












Psychological characteristics related to sport: differences between disabled and able-bodied athletes

Sergio Barbosa-Granados¹ , Haney Aguirre-Loaiza² , Jaime Arenas-Granada³ ,
 Ángela Urrea-Cuéllar⁴ , Ricardo Hernández Roldán⁵ , Jhon Quiñonez⁵ ,
 Jeison Parra-Tijaro⁷ , Laura Herrera-Agudelo⁷  & Jonathan Nanez² 

¹ Cooperative University of Colombia, Pereira (Colombia).

² Catholic University of Pereira, Pereira (Colombia).

³ Jaime Isaza Cadavid Colombian Polytechnic, Medellín (Colombia).

⁴ San Buenaventura University, Cali (Colombia).

⁵ University Institution of Envigado, Envigado (Colombia).

⁶ University of Barcelona, Barcelona (Spain).

⁷ University of Manizales, Manizales (Colombia).



Editor:

© Generalitat de Catalunya
 Departament de la Presidència
 Institut Nacional d'Educació
 Física de Catalunya (INEFC)

ISSN: 2014-0983

*Corresponding author:

Haney Aguirre-Loaiza
haney.aguirre@gmail.com

Section:

Physical Activity and Health

Original language:

English

Received:

August 21, 2023

Accepted:

January 16, 2024

Published:

April 1, 2024

Front cover:

Mountain biker enjoying
 nature and open air.
 © Adobe Stock. Delcio F/
peopleimages.com

Cite this article

Barbosa-Granados, S., Aguirre-Loaiza, H., Arenas-Granada, J., Urrea-Cuéllar, Á., Hernández Roldán, R., Quiñonez, J., Parra-Tijaro, J., Herrera-Agudelo, L., & Nanez, J. (2024). Psychological characteristics related to sport: differences between disabled and able-bodied athletes. *Apunts Educación Física y Deportes*, 156, 19-29. [https://doi.org/10.5672/apunts.2014-0983.es.\(2024/2\).156.03](https://doi.org/10.5672/apunts.2014-0983.es.(2024/2).156.03)

Abstract

The study of adapted sports and sport psychology has gained increasing insight for both the general public and the scientific community. However, there is a limited number of studies that compare the psychological characteristics of Athletes with Disabilities (AWD) and Able-Bodied Athletes (ABA). The objectives of this study were: (1) to compare the psychological characteristics between AWD and ABA; (2) to analyze sports expertise (inexperienced vs. experts) and the type of sport (individual vs. team). A quantitative study with an associative-comparative design was conducted, involving 200 athletes of both sexes ($M_{age} = 28.6 \pm 10.2$). Out of the total participants, 88 were AWD ($M_{age} = 34.7 \pm 10.7$) and 114 were ABA ($M_{age} = 23.8 \pm 6.6$). The results, obtained through factorial ANOVA, revealed that AWD are more motivated and exhibit better team cohesion compared to ABA. These findings remained consistent even when considering expertise and type of sport. These results contribute to raising awareness about biased or stereotypical views and promoting increased sports participation within the AWD community. In conclusion, there are differences in motivation and team cohesion favoring AWD.

Keywords: expertise, motivation, multiple disabilities, sport psychology, team cohesion.

Introduction

Although the Paralympic Games have received greater media coverage compared to previous years, there are still gaps that hinder the participation of people with disabilities in physical and sports activities (Burns et al., 2019; Smith et al., 2016). Relative to the body of research conducted on athletes without disability, there has been limited research conducted across various scientific disciplines regarding the interaction of people with disabilities in the context of physical activity and sports. Sports psychology is one such area that has received relatively little attention (Burns et al., 2019; Martin et al., 2020; Smith et al., 2016). While there exist pioneering studies on the psychology of sports and individuals with disability (Henschen et al., 1992; Sherrill, 1990; Sherrill & Rainbolt, 1988), the current landscape is marked by a promising trend. Presently, there is an encouraging outlook as research dedicated to the intersection of sports and individuals with disabilities is gaining momentum (Marín-Suelves & Ramon-Llin, 2021).

People with disabilities often engage in sports to foster social bonds and promote socialization opportunities (Aitchison et al., 2022). Previous studies have indicated that participation in adapted sports is associated with improved quality of life and athletic identity (Groff et al., 2009), which helps combat negative stereotypes associated with their disability (Kittson et al., 2013). Additionally, the sports environment facilitates social connections and integration, leading to a sense of freedom and a shift in paradigms regarding stereotypes (Aitchison et al., 2022; McVeigh et al., 2009). Other notable benefits are improved general health and well-being (Aitchison et al., 2022). For instance, individuals with disabilities who engage in sports, regardless of their competitive level, report a higher quality of life compared to those who do not participate (Groff et al., 2009). Additionally, sports involvement is associated with reduced symptoms of mood changes, anxiety, and depression when compared to non-participants with disabilities (Tasiemski & Brewer, 2011). Sport plays a role in fostering self-confidence, self-esteem, and competence development (Smith & Sparkes, 2012), and promotes coping strategies and resilience (Lins et al., 2019).

To date, numerous benefits of sports participation have been identified. However, there is a significantly lower rate of sports engagement among people with disabilities compared to those without disabilities (Zhang et al., 2021). The limited participation of individuals with disabilities in sports can be attributed to various barriers they face. These barriers include factors such as time constraints, lack of motivation, unfavorable weather conditions, inadequate peer support, negative societal attitudes, limited access to information about sports opportunities, secondary problems related to physical pain

and health impairments, structural environmental obstacles, non-adapted sports equipment and facilities, transportation issues, inaccessible housing, and a lack of qualified support from professionals in sports science, among others (Jaarsma et al., 2014).

Various theoretical models provide explanatory frameworks for understanding levels of participation and the barriers faced by people with disabilities in sports (Martin et al., 2020). For instance, the medical model focuses on the individual and views disability as a “disease” or medical condition. Conversely, social models emphasize the role of the environment. These models recognize multiple social determinants while downplaying personal factors. Within this context, the social-relational model proposes that both medical (individual) and social factors can coexist and influence participation in physical or sports activities among people with disabilities (Thomas, 2004). Thus, the social-relational model suggests that a combination of factors from both medical and social models shapes and integrates real-life situations (Martin et al., 2020).

Given the aforementioned considerations, sport serves as a reference model for society and holds significant importance for individuals with disabilities. Consequently, sport psychology emerges as a relevant field for conducting research within a comprehensive social-relational model (Martin et al., 2020). In this regard, an intriguing avenue of research involves investigating the psychological characteristics that impact individual factors of Athletes with Disability (AWD) in the context of sport, competition, sports experience, and various forms of association (environmental factors). Of particular interest is whether there exist differences in performance-related psychological characteristics between AWD and Able-Bodied Athletes (ABA) (Hernández et al., 2021).

Psychological characteristics related to sport in ABA have been extensively studied using various methodological approaches (Arias et al., 2016). Furthermore, there is a current interest in examining the distinguishing psychological characteristics between elite and non-elite athletes (Mitić et al., 2021). It is believed that the implementation of specific psychological strategies within training plans enables the attainment of high-performance levels during competitive sports events.

Therefore, one might assume that the existing body of knowledge and research on the psychological characteristics exhibited by ABA can also be applied to AWD. However, this approach raises two main concerns. Firstly, this assumption might be plausible because sports competitions require the engagement of demanding psychological skills and traits. Consequently, it can be hypothesized that, on average, ABA and AWD share similar physical, technical, tactical, and

psychological demands, albeit within different modalities. AWD participate in demanding Olympic cycles and experience competitive schedules comparable to the physical and psychological demands encountered by ABA. On the other hand, the second approach proposes that there are differences in psychological characteristics between AWD and ABA. It suggests that there are certain hormonal and behavior variations in Paralympic athletes (Paulo-Pereira-Rosa et al., 2020). This could be attributed to the unique experiences of AWD (Smith et al., 2016). Building on this perspective, AWD not only face the demands of sports competition but also encounter distinctive challenges that extend beyond performance enhancement (Blumenstein & Orbach, 2015). Additionally, the reviewed studies have not considered participants' sports experience and type of sport. In the present study, experience is operationalized as the number of years dedicated specifically to competitive sports participation within a particular discipline.

As a result, the practical implications of interventions made by sports psychologists need to be adapted to suit the context of AWDs (Hanrahan, 2015). However, there is a scarcity of studies in sport psychology that compare psychological characteristics and attitudes to sports in samples of AWD relative to ABA, despite their significant importance in shaping future research and informing professional practice (Gomez-Marcos & Sanchez-Sanchez, 2019; Szájer et al., 2019).

Therefore, there is a pressing need to investigate the behavior of AWD, as this exploration can provide valuable insights into sports initiation, as well as the identification and selection of new talents.

Based on our literature review and recognizing the significance of further exploring research on AWD, our study has two primary objectives: 1. To compare psychological characteristics (such as stress control, influence of performance, motivation, mental ability, and team cohesion) between AWD and ABA; 2. To analyze the relationship between sports expertise (inexperienced vs. experts) and type of sport (individual vs. team) relative to psychological characteristics in AWD and ABA.

Method

Design and participants

A quantitative, non-experimental study was conducted. 202 athletes participated: $n = 88$ AWD and $n = 114$ ABA. Sample selection was intentionally carried out in different cities of Colombia (Medellín, Armenia, Manizales, and Cali). Volunteers are representative of 19 sports disciplines. Information on sociodemographic variables, type of disability, and sports variables is found in Table 1 and 2, respectively.

Table 1
Descriptive information regarding sociodemographic variables and disability type.

Sociodemographic variables	AWD $n = 88$ (43.5 %)	ABA $n = 114$ (56.4 %)	All $n = 202$
Age _(M±SD)	34.7 ± 10.7	23.8 ± 6.6	28.6 ± 10.2
Sex			
Female	16 (18.1)	29 (25.4)	45 (22.2)
Male	72 (81.8)	85 (74.5)	157 (77.7)
Type of injury			
Spinal cord injury	42 (48.3)		
Amputation	21 (24.1)		
Spina bifida	7 (8.0)		
Short height	4 (4.6)		
Right hemiplegia	1 (1.1)		
Balance disorders	1 (1.1)		
Hip dysplasia	1 (1.1)		
Musculoskeletal injury	1 (1.1)		
Polio	2 (2.3)		
Left hemiplegia	1 (1.1)		
Phocomelia	2 (2.3)		
Spastic paraplegia	1 (1.1)		
Left arm paralysis	1 (1.1)		
Amyotrophic Lateral Sclerosis	1 (1.1)		
No answer	2 (2.3)		

Note: AWD = Athletes with Disability, ABA = Able-Bodied Athletes, age = mean (M) and standard deviation (\pm). Other variables are reported as frequencies and percentages (%)

Table 2
Sports characteristics in Athletes with Disability (AWD) and Able-Bodied Athletes (ABA).

Sports-related variables	AWD n = 88 (43.5 %)	ABA n = 114 (56.4 %)	All n = 202
Sports experience_(years)			
< 1	7 (7.9)	0 (0.0)	7 (3.4)
1-2	18 (20.4)	18 (15.7)	36 (17.8)
3-4	21 (23.8)	35 (30.7)	56 (27.7)
5-6	7 (7.9)	14 (12.2)	21 (10.3)
7-8	11 (12.5)	16 (14.0)	27 (13.3)
> 9	24 (27.2)	31 (27.1)	55 (27.2)
Expertise			
Non-experts (< 4 years)	46 (52.2)	53 (46.4)	99 (49.0)
Experts (> 5 years)	42 (47.0)	61 (53.5)	103 (51.0)
Sport			
Chess	4 (4.4)	0 (0.0)	4 (1.9)
Athletics	21 (23.8)	24 (21.0)	45 (22.7)
Basketball	7 (7.9)	0 (0.0)	7 (3.4)
Handball	0 (0.0)	7 (6.1)	7 (3.4)
BMX	0 (0.0)	4 (4.3)	3 (2.3)
Bowling	0 (0.0)	2 (1.7)	2 (0.9)
Futsal	0 (0.0)	36 (31.5)	36 (17.8)
Hapkido	0 (0.0)	24 (21.0)	24 (11.8)
Swimming	11 (12.5)	0 (0.0)	11 (5.4)
Skating	0 (0.0)	2 (1.7)	2 (0.9)
Weightlifting	4 (4.5)	9 (7.8)	13 (6.4)
Rugby	9 (10.2)	0 (0.0)	9 (4.4)
Tennis	4 (4.4)	0 (0.0)	4 (1.2)
Table Tennis	4 (4.4)	5 (4.3)	9 (4.4)
Archery	4 (4.5)	0 (0.0)	4 (1.9)
Shooting	8 (9.0)	0 (0.0)	8 (3.9)
Volleyball	12 (13.6)	0 (0.0)	12 (5.9)
Type of sport			
Individual	61 (69.3)	71 (62.2)	132 (65.3)
Team	27 (30.6)	43 (37.7)	70 (34.6)

Note: AWD = Athletes with Disability, ABA = Able-Bodied Athletes

Instruments and measures

Psychological characteristics: The *Psychological characteristics of the sports performance Questionnaire* (CPRD by Spanish acronym) was used (Gimeno & Pérez-Llantada, 2010). CPRD has evidence of construct validity with an explained variance of 63% derived from five factors (55 items): Stress Control (SC = 20 items), Influence of Performance Evaluation (IPE = 12 items), Motivation (M = 8 items), Mental Ability (MA = 9 items) and Team Cohesion (TC = 8 items). It has been shown that the reliability coefficient of the entire scale is satisfactory. The CPRD has

a Likert-type response format that evaluates the degree of agreement from 0 = “totally disagree” to 5 = “totally agree”. For this study, the CPRD showed adequate total internal consistency ($\omega = .87$, 95% CI [.85, .90]).

CPRD factors are characterized as follows: i) SC: is the response related to the demands of training-competition and potentially stressful situations; ii) IPE: is the response to situations in which athletes evaluate their own performance or think that significant people are evaluating them; iii) M: is the interest in improving each day, the relationship between effort and reward, the acknowledgement by other people;

iv) MS: is the ability to self-assess and self-regulate the level of activation, visualization, attentional focus, control of dysfunctional cognition, goal setting and objective evaluation of one's own performance; v) TC: is the integration with their own sports group, including the interpersonal relationship with other team members, the level of satisfaction training along other athletes, the individualistic attitude in relation to the rest of the group and the importance of "team spirit".

Sociodemographic and sport variables: Through an Ad-hoc questionnaire, we explored: (i) sex; (ii) age; (iii) sport experience (classified as 2-year intervals); (iv) expertise, which was computed in two groups: "inexperienced" (≤ 4 sport experience years) and "expert" (≥ 5 sport experience years); (v) sport discipline; (vi) sport type, which was classified as either individual or team sport, and (vii) injury type for AWD.

Data Analysis

Data processing was performed by JASP®. Dependent variables were performance-related psychological characteristics (see instruments and measures section). The independent variables of this analysis were sports expertise and sport type (individual vs. team). Expertise was classified in two groups according to median experience of sport years: inexperienced ($Mdn_{years} < 4.0$) and expert ($Mdn_{years} > 4.0$). Exploratory data analysis did not yield any missing data. Extreme data and outliers were kept. The inferential analysis was performed with the direct scores of the dependent variables. The descriptive analysis estimated measures of frequency and percentages of sociodemographic characteristics (see Table 1 and 2). The assumptions were verified in each of the groups (AWD and ABA) for normal distribution through Shapiro-Wilk, and homogeneity with Levene's. Hypothesis testing was performed in two stages.

First, the means of the two groups were compared through t-Student for independent samples and Cohen's d effect size was estimated. Second, two 2 x 2 factorial ANOVA models were run, one model for condition*experience, and for condition*type of sport. The effect size used for the ANOVA models was Eta squared (η^2). Post-hoc analysis of mean comparisons was corrected by Tukey's test. The mean difference (M_{diff}) and its confidence interval (95% CI) were reported. McDonalds Omega (ω) coefficients for internal consistency of CPRD scores were also considered.

Procedure and ethical considerations

AWD and ABA participants were contacted through sports leagues, coaches, and sports administrators. Data collection consisted of group-administered instruments and procedures and took place in various cities in Colombia (Medellín, Armenia, Cali, and Manizales). Ethical considerations were observed during the data processing phase, following the guidelines outlined in the Declaration of Helsinki. These provisions were implemented to protect the autonomy and anonymity of all participants while ensuring the integrity of the study. The bioethical committee of the Politécnic Colombiano Jaime Isaza Cadavid approved this research (Code: 20610801-202201007863 - Acta 11-2022).

Results

The comparison of the psychological characteristics between AWD and ABA (see table 3) showed differences in Motivation, $t(185) = 5.24$ $p < .001$, $d = .71$, CI 95% [0.43, 1.00]), as AWD were significantly more motivated. Additionally, Team Cohesion had significantly higher means for AWD, $t(185) = 2.71$ $p = .007$, $d = .69$, 95% CI [0.09, 0.65]).

Table 3

Comparison of psychological characteristics between Athletes with Disability (AWD) and Able-Bodied Athletes (ABA).

Psychological Characteristics	AWD $n = 88$	ABA $n = 114$	t	p	d
	$M(SD)$	$M(SD)$			
Stress Control	55.1 (12.3)	55.4 (12.5)	-0.196	.845	.02
Influence of Performance Eval.	29.9 (8.2)	29.7 (7.9)	0.210	.834	.03
Motivation	26.7 (3.5)	23.0 (6.3)	5.245 ^a	< .001*	.71
Mental Skills	25.2 (3.8)	24.6 (5.2)	0.802	.423	.11
Cohesion team	18.8 (3.0)	17.4 (4.4)	2.713 ^a	.007*	.37

Note: a = Welch's test, t = Student's t test, d = Cohen's d (effect size). *significance

Analysis of psychological characteristics by expertise

The interaction between Condition*Expertise did not show significant differences in stress control, influence on performance evaluation, motivation, and mental ability (see table 4). On the contrary, Team Cohesion did yield differences from this interaction $F(1,198) = 4.62$, $p = .033$, $\eta^2 = 0.022$. Also, a main effect was demonstrated in the expertise $F(1,198) = 11.05$, $p = .001$. Post-hoc analysis of mean comparisons indicated differences between “expert” AWD ($M_{TC} = 19.3$) vs. “expert” ABA ($M_{TC} = 16.7$) $M_{diff} = 2.60$, 95% CI [0.57, 64.63], $p = .006$ (see Figure 1). These results indicated that expert AWD had more Team Cohesion than expert ABA.

Regarding the Motivation variable, main effects were observed in the “inexperienced” group $F(1,198) = 6.94$,

$p = .009$, and the “experts” group $F(1,198) = 17.4$, $p = .009$. Post-hoc analysis indicated significant differences (see figure 1): between “inexperienced” AWD ($M_M = 26.3$) vs. “inexperienced” ABA ($M_M = 23.7$), $M_{diff} = 2.81$, CI 95% [0.05, 5.58], $p = .044$. Namely, inexperienced AWD were significantly more motivated than inexperienced ABA.

Likewise, inexperienced AWD were more motivated than expert ABA. We observed significant differences between inexperienced AWD ($M_M = 26.3$) vs. expert ABA ($M_M = 22.3$), $M_{diff} = 4.24$, CI 95% [1.56, 6.92], $p < .001$. “Expert” AWD ($M_M = 26.8$) obtained higher scores than the “inexperienced” ABA ($M_M = 23.7$), $M_{diff} = -3.04$, CI 95% [-5.87, -0.20], $p = .030$; and finally, the “expert” AWD ($M_M = 26.8$) also outperformed the “expert” ABA ($M_M = 22.3$), $M_{diff} = 4.47$, CI 95% [1.72, 7.22], $p < .001$.

Table 4

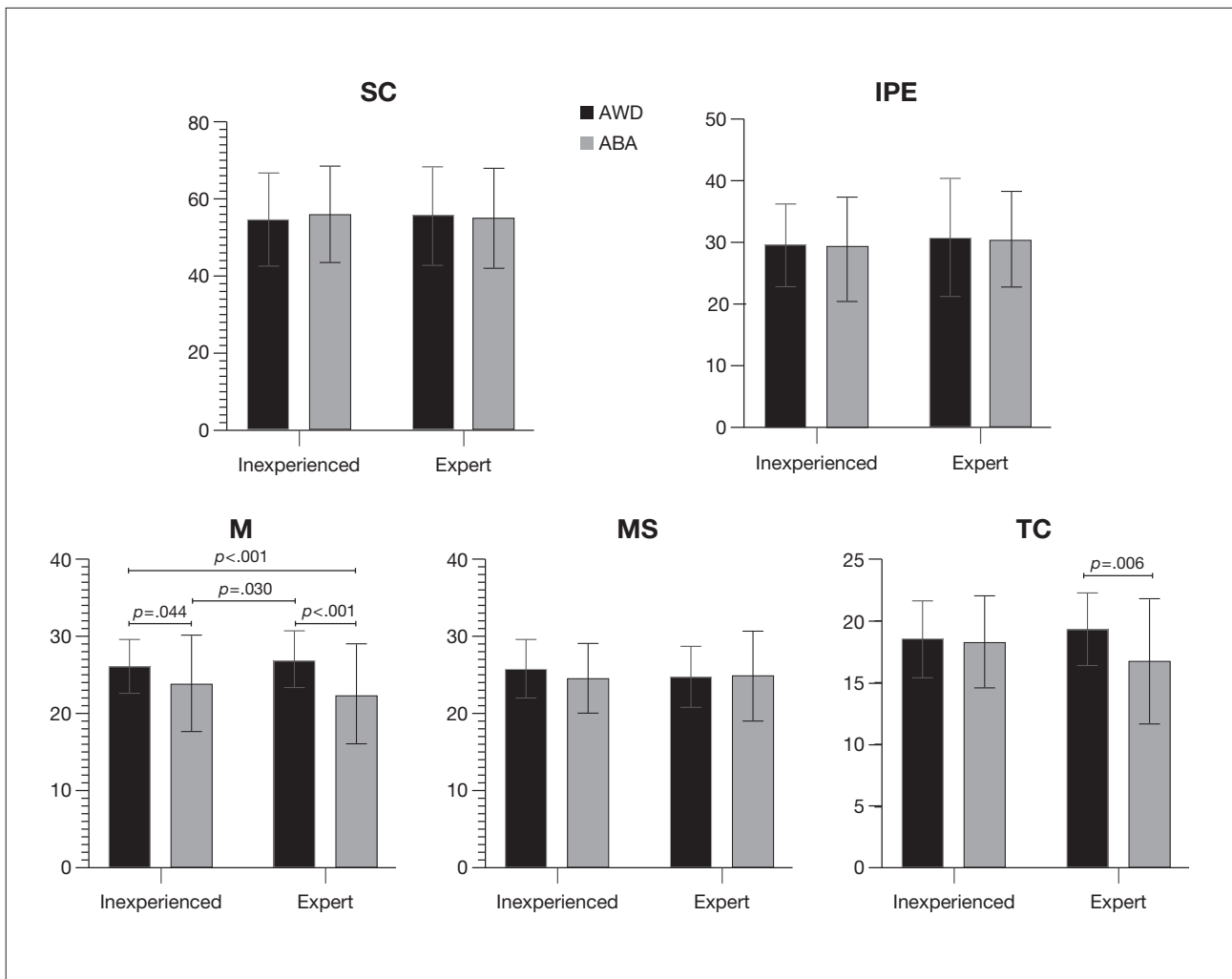
Psychological Characteristics comparison between condition (AWD vs. ABA) and expertise.

Characteristics	Condition	Inexperienced <i>n</i> = 99	Expert <i>n</i> = 103	Condition*Expertise			
		<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>MS</i>	<i>F</i>	<i>p</i>	η^2
Stress Control	AWD	54.7 (12.0)	55.5 (12.8)	31.2	0.19	.656	0.001
	ABA	55.8 (12.3)	55.1 (12.7)				
Influence of Performance Eval.	AWD	29.2 (6.7)	30.8 (9.5)	0.52	0.01	.925	0.001
	ABA	29.0 (8.2)	30.3 (7.5)				
Motivation	AWD	26.6 (3.5)	26.8 (3.6)	33.9	1.21	.273	0.001
	ABA	23.7 (6.1)	22.3 (6.4)				
Mental Skills	AWD	25.6 (3.7)	24.6 (3.8)	19.6	0.89	.344	0.004
	ABA	24.5 (4.5)	24.8 (5.8)				
Team Cohesion	AWD	18.5 (3.1)	19.3 (2.9)	70.5	4.62	.033	0.022
	ABA	18.2 (3.6)	16.7 (5.0)				

Note: AWD = Athletes with Disability, ABA = Able-Bodied Athletes. MS = Mean of Squares. Inexperienced (AWD, *n* = 46; ABA, *n* = 53), Expert (AWD, *n* = 42; ABA, *n* = 61). * $p < .01$

Figure 1

Post-hoc analysis of the psychological characteristics according to expertise (corrected by Tukey's test).



Note: AWD = Athletes with Disability, ABA = Able-Bodied Athletes. Psychological Characteristics: SC = Stress Control, IPE = Influence of Performances Evaluation, M = Motivation, MS = Mental Skills, TC = Team.

Analysis of psychological characteristics by type of sport

The interaction between Condition*Type of Sport (see table 5) showed an effect on Motivation, $F(1,198) = 6.00$, $p = .015$, $\eta^2 = 0.025$, as well as on Team Cohesion $F(1,198) = 4.37$, $p = .038$, $\eta^2 = 0.018$. The variables of Stress Control, Influence of Performance Evaluation and Mental Ability did not show any interaction nor main effects.

Regarding the Motivation variable, a main effect was observed for individual sports $F(1,198) = 11.05$, $p = .001$. Post-hoc analysis indicated significant differences in individual AWD sports ($M_M = 26.2$) vs. ABA ($M_M = 21.0$) $M_{diff} = 5.17$, 95% CI [2.93, 7.40], $p < .001$. Another

significant mean comparison was between AWD team sports ($M_M = 27.7$) vs. ABA individual sports ABAs ($M_M = 21.0$) $M_{diff} = 6.70$, 95% CI [9.60, 3.80], $p < .001$ (see figure 2).

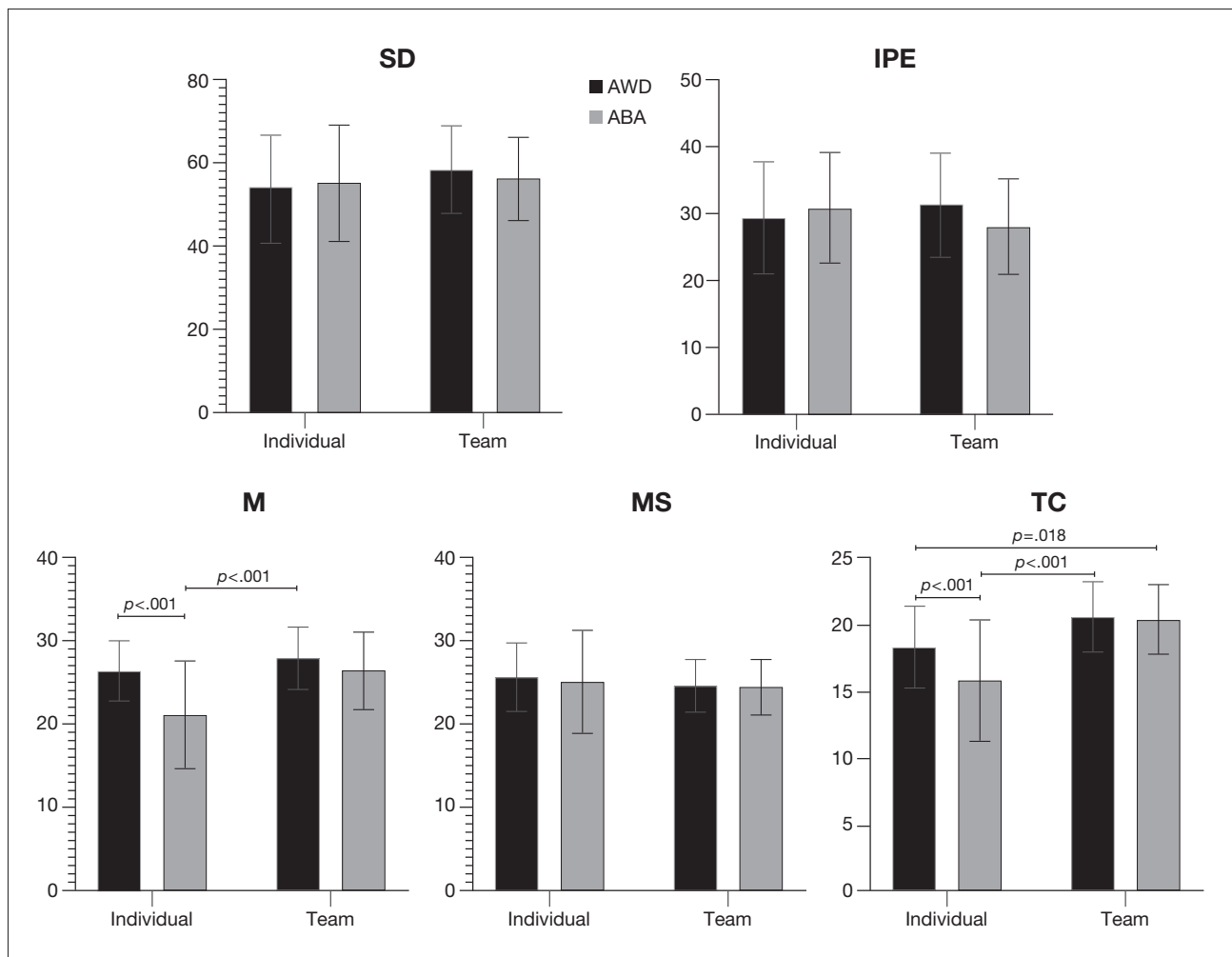
In terms of Team Cohesion, a main effect was found for individual sports $F(1,198) = 15.8$, $p = .001$. Post-hoc analysis showed differences, indicating that AWD in individual sports ($M_{TC} = 18.1$) outperformed ABA ($M_{TC} = 15.7$) $M_{diff} = 2.44$, CI 95% [0.85, 4.04], $p < .001$. Likewise, differences were also found in AWD individual sports ($M_{TC} = 18.1$) vs. Team ABA ($M_{TC} = 20.2$) $M_{diff} = -2.07$, CI 95% [-3.89, -0.25], $p = .018$. There were also differences in AWD team sports ($M_{TC} = 20.4$) relative to ABA individual sports ($M_{CHE} = 15.7$) $M_{diff} = 4.74$, CI 95% [6.81, 2.68], $p < .001$ (see Figure 2).

Table 5
Psychological Characteristics compared between condition (AWD vs. ABA) and type of sport.

Psychological Characteristics	Condition	Individual n = 132	Team n = 70	Condition*Type of sport			
		M(SD)	M(SD)	MS	F	p	η ²
Stress Control	AWD	53.8 (12.9)	58.1 (10.4)	141.8	0.91	.340	0.005
	ABA	55.1 (13.7)	55.9 (10.2)				
Influence of Performance Eval.	AWD	29.3 (8.3)	31.2 (7.8)	242.4	3.78	.053	0.019
	ABA	30.7 (8.2)	28.0 (7.1)				
Motivation	AWD	26.2 (3.5)	27.7 (3.5)	147.0	6.00	.015*	0.025
	ABA	21.0 (6.4)	26.2 (4.6)				
Mental Skills	AWD	25.5 (4.0)	24.4 (3.1)	1.84	1.84	.772	0.000
	ABA	24.9 (6.1)	24.2 (3.3)				
Team Cohesion	AWD	18.1 (3.0)	20.4 (2.6)	54.4	4.37	.038	0.018
	ABA	15.7 (4.5)	20.2 (2.5)				

Note: AWD = Athletes with Disability, ABA = Able-Bodied Athletes. Individual sports (AWD, n = 61; ABA, n = 71), Team sports (AWD, n = 27; ABA, n = 43). *significance

Figure 2
Post-hoc analysis of the psychological characteristics according to type sport.



Note: AWD = Athletes with Disability, ABA = Able-Bodied Athletes. Psychological Characteristics: SC = Stress Control, IPE = Influence of Performances Evaluation, M = Motivation, MS = Mental Skills, TC = Team Cohesion.

Discussion

The objective of this study was twofold: firstly, to compare the psychological characteristics (Stress Control, Performance Influence, Motivation, Mental Ability, and Team Cohesion) between AWD and ABA; and secondly, to analyze possible differences in relation to expertise (inexperienced vs. experts) and type of sport (individual vs. team).

Our findings indicated that AWD exhibited higher scores of motivation and better team cohesion compared to ABA. Notably, this pattern persisted even when accounting for expertise and type of sport. However, there was a difference in team cohesion for type of sport, with AWD averaging lower scores relative to ABA in team sports.

Few studies have directly compared the psychological characteristics between AWD and ABA (Hernández et al., 2021), and as a result, this line of research is still in its early stages and has yielded inconsistent results thus far (Gomez-Marcos & Sanchez-Sanchez, 2019; Szájer et al., 2019).

Differences between AWD and ABA have been observed in somatic anxiety, self-confidence, and achievement motivation in swimmers (Szájer et al., 2019). However, other studies have shown no significant differences in psychological characteristics, such as in the case of triathlon athletes (Gomez-Marcos & Sanchez-Sanchez, 2019). Given the wide variety of measures, types of sports, and other modulating variables, no definitive conclusions can be drawn regarding these inconsistencies in results.

Our results partially support the perspective that there are differences in psychological characteristics between AWD and ABA. Participation in sports is a rewarding experience for individuals with disabilities (Aitchison et al., 2022). Sport serves as both a means and an end for AWD, enabling them to surpass stereotypical and imaginary constraints associated with disability (Rees et al., 2019; Swartz et al., 2016). Consequently, sports competition provides a platform to reinforce positive narratives surrounding disability and personal transformation (Bantjes et al., 2019; Lins et al., 2019). Involvement in sports positively affects personal factors such as health, individual skills, and social participation, as well as environmental factors, including perceived support from the surroundings (Côté-Leclerc et al., 2017). Furthermore, sports enable individuals to overcome disability and enhance personal commitment towards goal achievement (Garci & Mandich, 2011).

AWD exhibit significantly higher sports motivation compared to ABA. This motivational trend persists even when considering expertise level (beginners vs. experts) and type of sport (individual vs. team). Numerous studies have identified various reasons that prompt individuals to initiate

and maintain engagement in sports, including motivational profiles. Motivation, as a unique element within each athlete's psychological profile, generates positive responses in sports participation (Tracey et al., 2021). For instance, wheelchair tennis athletes have been found to promote well-being within their community and challenge negative societal perceptions of disability (Falcão et al., 2015; Richardson et al., 2015). Personal and social factors related to sports play a role in determining motivation in AWD participating in wheelchair sports and goalball (Palencia & Gallón, 2022). Satisfaction of basic psychological needs and motivation predict higher levels of life satisfaction, reflecting a positive attachment to sports (Martins et al., 2022). In general, the literature suggests that AWD exhibit higher motivation levels compared to ABA.

Our data also revealed that team cohesion was significantly higher in AWD compared to ABA. This finding aligns with the consistent trend observed in previous studies (Hernández et al., 2021), indicating that AWD, through their engagement in sports, report greater peer support, team dedication, and a sense of camaraderie, which manifests as a cohesive sports family (Stieler et al., 2022) and promotes psychosocial well-being (Richardson et al., 2015). Sports practice fosters team spirit by cultivating strong bonds and unconditional acceptance in pursuit of common goals (Garci & Mandich, 2011). Additionally, AWD have been shown to integrate more effectively within their sports teams and develop stronger interpersonal relationships with fellow team members (Aitchison et al., 2022; Bantjes et al., 2019; Burns et al., 2019). It is worth noting the crucial role of coaches in promoting team cohesion. The coach's experience and academic training are instrumental in their interaction with athletes (Ayala-Zuluaga et al., 2015). Therefore, it is essential for coaches to possess adequate knowledge about existing barriers and coping mechanisms, enabling them to enhance athletes' performance. Consequently, sport psychologists can play a vital role in supporting both coaches and athletes. Goal setting and regular communication between the coach and AWD underscore the importance of the Paralympic coach in the athletes' training process (Falcão et al., 2015).

The differences observed in our results suggest that AWD may have sports experiences that differ from those of ABA (Smith et al., 2016). It is plausible to consider that the competitive demands, including psychological demands, placed on AWD may be more challenging than those encountered in standard ABA competitions. However, it is important to acknowledge that the social environment presents barriers that extend beyond sports performance and necessitate additional coping strategies for AWD (Blumenstein & Orbach, 2015).

In terms of other psychological characteristics examined in our study: Stress Control, Performance Influence, and Mental Ability, no significant differences were found between the two groups of athletes, indicating homogeneity in these variables.

Nevertheless, it is essential to exercise caution when interpreting these results. Several limitations should be considered for future research. Methodologically, the intentional selection of our sample precludes generalizations, and comprehensive representation of all sports disciplines was not a primary criterion during participant recruitment. Future studies employing experimental designs are necessary to draw more robust conclusions. Additionally, given the observational nature of our study, causal inferences cannot be made. On a theoretical level, exploring precompetitive paradigms and other psychological variables, such as anxiety, should be pursued in future projects. Furthermore, comparing AWD and ABA while considering other variables and psychological abilities will generate knowledge with practical implications. AWD sample size is rather small, future projects should aim to include bigger and more representative sample sizes, refining the inclusion criteria for the AWD group (e.g., disability grading and score). Lastly, it is imperative to consider other processes, such as the identification and selection of athletes in adapted sports, as well as the involvement of different stakeholders, including referees (Aguirre-Loaiza et al., 2020).

After considering these limitations, this study has important implications. Firstly, it contributes to the existing body of knowledge in sport psychology for adapted sports. The number of studies comparing psychological characteristics between AWD and ABA is limited, with only a few explorations available (Gomez-Marcos & Sanchez-Sanchez, 2019; Szájer et al., 2019). Additionally, this study is the first to examine not only the comparison between AWD and ABA but also the role of sports experience and type of sport as potential contributing variables to the observed differences. Secondly, applying psychological knowledge to sport psychology and adapted sports enables evidence-based decision-making (Hanrahan, 2015). For instance, psychological interventions or programs by discipline and sport type as well as interventions specifically targeting training and competence stages.

Significantly, our study contributes to the implementation of professional practice in sport psychology by addressing the unique role and needs of AWD (Martin, 2017). These findings deepen our understanding of the challenges and stereotypes faced by AWD compared to ABA. Moreover, they have the potential to enhance sports engagement and

participation within the AWD community. Sport psychology can play a vital role in facilitating AWD participation and dispelling community perceptions that equate disability with reduced ability. Consequently, raising awareness through these findings can foster confidence, independence, and a sense of acceptance among AWD (Ballas et al., 2020).

In conclusion, our data suggest the presence of differences between AWD and ABA. Specifically, our results indicate that AWD exhibit higher levels of motivation and better team cohesion compared to ABA. These differences persist regardless of sports experience and type of sport.

Acknowledgements

We would like to thank all the participating athletes for their time and kindness.

References

- Aguirre-Loaiza, H., Holguín, J., Arenas, J., Núñez, C., Barbosa-Granados, S., & García-Mas, A. (2020). Psychological characteristics of sports performance: Analysis of professional and semiprofessional football referees. *Journal of Physical Education and Sport*, 20(4), 1861–1868. <https://doi.org/10.7752/jpes.2020.04252>
- Aitchison, B., Rushton, A., Martin, P., Barr, M., Soundy, A., & Heneghan, N. (2022). The experiences and perceived health benefits of individuals with a disability participating in sport: A systematic review and narrative synthesis. *Disability and Health Journal*, 15(1), 101164. <https://doi.org/10.1016/j.dhjo.2021.101164>
- Arias, I., Cardoso, T., Aguirre-Loaiza, H., & Arenas, J. (2016). Características psicológicas de rendimiento deportivo en deportes de conjunto: diferencias entre modalidad y género. *Revista Psicogente*, 19(35), 25–36. <https://doi.org/10.17081/psico.19.35.1206>
- Ayala-Zuluaga, C., Aguirre-Loaiza, H., & Ramos-Bermúdez, S. (2015). Formación académica y experiencia deportiva de los entrenadores suramericanos. *Revista Brasileira de Ciências Do Esporte*, 37(4), 367–375. <https://doi.org/10.1016/j.rbce.2015.09.001>
- Ballas, J., Buultjens, M., Murphy, G., & Jackson, M. (2020). Elite-level athletes with physical impairments: Barriers and facilitators to sport participation. *Disability & Society*, 37(6), 1018–1037. <https://doi.org/10.1080/09687599.2020.1862642>
- Bantjes, J., Swartz, L., & Botha, J. (2019). Troubling stereotypes: South African elite disability athletes and the paradox of (self-) representation. *Journal of Community Psychology*, 47(4), 819–832. <https://doi.org/10.1002/JCOP.22155>
- Blumenstein, B., & Orbach, I. (2015). Psychological preparation for paralympic athletes: A preliminary study. *Adapted Physical Activity Quarterly*, 32(3), 241–255. <https://doi.org/10.1123/APAQ.2014-0235>
- Burns, L., Weissensteiner, J., & Cohen, M. (2019). Lifestyles and mindsets of Olympic, Paralympic and world champions: is an integrated approach the key to elite performance? *British Journal of Sports Medicine*, 53(13), 818–824. <https://doi.org/10.1136/BJSPORTS-2018-099217>
- Côté-Leclerc, F., Boileau, G., Bolduc, P., Gélinas-Lafrenière, A., Santerre, C., Desrosiers, J., & Levasseur, M. (2017). How does playing adapted sports affect quality of life of people with mobility limitations? Results from a mixed-method sequential explanatory study. *Health and Quality of Life Outcomes*, 15(1), 1–8. <https://doi.org/10.1186/S12955-017-0597-9>

- Falcão, W., Bloom, G., & Loughead, T. (2015). Coaches' Perceptions of Team Cohesion in Paralympic Sports. *Adapted Physical Activity Quarterly: APAQ*, 32(3), 206–222. <https://doi.org/10.1123/APAQ.2014-0122>
- Garci, H., & Mandich, A. (2011). Going for Gold: Understanding Occupational Engagement in Elite-Level Wheelchair Basketball Athletes. *Journal of Occupational Science*, 12(3), 170–175. <https://doi.org/10.1080/14427591.2005.9686560>
- Gimeno, F., & Pérez-Llantada, M. (2010). Características psicométricas del cuestionario CPRD. In F. Gimeno & J. Buceta (Eds.), *Evaluación psicológica en el deporte: el cuestionario de Características Psicológicas Relacionadas con el Rendimiento Deportivo (CPRD)* (pp. 81–123). Dykinson.
- Gomez-Marcos, G., & Sanchez-Sanchez, M. (2019). Descripción y diferencias en las variables psicológicas relacionadas con el rendimiento deportivo de triatletas y para-triatletas. *Retos*, 36, 22–25.
- Groff, D., Lundberg, N., & Zabriskie, R. (2009). Influence of adapted sport on quality of life: perceptions of athletes with cerebral palsy. *Disability and Rehabilitation*, 31(4), 318–326. <https://doi.org/10.1080/09638280801976233>
- Hanrahan, S. (2015). Psychological Skills Training for Athletes With Disabilities. *Australian Psychologist*, 50(2), 102–105. <https://doi.org/10.1111/AP.12083>
- Henschen, K. P., Horvat, M., & Roswal, G. (1992). Psychological profiles of the United States wheelchair basketball team. *International Journal of Sport Psychology*, 23(2), 128–137.
- Hernández, R., Quiñonez, J., Arenas, J., Urrea, A., Barbosa-Granados, S., & Aguirre-Loaiza, H. (2021). Características Psicológicas en Deportistas con Discapacidad Física. *Retos*, 40(1), 351–358. <https://doi.org/10.47197/retos.v1i40.83079>
- Jaarsma, E., Dijkstra, P., Geertzen, J., & Dekker, R. (2014). Barriers to and facilitators of sports participation for people with physical disabilities: a systematic review. *Scandinavian Journal of Medicine & Science in Sports*, 24(6), 871–881. <https://doi.org/10.1111/SMS.12218>
- Kittson, K., Gainforth, H., Edwards, J., Bolkowy, R., & Latimer-Cheung, A. (2013). The effect of video observation on warmth and competence ratings of individuals with a disability. *Psychology of Sport and Exercise*, 14(6), 847–851. <https://doi.org/10.1016/J.PSYCHSPORT.2013.07.003>
- Lins, S., Melo, C., Alves, S., & Silva, R. (2019). “Our Voices, Our Meaning”: The Social Representations of Sports for Brazilian Athletes With Disabilities. *Adapted Physical Activity Quarterly: APAQ*, 36(1), 42–60. <https://doi.org/10.1123/APAQ.2017-0206>
- Marín-Suelves, D., & Ramon-Llin, J. (2021). Educación física e inclusión: un estudio bibliométrico. *Apunts Educación Física y Deportes*, 143. [https://doi.org/10.5672/apunts.2014-0983.es.\(2021/1\).143.03](https://doi.org/10.5672/apunts.2014-0983.es.(2021/1).143.03)
- Martin, J. (2017). Handbook of disability sport and exercise psychology. In Oxford University Press (Ed.), *Handbook of Disability Sport and Exercise Psychology*. <https://doi.org/10.1093/oso/9780190638054.001.0001>
- Martin, J., Guerrero, M., & Snapp, E. (2020). Disability and Sport Psychology. In *Handbook of Sport Psychology* (pp. 1152–1168). John Wiley & Sons, Ltd. <https://doi.org/10.1002/9781119568124.ch56>
- Martins, A., Folgado, J., Matos, J. J., Batista, M., & Duarte, J. (2022). Gender Differences in Self-Determined Motivation and Subjective Well-Being of Adapted Sport Athletes Members of the Special with Intellectual and Developmental Difficulties Members. *Retos*, 44, 328–334. <https://doi.org/10.47197/RETOS.V44I0.88827>
- McVeigh, S., Hitzig, S., & Craven, C. (2009). Influence of sport participation on community integration and quality of life: a comparison between sport participants and non-sport participants with spinal cord injury. *The Journal of Spinal Cord Medicine*, 32(2), 115–124. <https://doi.org/10.1080/10790268.2009.11760762>
- Mitić, P., Nedeljković, J., Bojanić, Ž., Franceško, M., Milovanović, I., Bianco, A., & Drid, P. (2021). Differences in the Psychological Profiles of Elite and Non-elite Athletes. *Frontiers in Psychology*, 12, 635651. <https://doi.org/10.3389/fpsyg.2021.635651>
- Palencia, M., & Gallón, O. (2022). Facilitadores en el deporte paralímpico: motivos de práctica deportiva en jugadores con discapacidad física y visual. *Retos*, 44, 27–33. <https://doi.org/10.47197/RETOS.V44I0.90277>
- Paulo-Pereira-Rosa, J., Silva, A., Ferreira-Rodrigues, D., Stieler, E., & Tulio-De-Mello, M. (2020). The potential influence of cortisol and testosterone on psychobiological aspects in paralympic athletes. *Apunts Educación Física y Deportes*, 142. [https://doi.org/10.5672/apunts.2014-0983.es.\(2020/4\).142.09](https://doi.org/10.5672/apunts.2014-0983.es.(2020/4).142.09)
- Rees, L., Robinson, P., & Shields, N. (2019). Media portrayal of elite athletes with disability—a systematic review. In *Disability and Rehabilitation* (Vol. 41, Issue 4, pp. 374–381). Taylor and Francis Ltd. <https://doi.org/10.1080/09638288.2017.1397775>
- Richardson, E., Papathomas, A., Smith, B., & Goosey-Tolfrey, V. (2015). The psychosocial impact of wheelchair tennis on participants from developing countries. *Disability and Rehabilitation*, 37(2), 193–200. <https://doi.org/10.3109/09638288.2015.1073372>
- Sherrill, C. (1990). Psychosocial Status of Disabled Athletes. *Advances in Psychology*, 74(C). [https://doi.org/10.1016/S0166-4115\(08\)61187-5](https://doi.org/10.1016/S0166-4115(08)61187-5)
- Sherrill, C., & Rainbolt, W. (1988). Self-actualization profiles of male able-bodied and elite cerebral palsied athletes. *Adapted Physical Activity Quarterly*, 5(2). <https://doi.org/10.1123/apaq.5.2.108>
- Smith, B., Perrier, M., & Perrier, M. (2016). Disability sport: a partial overview and some thoughts about the future. In R. Schinke, K. McGannon, & B. Smith (Eds.), *Routledge International Handbook of Sport Psychology* (pp. 236–333). Routledge.
- Smith, B., & Sparkes, A. (2012). Disability, Sport and Physical Activity. *Routledge Handbook of Disability Studies*. <https://doi.org/10.4324/9780203144114.CH25>
- Stieler, E., da Costa, V., Silva Cruz, A., Bastos Lôbo, I., Noce, F., Maculano, A., de Mello, M., & Silva, A. (2022). Training load, stress, recovery, mood, and motivation of athletes with spinal cord injury in wheelchair rugby during a competitive preseason. *Motriz: Revista de Educação Física*, 28. <https://doi.org/10.1590/S1980-657420220006821>
- Swartz, L., Bantjes, J., Knight, B., Wilmot, G., & Derman, W. (2016). “They don’t understand that we also exist”: South African participants in competitive disability sport and the politics of identity. *Disability and Rehabilitation*, 40(1), 35–41. <https://doi.org/10.1080/09638288.2016.1242171>
- Szájer, P., Tóth, L., Szemes, Á., Nagy, N., Zala, B., Köteles, F., & Szabo, A. (2019). A comparative analysis of national olympic swimming team members’ and para-swimming team members’ psychological profiles. *Cognition, Brain, Behavior: An Interdisciplinary Journal*, 23(4), 299–311. <https://doi.org/10.24193/cbb.2019.23.17>
- Tasiemski, T., & Brewer, Britton. (2011). Athletic identity, sport participation, and psychological adjustment in people with spinal cord injury. *Adapted Physical Activity Quarterly: APAQ*, 28(3), 233–250. <https://doi.org/10.1123/APAQ.28.3.233>
- Thomas, C. (2004). Rescuing a social relational understanding of disability. *Scandinavian Journal of Disability Research*, 6(1), 22–36. <https://doi.org/10.1080/15017410409512637>
- Tracey, D., Mañano, C., Gagnon, C., Craven, R., McCune, V., & Morin, A. (2021). The Task and Ego Orientation in Sport Questionnaire adapted for youth with intellectual disabilities (TEOSQ-ID). *Psychology of Sport and Exercise*, 56, 102006. <https://doi.org/10.1016/J.PSYCHSPORT.2021.102006>
- Zhang, L., Zhu, X., Haeghele, J. A., Wang, D., & Wu, X. (2021). Effects of a one-year physical activity intervention on fundamental movement skills of boys with severe intellectual disabilities. *Research in Developmental Disabilities*, 114, 103980. <https://doi.org/10.1016/j.ridd.2021.103980>

Conflict of Interests: No conflict of interest was reported by the authors.



© Copyright Generalitat de Catalunya (INEFC). This article is available at the URL <https://www.revista-apunts.com/en/>. This work is licensed under a Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License. The images or other third party material in this article are included in the article’s Creative Commons license, unless indicated otherwise in the credit line; if the material is not included under the Creative Commons license, users will need to obtain permission from the license holder to reproduce the material. To view a copy of this license, visit <http://creativecommons.org/licenses/by-nc-nd/4.0/>