category	Variable	Gender		Statistical analysis			
		Males (*n* = 61)	Females (*n* = 58)				
		Mean ± SD	*Mean ± SD*	*t*	*p*	*d*	*95% CI*
	It is not worth the effort to get excellent grades in my studies	1.60±0.90	1.60±0.95	0.02	0.980	0.90	-0.30;0.35
	Within an academic environment, I find it more difficult to cope with difficult tasks	2.40±1.10	2.75±1.20	-1.70	0.090	1.10	-0.75;0.05
	For me, studies are important in order to gain knowledge and skills	4.40±0.85	4.20±1.10	1.10	0.300	0.95	-0.15;0.55
	The achievement of an academic degree is important to enrich my knowledge	4.05±0.90	4.40±0.95	-2.20	0.035	0.90	-0.70; -0.30
	It is important for me to get a degree as it will help me to find a job	4.60±0.80	4.65±0.70	-0.60	0.560	0.75	-0.35;0.20

Discussion

The first aim of this research was to analyse differences in perceptions of balance and barriers in the dual study-sport career in high-performing athletes-in-training according to gender. It was found that females perceived a greater interference of both study on sport performance and study performance, in line with previous research that identifies gender as an influential factor in athletes' perceived barriers to study (Sánchez-Pato et al., 2018). Females tend to plan more strongly for a career alternative to sport compared to men (López de Subijana et al., 2021), and over time, prioritise academic training over a sporting career (Fuchs et al., 2021). This is attributed to less access to scholarships, grants, and sponsors (Pallarès et al., 2008), and less social recognition and visibility (Barriopedro et al., 2018; Pallarès et al., 2008).

A relevant finding of this research was the absence of gender differences in the perception of support received from family members, coaches, and professionals. This lack of differences could be explained by the increase in gender equality in sport in recent years, as both coaches and family members promote the compatibility between academics and sport, regardless of gender (Condello et al., 2019). In addition, athletes perceived a high level of support from family members and coaches, regardless of gender. Previous studies have pointed out that the social support from one's closest circle is a primary factor in dual career success (Aquilina, 2013). The role of family members is widely recognised as being unique and important in both academics and sport, especially when talking about parents (Fuchs et al., 2021). Their financial, emotional, and social support is crucial for student-athlete motivation and success, while negative parental attitudes can create psychosocial challenges and increase the risk of dropping out of sport or academics (Tamminen et al., 2012). Likewise, coaches are key figures that influence the academic and sport development of student-athletes, playing a mentoring role and providing support in the dual study-sport career (Debois et al., 2015).

In contrast, student-athletes showed a lower perception of professor support, regardless of gender. Previous research has already indicated that these students perceive the faculty to be the least supportive social group (Condello et al., 2019). This lack of academic support could be attributed to the scarce presence of specialised dual career tutors or the lack of flexibility in the educational environment (Amsterdam University of Applied Sciences et al., 2016). In this sense, the lack of

flexible study hours has been identified as one of the most relevant barriers to success in dual careers (López de Subijana et al., 2015).

A notable finding of the present research was that no significant differences were found in the perception of study-sport balance according to gender in most of the dimensions analysed, with both groups showing a moderate difficulty. This could be explained by the equalisation of the study and sport time demands between men and females (Sanders et al., 2019). Therefore, it is currently known that the demands of academic and sporting life for men and females are very similar (López de Subijana et al., 2015). Thus, most student-athletes perceive the dual career as a significant challenge, with external barriers, especially time management, being the main cause of imbalance between academic, social, and family demands (Aquilina, 2013; López de Subijana et al., 2015).

In addition, it is noteworthy that females scored higher on the variable 'I am usually tired' than men. Some studies have pointed out that the difficulty of successfully combining sport and academic careers can lead to anxiety, tension, and stress (Aquilina, 2013). The fact that females, to a greater extent, feel that they cannot fail either in optimising performance or in achieving academic results, could be an important factor of stress and tension, which could lead to a greater perception of tiredness among females (Ríos-Garit et al., 2024).

Based on the results obtained, the first hypothesis can be partially accepted, as it was found that females showed a greater perception of interference between academics and sport, as well as a greater feeling of accumulated fatigue. However, no differences were found in the perception of stakeholder support, nor in the perception of balance between academics and sport.

The second aim of this research was to analyse differences in athlete identity, performance-related psychological characteristics, and the importance attached to school performance in young high-achieving student-athletes according to gender. When analysing student-athlete identity by gender, it was found that females scored significantly higher than males on the variable 'I feel bad about myself when I do poorly in sports'. Previous research has indicated that females have higher levels of pre-competitive anxiety as compared to males, which could be related to the pressure to achieve satisfactory competitive results (Hanton et al., 2008). This pre-competition anxiety could lead to increased impulsivity during competition, which could lead to a decrease in sport performance (Parnabas et al., 2014). In turn, this could lead to greater pre-competition anxiety before future competitions, generating a negative feedback loop in this regard (Hanton et al., 2008).

A noteworthy result of the present research was that no significant gender differences were found in the items related to athletes' identity. These results are consistent with previous research, which indicated that females who participated in sporting activities do so with a higher regard than men. However, for men, their athletic identity is already intertwined with their masculine identity, resulting in gender equality (Piatt et al., 2018). The absence of gender differences in athletes' identities could be due to the fact that in developed countries, there is a cultural context that encourages equality in all areas, including sport (Debois et al., 2015). In addition, the competitive level of student-athletes of both genders was similar, which could influence them to have a similar concept of themselves as athletes, given that they dedicate comparable time to sport and have a similar level of competence and achievement (Tasiemski et al., 2004).

Differences in the psychological characteristics related to performance according to gender were also analysed in the present research. The findings showed that men had a greater control of stress and influence on performance than females. These results are consistent with previous studies, which found that male athletes presented higher values in stress control and performance evaluation (Olmedilla, Moreno-Fernández, et al., 2021). This could be due to the bidirectional relationship between stress control and the influence of sport performance evaluation (Abenza-Cano et al., 2021). Therefore, athletes who score higher in stress control have a greater capacity for positive coping towards the evaluation of performance by their environment or by themselves (Lavarello, 2004). In contrast, females demonstrated higher scores on the team cohesion variable, results that are consistent with those found in previous research (Olmedilla, Moreno-Fernández, et al., 2021). In other words, female athletes show a greater inclination to work as a group, which is vital from the point of view of sport cohesion and cooperation (Olmedilla, Ruiz-Barquín, et al., 2019).

However, the results related to the variables of motivation and mental ability did not show significant differences according to gender. These results are in line with those found in previous research, where the scores for both variables were similar in both females and men (Olmedilla et al., 2021). This could be due to the fact that these athletes do not use strategies or techniques that favour an improvement of their psychological skills and abilities (Gimeno et al., 2001), which

causes them to present similar results and low scores in both dimensions. Therefore, future research should analyse the effects of specific interventions or the incorporation of a sports psychologist on the scores obtained in these variables (Abenza-Cano et al., 2021), and whether these types of interventions may have different effects depending on gender.

Regarding gender differences in the assessment of academic performance, similar scores were found in most dimensions, although females showed significantly higher values in the variable 'The achievement of an academic degree is important to enrich my knowledge'. This greater emphasis on education by females is largely due to the difficulties they face in accessing scholarships, grants, and sports sponsors, which limits their continuity in high-performance sport and leads them to prioritise an academic career (Pallarès et al., 2008). Moreover, even when they manage to become professional athletes, their salaries are lower than those of their male counterparts, which reinforces the perception of the need for academic training to ensure a professional career after retirement from sport (Pallarès et al., 2008).

Based on the results found, the second hypothesis is partially accepted, as males scored higher on certain dimensions of athlete identity and psychological characteristics, while females prioritised academic performance. However, most dimensions did not show gender differences.

The main novelty of the present research is the possibility to identify the main barriers that young athletes face in their dual study-sport career, as well as their psychological profile and the importance they give to their role as athletes and as students according to gender. This information is key for athletes and stakeholders (coaches, teachers, and family members, among others) to establish adapted strategies that can be used to facilitate the compatibility between academics and sport performance.

Despite the novelties presented by this research, it is not without limitations. Firstly, the sample size was not representative of the reference population, as it was carried out with a fairly homogeneous population in terms of sporting performance and geographical area. However, the development of a dual career in other geographical settings may have other conditioning factors, so this should be analysed in future research. A second limitation was that the present research was cross-sectional, which does not allow us to analyse the causality of the variables analysed. This is why future research should consider longitudinal studies in which researchers can analyse several seasons throughout the sporting and academic career, to show the different barriers that may arise and the protective factors against them.

Conclusions

In general, young female performance athletes present a higher number of barriers to dual career success, perceive a greater interference between academics and sport, as well as a higher perception of fatigue, feel worse when they do not perform well in sport, have poorer stress management and influence of performance evaluation. In addition, they place more importance on achieving an academic degree and show greater team cohesion.

Ethics Committee Statement

The study was conducted in accordance with the Declaration of Helsinki. The study was approved by the Ethics Committee of the Catholic University of San Antonio in Murcia (code: CE 052303).

Conflict of Interest Statement

The authors declare that they have no conflict of interest.

Funding

This research has received funding from the Murcia High Performance Centre (CAR Región de Murcia) and the Catholic University of Murcia as part of the CFE/RE/15-24 project Determinants of athletic performance in training. This study forms part of the doctoral thesis of Antonio Eugenio Vélez-Alcázar.

Authors' Contribution

Conceptualization A.V.A., R.V.C. & J.A.G.R.; Methodology A.V.A. & R.V.C.; Software A.V.A.; Validation J.A.G.R. & A.P.A.; Formal Analysis R.V.C.; Investigation A.V.A., J.A.G.R. & A.P.A.; Resources J.A.G.R. & A.P.A.; Data Curation A.V.A. & R.V.C.; Writing – Original Draft A.V.A. & R.V.C.; Writing – Review & Editing A.V.A., R.V.C. & J.A.G.R.; Visualization A.V.A., R.V.C. & J.A.G.R.; Supervision A.V.A., R.V.C. & J.A.G.R.; Project Administration J.A.G.R.; Funding Acquisition J.A.G.R. All authors have read and agreed to the published version of the manuscript.

Data Availability Statement

Data available upon request from the corresponding author (jagarcia@ucam.edu)

Acknowledgements

The authors would like to thank the Murcia Region Athletics Federation, coaches and athletes for participating in this study. They would also like to thank the Murcia Region High Performance Centre for providing the facilities for data collection. Thanks to the collaborating researchers who helped carry out the assessments.

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