

Características sociodemográficas e desportivas de atletas portugueses de alto rendimento com deficiência e perspetivas sobre o desenvolvimento do desporto adaptado

Sociodemographic and sports characteristics of high-performance Portuguese athletes with disabilities and their perspectives on the development of adapted sports

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Abstract

Knowledge about elite athletes with disabilities and their perspectives on sport-related issues could contribute to informing future policies and development programmes. This study aims to characterise elite athletes with disabilities in Portugal regarding a wide range of socio-demographic and sport-related elements and to uncover their perspectives on motivations, disability-sport development, and performance. Eighty-one top-level national athletes with disabilities answered an online questionnaire covering socio-demographic, sport-related, and physical education-related information. Data were analysed using qualitative and quantitative methods. Physical impairment was the most prevalent type of impairment (~77%). Athletes started practising the sport late (~53% ≥ 18 years) and had relatively advanced ages (~65% ≥ 30 years). Boccia, athletics, and swimming were the most representative sports. In general, athletes have a favourable view of their experience in school physical education. Actions to increase the visibility of disability sports and support from sport-related entities were the most cited strategies for promoting sports participation of young people with disabilities. Enjoyment, personal development, health and well-being, and performance achievement emerged as the main reasons for practising sports. Psychological skills, along with training periodisation and planning, were ranked as the most important elements for achieving high-level performance. Building on these findings, several suggestions and implications are provided.

Keywords: *disability sport, athlete development, recruitment strategies, performance determinants*

O conhecimento sobre atletas com deficiência de alto rendimento e as suas perspetivas sobre questões relacionadas com o desporto podem contribuir para informar futuras políticas e programas de desenvolvimento. Este estudo tem como objetivo caracterizar atletas de elite com deficiência em Portugal, abrangendo uma ampla gama de elementos sociodemográficos e desportivos, e descobrir as suas perspetivas sobre motivações, desenvolvimento do desporto adaptado e desempenho. Oitenta e um atletas nacionais de alto nível com deficiência responderam a um questionário online que cobria informações sociodemográficas, relacionadas com o desporto e com a educação física. Os dados foram analisados utilizando métodos qualitativos e quantitativos. A deficiência física foi o tipo de deficiência mais prevalente (77%). Muitos atletas começaram a praticar desporto relativamente tarde (53% ≥ 18 anos) e têm atualmente idades ≥ 30 anos (~65%). Boccia, atletismo e natação foram os desportos mais representativos. Em geral, os atletas têm uma visão favorável da sua experiência na educação física escolar. Ações para aumentar a visibilidade do desporto adaptado e o apoio de entidades relacionadas com o desporto foram as estratégias mais citadas para promover a participação desportiva de jovens com deficiência. O prazer, o desenvolvimento pessoal, a saúde e o bem-estar, e a realização de desempenho emergiram como as principais razões para a prática desportiva. As competências psicológicas, juntamente com a periodização e o planeamento do treino, foram classificadas como os elementos mais importantes para alcançar um desempenho de alto nível. Com base nos resultados, são apresentadas várias sugestões e implicações.

Palavras-Chave: *desporto adaptado, desenvolvimento desportivo, estratégias de recrutamento, determinantes de desempenho*

Resumo

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Introduction

Competitive para-sports have grown substantially worldwide in the last few decades, and achieving high-level performances emerged as an important goal for many participants (Brittain, 2016; Marmeleira, 2022). The number of athletes (and countries) participating in the Paralympic Games (the biggest sports event for people with disabilities) has increased progressively, as the prestige and general public interest in the games (Blauwet & Willick, 2012; Mauerberg-deCastro et al., 2016). The potential impact of the Paralympic movement is broad and includes athletes and other people with and without disabilities. On the one hand, those participating in para-sports can benefit directly in aspects like health, social rights and integration, psychological well-being, quality of life, self-confidence, and self-efficacy (Blauwet & Willick, 2012; McVeigh et al., 2009). On the other hand, competitive events like the Paralympic games have played a significant role over the past half century in changing attitudes towards disability and accelerating the agenda for inclusion (Brittain, 2016).

World sports organisations, the country's governing bodies, and the public have been changing their attitude towards para-sports (Brittain, 2016; Mauerberg-deCastro et al., 2016). As a result, more investments have been directed to the development of disability sports and participation in major sports events, such as the Paralympics, Deaflympics, or world championships. Specialised sport management organisations have emerged (e.g. national Paralympic committees), and there has been a progressive integration of para-sports into the general sports organisations (e.g., national sports federations) (Bouttet, 2016; Howe, 2007). In the case of Portugal, the national Paralympic committee was established in 2008, and popular sports, such as athletics, swimming, handball, and cycling, started to be governed by the national sports federations a few years ago.

Sport for people with disabilities is an under researched area (Brittain, 2016; Marmeleira, 2022; Patatas et al., 2018), and few studies (in Portugal or elsewhere) have examined the characteristics of their top athletes and simultaneously asked their opinion about several issues relevant to the affirmation of the area. Considering the growing relevance of sport for people with disabilities and the Paralympic movement, assembling information on their socio-demographic background and aspects related to training and competition could help stakeholders (e.g., national Paralympic committees, federations, and sports clubs) to define the best measures for promoting para-sports. Moreover, due to their careers and experience regarding sports, it would be helpful to have the views of expert athletes on issues like the determinants of sports performance, the motivations for practising sports, or the best measures to have more people with disabilities practising sports. A previous study investigated motivations, facilitators, and barriers to sports participation among elite athletes with physical disabilities using semi-structured interviews (McLoughlin et al., 2017).

Perceived facilitators to athletes' experiences were competition, achieving goals, social support, and their coaches. Barriers expressed related to time constraints, cost, lack of awareness, and overuse injuries. A recent study synthesizing qualitative research on the experiences of athletes with spinal cord injuries (SCI) participating in sport revealed significant physical, psychological, and social health benefits (Cheung et al., 2022). Participants reported improved fitness, independence, confidence, and community, while stating that sport also challenged societal perceptions of SCI and served as an inspiration to others.

Other important aspect in the disability sport arena, refers to the factors underlying high-level achievements. A study by Marmeleira (2022) showed consistent performance improvement in most athletic Paralympic events for athletes with visual impairment, contrasting with stagnation in Olympic events. The authors attributed this to several factors: improved training and sports science, inclusive education policies, injury prevention, talent identification, and financial support for Paralympic sports. Other related study conducted a systematic review regarding factors affecting para-athlete training and identified barriers (Rodríguez Macías et al. 2022). This study revealed the significant influence of coaches and family support, as well as the importance of stress management, self-esteem, and motivation. Barriers included financial constraints, lack of media visibility, and reliance on others.

Inclusive school physical education and sports are crucial for promoting physical activity and sport participation. A review of qualitative studies indicated that students with disabilities can have positive physical education experiences with appropriate modifications, accommodations, and supportive interactions from staff and peers (Holland & Haegele, 2021). However, negative examples persist (e.g., Tanure Alves & Duarte, 2018), where exclusion and segregation remain prevalent. Further research is needed to assess the effectiveness of inclusive programs in promoting health, sport participation, and social inclusion. Gathering perspectives from elite athletes with disabilities would provide valuable insights.

Given the limited availability of comprehensive information on disability sports, this study aimed to characterize elite athletes with disabilities in Portugal by examining a wide range of socio-demographic and sport-related factors. Additionally, it explored their perspectives on motivations, strategies for increasing youth participation in disability sports, and determinants of performance. This analysis could contribute to shaping future sports policies and the development of programs for people with disabilities.

Methods

Participants and study design

The inclusion criteria for athletes were as follows: Participation in the Paralympic/Deaflympic preparation programme governed by the CPP, representation of Portugal in top-level international sports competitions (such as European or World championships, Paralympics, or Deaflympics) in the previous year, or achieving a top-three finish in a national-level sport event in the same period. The national Paralympic committee (Comité Paralímpico de Portugal, CPP) staff identified 86 athletes meeting these criteria from their databases, who were contacted via e-mail and phone. Eighty-one athletes (~94% of those meeting the inclusion criteria) agreed to participate in the study and answered the questionnaire. Data were collected between January and March 2020.

This questionnaire-based cross-sectional study employed a mixed-methods approach, incorporating both qualitative and quantitative data, and concentrated on Portuguese athletes with disabilities competing at national and international levels. The study is exploratory and descriptive in nature.

Instrument

A questionnaire containing open and closed-ended questions was developed in google forms for gathering information regarding *sociodemographics*, *sports participation*, and *school physical education*. Several methodological steps were followed until the final version of the questionnaire was completed. The first draft of the questionnaire was developed by the first author of the present study (JM) in collaboration with another university teacher (also a specialist in adapted physical activity), which took into consideration both the review of the literature about factors influencing para-sport development and performance, and studies including exercise- or sport-related questionnaires for people with disabilities. The draft was then reviewed by two para-sport specialists, one of whom was a member of the technical staff of the CPP. Subsequently, a meeting took place with JM to discuss possible modifications, culminating in a second draft of the questionnaire. The second version was then administered to five athletes with disabilities who have significant sports experience and performance results. Subsequently, JM contacted these athletes by phone to gather their feedback on the questionnaire's clearness and comprehensiveness. The feedback indicated that there were no relevant problems, and only minor changes were implemented in the final version of the questionnaire.

The *socio-demographic section* of the questionnaire included questions on the participants' age, place of birth, sex, disability, education, and employment. The section regarding *sports participation* included questions on the history of the athletes in their primary sport: age they started, why and where they began practising, people that influenced sport's participation, level of competition achieved, training characteristics, factors affecting performance, and the main motives for practicing. The *school Physical Education* section gathered information on inclusion in physical education and the

influence of physical education on the participants' sports careers. Specifically, athletes were asked to respond on a 5-point Likert scale whether they had participated in the physical education lessons (1 = never; 5 = always), if they usually felt discriminated against (1 = never; 5 = always), and the level on the influence they consider that physical education had on becoming a regular sports practitioner (1 = none; 5 = great). Athletes were also requested to estimate the proportion of time they were engaged in physical activities during physical education lessons.

Three in-depth open questions were considered in this study: *What are your main reasons for practising sports? What are the factors you consider most important for achieving high-level sports performance? In your opinion, what should be done to promote/stimulate the practice of sports by young people with disabilities?* The open-ended questions were accompanied by a clearly visible note that "there is no word limit for your response" to encourage detailed responses and the generation of in-depth data.

Procedure

The CPP invited athletes to participate in the study by e-mail. Athletes with an intellectual or visual impairment were also contacted by phone to ensure that the information was well received and understood. Athletes with visual impairment were incited to ask another person, if necessary, to read them out loud questions and help to fulfill the questionnaire. The coaches of the athletes with intellectual disability were asked to help their trainees respond to the questionnaire. In this case, an online meeting was scheduled with two authors of the study, the athlete and his/her coach, to resolve possible doubts.

The first page of the survey included information on the study's objectives and asked for the athletes' participation. The second page of the survey included informed consent. The questionnaire was made available only to those athletes who confirmed that had read the informed consent and agreed to participate. Furthermore, athletes could withdraw from participation in the questionnaire at any time. The participants' answers were saved in the google forms platform for posterior download. The Portuguese Paralympic Committee board approved this study which was conducted in compliance with the Declaration of Helsinki for Human Research.

Data Analysis

Quantitative data were analysed using descriptive statistics, namely mean, standard deviation, frequencies, and percentages. Qualitative data (open-ended questions) were derived using inductive content analysis in accordance with the suggestions of Elo and Kyngäs (2008) and Kyngäs (2020).

Data analysis began with open coding the participants' answers, followed by grouping into subcategories those with similar or related meanings. Next, the subcategories originated higher-level main categories through an abstraction process (Elo & Kyngäs, 2008). Analysis was

performed independently by two of the authors of this study, using an excel spreadsheet to organise the information. Further, the two authors met to discuss, adjust, and close data categorisation. As recommended, during the analytical process, the researchers returned to the original data several times to ensure that the results showed a strong connection to the analysed data (Kyngäs, 2020). Frequency analysis was used to determine the number and percentage of times that each code was cited in each category and sub-category.

Results

Quantitative data

Socio-demographic characteristics

Information was collected for all 81 athletes. Socio-demographic characteristics are shown in table 1. Males were considerably older than female athletes (males: $M = 35.21$ [$SD = 10.97$] years; females: $M = 29.77$ [$SD = 11.01$] years). Most participants (53, 65.4%) started their careers after 30 years. In two of the modalities in which Portugal has obtained better international results, namely boccia and athletics, the average age was 39.5 [$SD = 9.7$] and 32.4 years [$SD = 12.1$], respectively. Badminton, goalball, triathlon, judo, and swimming are the only sports in which the average age of the practitioners was less than 30 years (see table 1).

Sports participation

Athletes from 15 sports responded to the questionnaire. Five sports were represented with 5 or more athletes: boccia (25.9%, 21 athletes), athletics (22.2%, 18 athletes), swimming (12.3%, 10 athletes), canoe (9.9%, 8 athletes), and cycling (6.2%, five athletes). The other sports were surfing, shooting, judo, badminton, equestrian, goalball, wrestling, triathlon, wheelchair tennis, and wheelchair handball.

On average, the athletes started to practise their sport at 19.9 (± 10.5) years old, varying from the age of 2 (swimming) to the age of 48 years (boccia), respectively. Considering the sports with at least five athletes, the age at which athletes started practising was as follows: swimming (8.2 ± 5.5 years), athletics (17.1 ± 8.1 years), boccia (23.4 ± 9.8 years), canoe (26.4 ± 8.1 years), and cycling (29.4 ± 6.7 years). Twenty-nine athletes (35.8%) had practising other sports in the past.

Forty-three athletes (53.1%) started to practise the sport in a general sport-related association (club or recreational/cultural association), 22 (27.2%) in a specialised institution for people with disabilities, eight (9.9%) individually, seven (8.6%) practising in school sports, and one (1.2%) in a rehabilitation centre. There were 135 citations for the question regarding the most important persons in nurturing sport participation: family (57, 42.2%), coach (21, 15.6%), teacher (16, 11.9%), friends (16, 11.9%), medical doctor/physiotherapist (seven, 5.2%), boyfriend/girlfriend

(six, 4.4%), member of a sport-related association (five, 3.7%), athletes (four, 3.0%), and others (2.2%). Of the 57 family citations, 30 were for parents. Thirty-two athletes (39.5%) participated in the Paralympic Games or the Deaflympics, and their first presence in the event occurred at 28.6 years [$SD = 9.7$, 13 min and 49 max].

Physical education

Sixty-seven athletes (82.4%) reported having the impairment during their school years. The frequency regarding their engagement in the physical and sports activities of physical education was: 11 (16.4%), never; five (7.5%), rarely; four (6.0%), sometimes; 10 (14.9%), often; 37 (55.2%) always. The athletes reported that, on average, they engaged in practical activities of physical education $66.3 \pm 37.2\%$ of the time that their peers without impairment do.

Regarding the question about whether they felt discriminated against in physical education, 45 (67.2%), nine (13.4%), four (5.9%), and three (4.5%) athletes answered “never”, “rarely”, “sometimes”, and “often”, respectively; six athletes (8.9%) did not respond. The level of influence of physical education on the option of becoming an athlete was perceived as none (19 athletes, 28.4%), small (six, 8.9%), some (nine, 13.4%), moderate (14, 20.9%), and great (12, 17.9%). Seven athletes (10.4%) did not answer.

Qualitative data

Three open research questions were analysed using content analysis. A generous number of categories and sub-categories emerged. Tables 2, 3, and 4 present the categories, sub-categories, and illustrative quotes. Frequency analysis showed that the athletes did not prioritise a particular aspect significantly in any of the three questions. Instead, they perceived several strategies for promoting youth participation in sports, motivations, and factors influencing performance as having similar relevance. The question regarding the factors that athletes perceived to be most important for achieving high-level sports performance was the one that received more citations (see table 2, 3 and 4).

Discussion

Disability sport is becoming more important within sporting and social context. Still, there is a lack of information regarding disability sports in general. Therefore, this study aimed to provide a further understanding of competitive disability sports in Portugal.

Our data show that about three-quarters of the top Portuguese athletes have a physical impairment, followed by intellectual, visual, and hearing impairment.

The most recent Portuguese census that asked explicitly about impairment reported that 6.1% of the population have an impairment, of which 27.0%, 25.7%, 13.2% and 11.2% have a physical, visual, hearing, and intellectual impairment, respectively; 23.0% reported “other type of impairment” (Gonçalves, 2003). According to this data, physical

impairment is clearly overrepresented in the group of high-level athletes in Portugal, and visual impairment is underrepresented. This could be related to the specific barriers to physical activity and sports associated with each type of impairment and deserves further understanding.

Regarding education level, our data show that the percentage of athletes with a university degree (21.0%) is much lower than that (43.7%) of the general population of comparable ages (PORDATA, 2022), which is aligned with previous reports showing people with disabilities face widespread barriers to accessing education (World Health Organization, 2011).

Our results indicate that almost one in five high-level Portuguese athletes with a disability are male, confirming that women probably face more barriers than men regarding sport participation (Dean et al., 2022). One should note that the percentage of women athletes competing at the Paralympics (~42% at Tokyo 2020, and ~39% at Rio 2016), although inferior to male athletes, is well above that of women athletes in the present study.

The reasons underlying such discrepancies between sexes should be examined, and measures should be planned to increase the number of women participating in top sports competitions. Regarding the geographic background, as expected, the regions of Portugal with a higher population – the North and the metropolitan area of Lisbon – were also those where more athletes started their sporting careers.

Although we found a considerable variation, in general, athletes started late to practice their sport (19.9 ± 10.5 years) late, which is probably one of the main reasons why the athletes are relatively old (34.0 ± 11.14 years). Athletes who participated previously in Paralympic or Deaflympics games had an average of 28.6 years. Talent identification and development is one major pillar for the growth of elite para-sport, but, unfortunately, there seems to be a lack of structured talent identification programmes (Patatas et al., 2018). Although talent identification typically occurs during adolescence in non-Paralympic contexts, this is much more variable in Paralympic contexts. Factors such as congenital/acquired impairment, sport modality, impairment type, and impairment severity influence the age at which athletes enter the sport system (Dehghansai et al., 2022). The relatively advanced age of the top Portuguese athletes could constrain the achievement of high performances, especially in sports modalities that are physiologically highly demanding.

For instance, in para-swimming, performance tends to stabilise and peak between the ages of 21 and 26 years (Hogarth et al., 2021).

In para-athletics, the peak performance for men is between 20.8 and 24.8 years for sprinting events, 23.2 and 33.0 years for endurance events, 24.1 and 29.3 years for throwing events, 23.2 and 26.0 years in jumping events; for female para-athletes, it ranges from 23.3 to 24.8 years for sprinting events, 26.9 to 33.4 years for throwing events, and 22.8 to 26.4 years for jumping events (Schipman et al., 2019).

Most athletes reported having started training in sport-related associations, although a significant number started at specialised associations for people with disabilities. This type of community association offers several services related to psychosocial support and rehabilitation and frequently incorporates sports activities. Few participants reported started engaging in para-sport at the school. In Portugal, schools began to offer para-sports programmes about a decade ago, and it is expected that these programmes will motivate students with a disability to become active and help to identify new sports talents. Furthermore, the current tendency of general sport clubs to embrace sports for people with disabilities could facilitate young people's adherence (Howe, 2007; Marmeleira, 2022).

Family (especially parents), coaches, teachers, and friends were identified as having a significant influence on participation in sports, which is well aligned with previous findings (Ballas et al., 2022; Storli et al., 2022). In particular, parents have been highlighted as playing a fundamental role in children's early sport-related learning experience and, depending on their behaviour, they can act as facilitators or barriers to sports engagement among their children (Allan et al., 2018; Jaarsma et al., 2015; Storli et al., 2022).

At first glance, information gathered regarding physical education seems to give an overall positive picture of school inclusion, as most athletes reported always participating in the classes (55.2%) always and never being discriminated against (66.2%). However, it is also true that almost one in four athletes reported that they "never" or "rarely" participated in physical education classes and that about one in 10 athletes felt discriminated against "sometimes" or "often". In general, studies have shown that a shift to a more inclusive physical education in the last few decades has led to benefits for students with disabilities in psychosocial and physical dimensions (Qi & Ha, 2012; Tripp et al., 2007). Although we have not found studies that directly related disability sports achievements with the education inclusion movement, it makes sense to hypothesise that benefits (e.g. social participation, sport-related skills, and self-empowerment) of such a pedagogical movement could translate to more highly motivated sports participation on the part of people with disabilities. This is in part confirmed by the fact that more than half of the participants perceive physical education to have had at least some influence on becoming a para-athlete.

It is known that the number of young people with disabilities engaging in sports is small (Martin Ginis et al., 2021; Ross et al., 2020). To invert this situation, athletes in the present study highlighted the need to increase the visibility of disability sports by spreading related information through different channels and offering events where people with disabilities could experience sports in the first person. Hence, the increase in visibility and representation of disability in the media has been considered to impact the effective inclusion of people with disabilities positively, and Paralympic sports represent a significant opportunity for such an endeavour (Kolotouchkina et al., 2021). Also, there

is evidence that physical activity promotion programmes during and after rehabilitation could translate to a long-lasting increase in sport participation behaviour (van der Ploeg et al., 2007).

Other aspects proposed by athletes to increase youth participation in sports include support (e.g. financial) from sport-related entities, quality physical education and school-based sports programmes, the promotion of social/sports inclusion, well-prepared sports clubs, and the promotion of the empowerment and resilience of people with disabilities. Overall, such perspectives are aligned with the existing literature (e.g., Dehghansai et al., 2022). Other measures found in the literature include family-centred interventions (Willis et al., 2018) and tutoring programmes (An et al., 2019). The recruitment of new participants in para-sports probably would benefit if a conjoining of measures could be coordinated and implemented at a national level, as is the case of the French National Strategy for Sport and Disability 2020–2024 which focuses on key areas such as accessibility, participation, professional training, and collaboration between governmental and non-governmental organizations (Pierre et al., 2022).

Through content analysis, athletes' motives to participate in sports were systematised into six categories with comparable importance. Interestingly, although our sample was constituted of top-level athletes, enjoyment, personal development, and health and well-being surpassed performance as the main reasons for practising sports. A significant number of athletes also referred to social inclusion aspects. Enjoyment was the primary motivation, revealing high levels of intrinsic motivation among athletes. Intrinsic motivation occurs when a person participates in an activity due to satisfaction, enjoyment, and fun, which endures the probability of maintaining its practice compared to forms of extrinsic motivation (Deci & Ryan, 2000). Self-determined types of motivation are prevalent in athletes with and without disabilities (Perreault & Vallarand, 2007).

Previous studies have pointed to similar motives and facilitators among people with disabilities: joy and fun, being part of an elite group, social support of the peer group, and empowerment (Hutzler & Bergman, 2011); empowerment and advocacy, health, college scholarships, and achieving performance-related goals (McLoughlin et al., 2017); physical and emotional health and social connections (Wilhite & Shank, 2009); health benefits, fun and social contacts (Jaarsma et al., 2015); enjoyment, fitness and health, social support (friends, coaches, and family) and rewards (Omar-Fauzee et al., 2010).

Athletes point to psychological aspects as the most relevant factor for achieving high-level performances, followed by training periodisation and planning, and physical condition and health. Psychological factors have been frequently recognised to be fundamental for performance success in top-level athletes with and without disabilities (e.g., Dieffenbach & Statler, 2012; Gould & Maynard, 2009).

Dieffenbach and Statler (2012) listed the main mental skills associated with performance according to athletes and coaches in Paralympic sports, ranking confidence and concentration/focus as the two most important skills. Other mental skills, such as motivation, strategies to stay positive, relaxation, communication skills, and ways to cope with adversity, are also valued by athletes (Dieffenbach & Statler, 2012; Martin, 2015).

Methodological training characteristics, such as volume and intensity, were the second-most-cited factors underlying performance achievements. Periodisation of training has been recognised in the literature as a fundamental factor for competing at a high level in Paralympic sports (Fulton et al., 2010; Puce et al., 2018). Athletes have also identified other key areas for sports performance, including nutrition, physical fitness, medical support, social support, institutional support, and coach competence. Hence, athletes in the current study recognised a significant number of determinants for elite disability sports performance, in line with what has been discussed in previous studies (Marmeleira, 2022). To achieve athletic success, sports-related organisations must provide athletes with the best conditions for developing their talents. In the last few years, measures have been implemented in several countries, including an increase in financial support and the progressive integration of disability sports in general sports organisations (e.g. national sports federations; (Bouttet, 2016; Howe, 2007). In Portugal, the financial support provided by the state to the top athletes with disabilities integrated into the Paralympic and Deaflympics preparation project has become equal to that delivered to the top-level Olympic athletes without disabilities. The challenges for the preparation of Paralympic athletes are probably even higher than for athletes without disabilities due to specific aspects such as functional sport classification and biomechanical differences associated with distinct impairments and levels of severity (Fulton et al., 2010; Morriën et al., 2017).

Limitations

This study was not without limitations. First, it provides information about competitive disability sports in a specific country (Portugal), so the findings cannot be generalised to other countries and contexts. Furthermore, it only includes the perspectives of athletes; incorporating views of other individuals involved in disability sports (e.g., coaches) could have provided more meaningful information in the three in-depth inclusion questions. Finally, qualitative data were gathered by analysing written responses to specific online questions, and more comprehensive information could have been collected using interviews.

Conclusions

This study assembled knowledge regarding top Portuguese athletes with a disability and competitive disability sports in Portugal. Considering the population prevalence of each impairment, measures should be implemented to improve the sports participation of visually impaired individuals, who appear underrepresented among high-level athletes.

The reasons for the imbalance between male and female in sports participation should be thoroughly investigated, and measures planned to increase women's participation in elite competitions. Efforts should also be made to promote a wide range of sports among young individuals, as the number of sports with high-level practitioners is relatively small, with significant differences between them, and many athletes start their training late.

Family, coaches, teachers, and friends were the most critical in nurturing sports participation. In general, athletes have a favourable view of their personal experience in school physical education. Thus, it is important for physical education to respond to the needs and expectations of students with disabilities, which could encourage the adoption of active lifestyles, including participation in sports. Considering the population prevalence of each type of impairment, physical impairment and visual impairment seem to be overrepresented and underrepresented, respectively, in the group of high-level athletes in Portugal. In general, Portuguese athletes started practising the sport late and are relatively old. Boccia and athletics are the two sports with more top athletes. Family, coaches, teachers, and friends were the most critical in nurturing sports participation. In general, athletes have a favourable view of their personal experience in school physical education.

Building on the considerations of athletes, several strategies should be implemented or strengthened to increase the participation of young people with disabilities in sports. These strategies include enhancing the visibility of disability sports, securing further support from governing sports bodies, improving inclusion in school physical education and sports, and ensuring that sports clubs are better prepared with trained professionals, appropriate equipment, and accessible facilities. Additionally, at a psychosocial level, specific programs aimed at both the general population and individuals with disabilities should promote values of equality, shift societal perspectives on disability, and empower people with disabilities to be more proactive and resilient.

Enjoyment, personal development, health and well-being, and performance achievement were pointed out by athletes as the main reasons for practising sports.

Many aspects were considered necessary for achieving high-level performance, including psychological skills, training periodisation and planning, physical condition and health, coaching, and support elements, such as family, friends, and sports-related organisations. Consequently, to achieve athletic success, sports-related organizations must provide athletes with optimal conditions for them to develop their talents. This includes not only well-prepared professionals, such as coaches, sports psychologists, and physiotherapists, but also adequate financial support and access to quality sports facilities.

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References

- Allan, V., Smith, B., Côté, J., Martin Ginis, K. A., & Latimer-Cheung, A. E. (2018). Narratives of participation among individuals with physical disabilities: A life-course analysis of athletes' experiences and development in parasport. *Psychology of Sport and Exercise, 37*, 170-178. <https://doi.org/https://doi.org/10.1016/j.psychsport.2017.10.004>
- An, J., DuBose, K. D., Decker, J. T., & Hatala, L. E. (2019). A school-based mentoring program developing healthy behaviors of adolescents with intellectual and developmental disabilities: A pilot feasibility study. *Disability and Health Journal, 12*(4), 727-731. <https://doi.org/https://doi.org/10.1016/j.dhjo.2019.03.012>
- Ballas, J., Buultjens, M., Murphy, G., & Jackson, M. (2022). 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>
- Blauwet, C., & Willick, S. E. (2012). The Paralympic Movement: Using Sports to Promote Health, Disability Rights, and Social Integration for Athletes With Disabilities. *PM&R, 4*(11), 851-856. <https://doi.org/https://doi.org/10.1016/j.pmrj.2012.08.015>
- Bouttet, F. (2016). Inclusion as a norm. Multi-scalar influences on the recognition of people with disabilities in French national sports organizations. *Loisir et Société / Society and Leisure, 39*(2), 274-289. <https://doi.org/10.1080/07053436.2016.1198590>
- Brittain, I. (2016). *The paralympic games explained* (Second ed.). New York, NY: Routledge.
- Cheung, L., McKay, B., Chan, K., Heffernan, M. G., Pakosh, M., & Musselman, K. E. (2022). Exploring sport participation in individuals with spinal cord injury: A qualitative thematic synthesis. *The Journal of Spinal Cord Medicine, 46*(4), 658-676. <https://doi.org/10.1080/10790268.2021.2009676>
- Dean, N. A., Bundon, A., Howe, P. D., & Abele, N. (2022). Gender Parity, False Starts, and Promising Practices in the Paralympic Movement. *Sociology of Sport Journal, 39*(3), 221-230. <https://doi.org/10.1123/ssj.2021-0030>
- Deci, E. L., & Ryan, R. M. (2000). The "What" and "Why" of Goal Pursuits: Human Needs and the Self-Determination of Behavior. *Psychological Inquiry, 11*(4), 227-268. https://doi.org/10.1207/S15327965PLI1104_01
- Dehghansai, N., Pinder, R. A., & Baker, J. (2022). Talent Identification and Development in Paralympic

- Contexts: Current Challenges. *Front Sports Act Living*, 4, 926974. <https://doi.org/10.3389/fspor.2022.926974>
- Dieffenbach, K. D., & Statler, T. A. (2012). More Similar than Different: The Psychological Environment of Paralympic Sport. *Journal of Sport Psychology in Action*, 3(2), 109-118. <https://doi.org/10.1080/21520704.2012.683322>
- Elo, S., & Kyngäs, H. (2008). The qualitative content analysis process. *Journal of Advanced Nursing*, 62(1), 107-115. <https://doi.org/10.1111/j.1365-2648.2007.04569.x>
- Fulton, S. K., Pyne, D. B., Hopkins, W. G., & Burkett, B. (2010). Training Characteristics of Paralympic Swimmers. *The Journal of Strength & Conditioning Research*, 24(2). <https://doi.org/10.1519/JSC.0b013e3181c09a9e>
- Gonçalves, C. (2003). Enquadramento familiar das pessoas com deficiência: Uma análise exploratória dos resultados dos Censos 2001 [Family framework of people with disabilities: An exploratory analysis of the results of Census 2001]. *Demographic Studies Review*, 33, 69-94.
- Gould, D., & Maynard, I. (2009). Psychological preparation for the Olympic Games. *Journal of Sports Sciences*, 27(13), 1393-1408. <https://doi.org/10.1080/02640410903081845>
- Hogarth, L., Nicholson, V., Payton, C., & Burkett, B. (2021). Modelling the age-related trajectory of performance in Para swimmers with physical, vision and intellectual impairment. *Scandinavian Journal of Medicine & Science in Sports*, 31(4), 925-935. <https://doi.org/https://doi.org/10.1111/sms.13910>
- Holland, K., & Haegele, J. A. (2021). Perspectives of Students With Disabilities Toward Physical Education: A Review Update 2014–2019. *Kinesiology Review*, 10(1), 78-87. Retrieved Nov 5, 2024, from <https://doi.org/10.1123/kr.2020-0002>
- Howe, P. (2007). Integration of Paralympic athletes into athletics Canada. *International Journal of Canadian Studies/Revue internationale d'études canadiennes*(35), 133-150. <https://doi.org/https://doi.org/10.7202/040767ar>
- Hutzler, Y., & Bergman, U. (2011). Facilitators and barriers to participation while pursuing an athletic career. *Therapeutic Recreation Journal*, 45, 1-6.
- International Paralympic Committee. (2019). *International Paralympic Committee Strategic Plan 2019 to 2022* (I. P. Committee, Ed.) https://www.paralympic.org/sites/default/files/document/190704145051100_2019_07+IPC+Strategic+Plan_web.pdf
- Jaarsma, E. A., Dijkstra, P. U., de Blécourt, A. C. E., Geertzen, J. H. B., & Dekker, R. (2015). Barriers and facilitators of sports in children with physical disabilities: a mixed-method study. *Disability and Rehabilitation*, 37(18), 1617-1625. <https://doi.org/10.3109/09638288.2014.972587>
- Kolotouchkina, O., Llorente-Barroso, C., García-Guardia, M. L., & Pavón, J. (2021). Disability, Sport, and Television: Media Visibility and Representation of Paralympic Games in News Programs. *Sustainability*, 13(1), 256. <https://www.mdpi.com/2071-1050/13/1/256>
- Kyngäs, H. (2020). Inductive Content Analysis. In H. Kyngäs, K. Mikkonen, & M. Kääriäinen (Eds.), *The Application of Content Analysis in Nursing Science Research* (pp. 13-21). Springer International Publishing. https://doi.org/10.1007/978-3-030-30199-6_2
- McLoughlin, G., Weisman Fecske, C., Castaneda, Y., Gwin, C., & Graber, K. (2017). Sport Participation for Elite Athletes With Physical Disabilities: Motivations, Barriers, and Facilitators. *Adapted Physical Activity Quarterly*, 34(4), 421-441. Retrieved Nov 5, 2024, from <https://doi.org/10.1123/apaq.2016-0127>
- Marmeleira, J. (2022). Performance of Athletes With Visual Impairment in Track-and-Field Events at the Paralympic Games, From 1988 to 2016. *Journal of Visual Impairment & Blindness*, 116(3), 373-386. <https://doi.org/10.1177/0145482X221109243>
- Martin Ginis, K. A., van der Ploeg, H. P., Foster, C., Lai, B., McBride, C. B., Ng, K., Pratt, M., Shirazipour, C. H., Smith, B., Vásquez, P. M., & Heath, G. W. (2021). Participation of people living with disabilities in physical activity: a global perspective. *The Lancet*, 398(10298), 443-455. [https://doi.org/https://doi.org/10.1016/S0140-6736\(21\)01164-8](https://doi.org/https://doi.org/10.1016/S0140-6736(21)01164-8)
- Martin, J. J. (2015). Determinants of Elite Disability Sport Performance. *Kinesiology Review*, 4(1).
- Mauerberg-deCastro, E., Campbell, D. F., & Tavares, C. P. (2016). The global reality of the Paralympic Movement: Challenges and opportunities in disability sports. *Motriz: Revista de Educação Física*, 22, 111-123. <https://doi.org/https://doi.org/10.1590/S1980-6574201600030001>
- McLoughlin, G., Weisman Fecske, C., Castaneda, Y., Gwin, C., & Graber, K. (2017). Sport Participation for Elite Athletes With Physical Disabilities: Motivations, Barriers, and Facilitators. *Adapt Phys Activ Q*, 34(4), 421-441. <https://doi.org/10.1123/apaq.2016-0127>
- McVeigh, S. A., Hitzig, S. L., & Craven, B. 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>
- Morriën, F., Taylor, M. J. D., & Hettinga, F. J. (2017). Biomechanics in Paralympics: Implications for Performance. *International Journal of Sports Physiology and Performance*, 12(5), 578-589. <https://doi.org/10.1123/ijsp.2016-0199>
- Omar-Fauzee, M., Mohd-Ali, M., Geok, S. K., & Ibrahim, N. (2010). The participation motive in the

- Paralympics. *Journal of Alternative Perspectives in the Social Sciences*, 2(1), 250-272.
- Patatas, J. M., De Bosscher, V., & Legg, D. (2018). Understanding parasport: an analysis of the differences between able-bodied and parasport from a sport policy perspective. *International Journal of Sport Policy and Politics*, 10(2), 235-254.
<https://doi.org/10.1080/19406940.2017.1359649>
- Perreault, S., & Vallarand, R. J. (2007). A test of self-determination theory with wheelchair basketball players with and without disability. *Adapted Physical Activity Quarterly*, 24(4), 305-316.
<https://doi.org/https://doi.org/10.1123/apaq.24.4.305>
- Pierre, J., Schut, P.-O., & Segay, B. (2022). The role of sports clubs to integrate people with disabilities. *Managing Sport and Leisure*, 1-18.
<https://doi.org/10.1080/23750472.2022.2135584>
- PORDATA. (2022). *População residente com 30 a 34 anos com o ensino superior completo em % da população residente: total e por sexo*
<https://www.pordata.pt/portugal/populacao+residente+com+30+a+34+anos+com+o+ensino+superior+completo+em+percentagem+da+populacao+residente+total+e+por+sexo-3512>
- Puce, L., Marinelli, L., Pierantozzi, E., Mori, L., Pallecchi, I., Bonifazi, M., Bove, M., Franchini, E., & Trompetto, C. (2018). Training methods and analysis of races of a top level Paralympic swimming athlete. *Journal of Exercise Rehabilitation*, 14(4), 612-620.
<https://doi.org/10.12965/jer.1836254.127>
- Qi, J., & Ha, A. S. (2012). Inclusion in Physical Education: A review of literature. *International Journal of Disability, Development and Education*, 59(3), 257-281.
<https://doi.org/10.1080/1034912X.2012.697737>
- Rodríguez Macías, M., Giménez Fuentes-Guerra, F. J., & Abad Robles, M. T. (2022). The Sport Training Process of Para-Athletes: A Systematic Review. *International journal of environmental research and public health*, 19(12), 7242.
<https://doi.org/10.3390/ijerph19127242>
- Ross, S. M., Smit, E., Yun, J., Bogart, K., Hatfield, B., & Logan, S. W. (2020). Updated National Estimates of Disparities in Physical Activity and Sports Participation Experienced by Children and Adolescents With Disabilities: NSCH 2016–2017. *Journal of Physical Activity and Health*, 17(4), 443-455.
<https://doi.org/10.1123/jpah.2019-0421>
- Schipman, J., Gallo, P., Marc, A., Antero, J., Toussaint, J.-F., Sedeaud, A., & Marck, A. (2019). Age-Related Changes in Para and Wheelchair Racing Athlete's Performances [Original Research]. *Frontiers in Physiology*, 10(256).
<https://doi.org/10.3389/fphys.2019.00256>
- Storli, L., Aune, M. A., & Lorås, H. (2022). Aspects of Developmental Pathways toward World-Class Parasport. *Sports*, 10(8), 123.
<https://www.mdpi.com/2075-4663/10/8/123>
- Tanure Alves, M. L., Grenier, M., Haegele, J. A., & Duarte, E. (2018). 'I didn't do anything, I just watched': perspectives of Brazilian students with physical disabilities toward physical education. *International Journal of Inclusive Education*, 24(10), 1129–1142.
<https://doi.org/10.1080/13603116.2018.1511760>
- Tripp, A., Rizzo, T. L., & Webbert, L. (2007). Inclusion in physical education: Changing the culture. *Journal of Physical Education, Recreation & Dance*, 78(2), 32-48.
<https://doi.org/https://doi.org/10.1080/07303084.2007.10597971>
- van der Ploeg, H. P., Streppel, K. R. M., van der Beek, A. J., van der Woude, L. H. V., Vollenbroek-Hutten, M. M. R., van Harten, W. H., & van Mechelen, W. (2007). Successfully Improving Physical Activity Behavior after Rehabilitation. *American Journal of Health Promotion*, 21(3), 153-159.
<https://doi.org/10.4278/0890-1171-21.3.153>
- Wilhite, B., & Shank, J. (2009). In praise of sport: Promoting sport participation as a mechanism of health among persons with a disability. *Disability and Health Journal*, 2(3), 116-127.
<https://doi.org/https://doi.org/10.1016/j.dhjo.2009.01.002>
- Willis, C., Nyquist, A., Jahnsen, R., Elliott, C., & Ullenhag, A. (2018). Enabling physical activity participation for children and youth with disabilities following a goal-directed, family-centred intervention. *Research in Developmental Disabilities*, 77, 30-39.
<https://doi.org/https://doi.org/10.1016/j.ridd.2018.03.010>
- World Health Organization (2011). *World report on disability 2011*. Geneva, Switzerland: World Health Organization.

Table 1. *Sample characteristics of elite athletes with disabilities (N = 81)*

Variable	n (%)
Age (years)	
Mean (SD)	34.0 (11.14)
Range (min, max)	14-56
Sex	
Male	63 (77.8)
Female	18 (22.2)
Type of Impairment	
Physical	62 (76.5)
Intellectual	9 (11.1)
Visual	8 (9.9)
Hearing	2 (2.5)
Onset of Disability	
Present at Birth	42 (51.9)
Acquired	39 (48.1)
Educational Attainment	
≤ 9th Grade	29 (35.9)
Secondary School	35 (43.2)
University Degree	17 (21.0)
Employment Status	
Unemployed	41 (50.6)
Student	10 (12.3)
Employed	30 (37.0)
Geographic Origin of Sport Initiation (NUTS II)	
North	34 (42.0)
Lisbon Metropolitan Area	25 (30.9)
Centre	17 (21.0)
Other ¹	5 (6.1)

Note. ¹Alentejo, Algarve, and Azores

Table 2. Categories, Subcategories, and Sample Quotes Obtained from the Content Analysis on the Athletes' opinion on what should be done to promote/stimulate sports participation among young people with disabilities

Main category	Sub-categories	Sample of participants' quotes
Increasing visibility of disability sports (24/87, 27.6%)	Disseminating information regarding disability sports (16/24 athletes, 66.7%)	"There should be a lot of publicity in the media, inciting young people with disabilities to practise adapted sports and informing where people can practice" "It would be important for young people with disabilities to know that there are many adapted sports options" "Production of flyers and promotional videos on the sports...and lectures where young people feel inspired by real cases of those who already practise the sport" "To offer sports demonstrations in rehabilitation centres, or, when the athletes are in traineeships, to invite people with disabilities from the community to be present" "Create opportunities for young people to experiment with adapted sports...I think the Paralympic day is a very important initiative" "To capture the interest in schools using demonstrations by older athletes"
	Disability sports awareness practice events in several contexts (e.g., schools and rehabilitation centres) (8/24, 33.3%)	
Support from sport-related entities (17/87, 19.5%)	General support (11/17, 64.7%)	"There should be more incentives and support from institutions / federations...some great athletes don't go any further due to lack of support" "More support from sports organisations for young people with disabilities" "I think that there should be more monetary support from the government and other organisations, as the materials have very high costs, and few people can access them" "Investing in specific equipment adapted for the practice of physical exercise by people with disabilities" "One should start first at schools, by including adapted sports subjects in the schools' programmes" "Begin to practise sports in schools...children with disabilities do not have physical education classes adapted to them" "Foster actions to promote disability sports in schools" "Promote specific training of teachers on Paralympic sport" "The school is important, and it should give more support to students with disabilities...in my school there were kids who did not participate in physical education, and the teachers did not care...it is also necessary to motivate the students" "Integrate them (people with disabilities) in a group where they don't feel discriminated against" "Activities that establish contact between people with disabilities and society" "Improve the accessibilities in the municipality...there should be more sports areas for adapted sports" "Elimination of architectural barriers" "Transport of people with disabilities to training facilities" "There is always something that can be done or adapted so that the person can practise" "Adapting activities according to the disability" "It is necessary to encourage young people to look for a sport they like, showing them various sports and indicating those that exist in their area of residence...all sport clubs should create conditions to welcome these young people, even if presently they still do not have the ideal conditions" "To increase the practice of sports in clubs and their competitiveness" "To have in the sports clubs a person who listens and speaks sign language" "Better formation of sports technicians" "Changing mentalities...young people with disabilities need to leave their comfort zone and look for what could bring them more quality of life, in all aspects" "Let the young people express themselves, talk about their difficulties. Young people must find a sport that completes them and not be forced to play a sport" "They (people with disabilities) should have a lot of determination to win and a lot of focus" "At the end of rehabilitation, bring together people and athletes with similar disabilities to realise the benefits of sports practice" "Finding strategies to promote stronger will and initiative of the person with a disability"
	Financial support and equipment acquisition (6/17, 35.3%)	
Physical education and school disability sports (13/87, 14.9%)	Physical education curriculum and disability sports (8/13, 61.5%)	
	Teacher training and attitudes (5/13, 38.5%)	
Promotion of social/sport inclusion (12/87, 13.8%)	Equality and change societal perspectives on disability (5/12, 41.7%)	
	Accessibility, transportation, and adapted areas for physical activity (4/12, 33.3%)	
	Adapting activities (3/12, 25.0%)	
Well-prepared sport clubs (11/87, 12.6%)	More clubs involved and better prepared (9/11, 81.8%)	
	Specialised technicians (2/11, 18.2%)	
Promotion of empowerment and resilience of people with disabilities (10/87, 11.5%)	Changing mentalities and attitudes (6/10, 60%)	
	Strategies for empowerment (4/10, 40%)	

Note. The table shows the number/percentage of times that each code was cited in each category and sub-category. Sixty-six athletes responded to the question.

Table 3. Categories, Subcategories, and Sample Quotes Obtained from the Content Analysis on the Athletes' Reasons for Participating in Sports

Main category	Sub-categories	Sample of participants' quotes
Enjoyment (29/139, 20.9%)		"Because I like to run, and I feel good doing this sport" "I really enjoy it and started training. I feel happy doing it" "I love doing sports. When experimenting, I liked what I was practising and ended up continuing this modality" "I love swimming because it helps me to relax and have fun. When I swim, I disconnect from the world; it is around me"
Personal development (25/139, 18.0%)	Evolution, self-overcoming, and achieving goals (12/25, 48.0%)	"After finishing my academic studies, I was unable to enter the job market. I looked to sport as a way of life, as it was a way of setting goals and achieving them" "I like to have a goal. The feeling of reaching the end of training and feeling the duty done. I like the feeling of lactic acid"
	Challenges (6/25, 24.0%)	"Enjoy new challenges, to self-overcome and compete" "Embrace a new challenge"
	Curiosity and learning (7/25, 48.0 %)	"Learning and interacting" "Curiosity about the sport"
Health and well-being (25/139, 18.0%)	Psychological well-being (8/25, 32.0%)	"Gaining more (...) self-esteem, and decompression in everyday life" "I enjoy it, and I started training, I am happy doing it" "I love swimming because it helps me to relax and have fun. When I swim, I disconnect from the world that it is around me."
	Being active (2/25, 8.0%)	"Practicing physical activity" "Regular sport participation"
	Physical fitness and health (8/25, 32.0%)	"Strengthening of the upper limbs, gaining more mobility" "Because I was obese"
	Rehabilitation and autonomy (7/25, 28.0%)	"After my accident, the medical doctor told me that I should swim or do physical therapy...me and my parents decided to engage in swimming, which has always been my preference." "To help my rehabilitation"
Performance (23/139, 16.5%)	Competing (14/23, 60.9%)	"The competition, I've always been a fan of competition sports" "I like to compete, and this sport allowed me to enter the high competition"
	Top-level performances (6/23, 26.1%)	"Over the years of training, seeing the evolution and the medals won continues to provide motivation!" "Do my best and win titles"
	National team and Paralympics (3/23, 2.2%)	"At first it was just to experiment. Later I started to participate in national competitions, I started to get results, and I was called to the national team of boccia, where I am today" "My primary objective was participating in the Paralympic games. I didn't achieve that goal, but I was able to represent Portugal in the 2018 World Cup"
Sports-specific characteristics (22/139, 15.8%)	Fits personal attributes (7/22, 31.8%)	"It is a sport suited to my physical limitation, and because it strengthens the upper limbs, as I was looking for" "The possibility to adapt the sport to my visual capacity"
	Practiced near home (4/22, 18.2%)	"It was near my home, and I was curious to try it" "It is one of the few sports that I can practice and "easier to access", because it is close to my area of residence"
	Other specific features (11/22, 50.0%)	"The taste for the sea" "The fact that like horses a lot" "Because it is a game that requires strategy"
Social inclusion (15/139, 10.8%)	Social participation (4/15, 26.7%)	"The freedom that this sport gives us, as well as equality regarding all other athletes; we are all equal in the water and the events are organised together (people with and without disabilities)" "Getting along with other people"
	Friendship (8/15, 53.3%)	"This opportunity arose at 7 years old, and I didn't waste it... I really wanted to win medals and make friends. I think that these were the main reasons that stimulated me to practise sports" "In addition to always being a sport of my preference, there were many friends of mine practising it, which led me to wanting to accompany them" "I like to make friends"
	Family (3/15, 20.0%)	"My son's birth was very important... to be an example to him...to make him proud of me" "My sister is the most motivating factor, she was, and she still is today..."

Note. The table shows the number/percentage of times that each code was cited in each category and sub-category. Seventy-seven athletes responded to the question.

Table 4. Categories, Subcategories, and Sample Quotes Obtained from the Content Analysis of the Factors That Athletes Considered Most Important for Achieving High-Level Sport Performance

Main category	Sub-categories	Sample of participants' quotes
Psychological factors (48/183, 26.2%)	Mental skills (29/48, 60.4%)	“Extreme dedication to achieve the objectives” “My own commitment, dedication, and stubbornness so that all the free hours I have are spent on horseback or in the gym” “Motivation, physical condition and focus on the goals set”
	Psychological well-being and emotion regulation (13/48, 27.1%)	“Emotional management and the capacity to face sports injustices” “Mental and physical well-being”
	Positive training climate and enjoyment (4/48, 8.3%)	“Happiness to represent the national team, enjoying the sport” “To have a good training climate, like the one I have” “To enjoy sports and my sports discipline”
	Psychological support (2/48, 4.2%)	“Commitment and dedication of the entire team that works with me, including former coaches and sports psychologist” “Psychological support”
Training periodisation and planning (44/183, 24.0%)	Training volume/intensity (34/44, 77.3%)	“A lot of training” “Hours of training” “Training” “The quality of training”
	Quality training (5/44, 11.4%)	“The training methodology, which is closely linked to the trainer–athlete relationship” “More intense and specific physical training”
	Planification (5/44, 11.4%)	“A training plan that includes internships” “The correct planning of the sport season”
Physical condition and health (44/183, 24.0%)	Resting (14/44, 31.8%)	“Training is essential for my sports performance, and also both mental and physical rest” “To rest and sleep well”
	Nutrition (11/44, 25.0%)	“Nutrition” “Healthy eating”
	Physical fitness (10/44, 22.7%)	“Physical fitness” “To be in good physical shape”
	Medical support and physiotherapy (6/44, 13.6%)	“Good medical support” “I also consider fundamental my physiotherapist, as well as my osteopath, because they help me daily to face the injuries that sometimes appear”
	Avoiding injuries (3/44, 6.8%)	“Training hard and intelligently to try to avoid injury” “Absence of injuries”
Supporting elements (29/183, 15.8%)	Family and social support (12/29, 41.4%)	“I believe that the family and boyfriend have a great influence on sports performance, as they promote positive effects on self-esteem and self-confidence, on the feeling of accomplishment and undoubtedly on positive motivational orientation towards sport” “Group support...club and colleagues” “To have the support from all those surrounding me”
	Institutional support (10/29, 34.5%)	“Support from the Portuguese Paralympic Committee and the Portuguese Sport Federation for people with disabilities” “Another important factor is to feel that institutional entities are "with us" in good times and bad”
	Schedules / time available (4/29, 13.8%)	“Time off from work to train more” “Conciliate athletic training and family time”
	Equipment quality (2/29, 6.9%)	“Sport equipment” “Having the best sport equipment”
	Guide (1/29, 3.4%)	“Having a competent guide”
Coaching (15/183, 8.2%)	Coach competence (12/15, 80.0%)	“Having a coach who understands our limitations and helps us to be better with each workout.” “A competent coach”
	Athlete-coach relationship (3/15, 20.0%)	“I have a great relationship with my coach and that clearly helps a lot in my performance” “Trust between coach and athlete”
External conditions (3/183, 1.6%)		“An adequate classification system” “The presence of public” “The temperature”

Note. The table shows the number/percentage of times that each code was cited in each category and sub-category. Seventy-two athletes responded to the question.