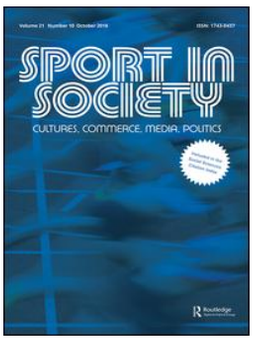

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Stakeholders' perceptions of athletic career pathways in Paralympic sport: from participation to excellence

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ABSTRACT

Athlete development in parasport is a complex domain. Evidence on the developmental trajectories of para-athletes is necessary to examine the critical determinants of specific para-athlete development models. Underpinned by the existing athlete development models to gather insights into the different developmental phases, this study explored how athletic career pathways in parasport are developed by identifying and describing disability-specific characteristics that influence each developmental phase. Para-athlete development was explored through the lens of 32 stakeholders from the Brazilian parasport context who participated in semi-structured interviews. Results ratified the complexity and individuality of para-athlete development, highlighting that the differences according to impairment groups, an early or late start in the sport and the classification, have implications for the development of the phases of athletic pathways in parasport. The findings lend weight toward the need for models other than those traditionally used for able-bodied athletes; rather, para-athlete development models need a disability-specific approach.

KEYWORDS

Parasport; para-athlete pathways; para-athlete development models; classification

Introduction

Athletic career pathways are defined as a continuum of athletic development, from initiation of fundamental movement skills through a lifelong engagement and proficiency at an elite level (Richards 2016; Weissensteiner 2017). Several authors have suggested that athlete development pathways are dynamic processes in which participants enter, progress or remain at a particular stage according to their ability, interest, opportunities and objectives (Green 2005; Sotiriadou and De Bosscher 2017; Shilbury, Sotiriadou, and Green 2008; Sotiriadou, Shilbury, and Quick 2008). Developing athletes is a complex and multi-layered task that requires a multi-level approach (Andersen, Houlihan, and Ronglan 2015; Weissensteiner 2017), which takes into consideration the interaction of the local culture, the political system, the geography and the historical context of the country where the

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athlete is competing (Baker, Cobley, and Schorer 2017; Digel, Fahrner, and Burk 2006; Houlihan and Green 2008).

Scholars have outlined athlete development models that describe several developmental phases as athletes move and shift at different levels of involvement in sport, for instance, attraction to sport, talent identification and development, the achievement of success, nurturing and transition to retirement (Balyi, Way, and Higgs 2013; Gulbin et al. 2013; Henriksen, Stambulova, and Roessler 2010; Sotiriadou, Shilbury, and Quick 2008; Wylleman and Lavallee 2004). However, most of the existing athlete development models have been applied only in able-bodied sport contexts. As a result, athletes with an impairment have been largely ignored in the athlete development literature, which makes unclear how the phases of athletic career pathways in parasport could be developed and how para-athletes would transition through an athletic career. Given the challenges of understanding para-athletes' development within the boundaries of the existing models (Lemez et al. 2020), one can question whether it is possible to adapt general athlete development models to include athletes with an impairment or whether parasport[1] specific models should be developed.

Underpinned by the existing athlete development models in the literature to gather insights into the different developmental phases, this study aims to (1) explore how athletic career pathways in Paralympic sport are developed, and (2) identify and describe disability-specific characteristics that influence each developmental phase. In doing so, this study explored para-athlete development through the lens of relevant stakeholders who are involved in shaping and developing para-athlete pathways in the sport in Brazil (e.g. coaches, sport managers, high-performance directors, classifiers). Understanding para-athletes' trajectories in sport may inform and enhance (inter)national sport governing bodies' strategies to promote para-athlete' development, which might lead to an increase in general participation, competition and success at the elite level. Indeed, as recognition of parasport increases, identifying an appropriate athlete development pathway can be an asset to grow the number of participants and justify appropriate funding allocation.

Literature review

A quest to identify para-athletes' career pathways

The journey that an elite athlete experiences from the introduction to the sport to the achievement of a successful international career is usually long and demanding (Weissensteiner 2017). The need to continuously deliver success has over the years encouraged stakeholders to adopt different descriptions of athlete development phases, processes and transitions in the sport as platforms to design athlete developmental trajectories (Brouwers, Sotiriadou, and De Bosscher 2015; Sotiriadou 2013). The existing athlete development models highlight different critical features of athlete development and describe phases and transitions faced by able-bodied athletes. The most influential athlete development models known in the literature can be clustered in three groups: (1) *athletic development and sport participation models*: Long-Term Athlete Development model (LTAD; Balyi, Way, and Higgs 2013), Foundation, Talent, Elite, Mastery model (FTEM; Gulbin et al. 2013), Development Model of Sport Participation (Côté and Fraser-Thomas 2007); (2) *organizational and management perspective on athlete development*: Athlete Recruitment, Retention and Transition model (Green 2005), Attraction, Retention/Transition and Nurturing model

(ARTN; Sotiriadou, Shilbury, and Quick 2008); and (3) *holistic perspective on athlete development*: Holistic Athletic Career model (HAC; Wylleman and Lavallee 2004; Wylleman 2019). An overview of those models is provided in Table 1. For the purpose of this study, the able-bodied athlete development models highlighted in Table 1 are scrutinized in order to gather useful information for initial insights into para-athlete development and description of the different developmental phases and transitions. This section discusses the models taking a perspective of the Paralympic sport context.

Table 1. An overview of the most influential athlete development models in the literature.

Model	Main content	Methodology
Transition Model (Bloom 1985)	Three broad stages of talent development. Transition between stages is not determined by chronological age but conditional on learning. 1. Initiation: introduction to activity, talent identification 2. Development phase: higher quantity of training and level of specialization 3. Perfection phase: professional performer	Qualitative data (interviews with elite athletes)
Holistic Athletic Career - HAC Model (Wylleman and Lavallee 2004; Wylleman 2019)	Takes a holistic approach by taking into consideration athletes' development in different domains in their lives and a developmental approach by describing the athletic career from initiation into sport to adjustment on life after athletic career termination. 1. Athletic level: initiation (age: 6–7), development (age: 12–13), mastery (age: 18–19), discontinuation (age: 28–30) 2. Psychological level: childhood, puberty adolescence, young adulthood, adulthood 3. Psycho-social level: parents, siblings, peers, peers, coach, parents, partner, coach, support staff, teammates, students, family coach, pears 4. Academic Vocational level: primary education, secondary education, semi-professional athlete, post-athletic career 5. Financial level: Family, sport governing board, government, NOC, sponsor, family, employer 6. Legal level: minor and adult (of age)	Review of literature and qualitative data (interviews with elite athletes and participant observation)
Long-Term Athlete Development – LTAD model (Balyi and Hamilton 2004; Balyi, Way, and Higgs 2013)	Seven stages of athlete development across age. 1. Active start: each early specialization sport should develop a sport-specific model 2. FUNdamental (6–10): fun and participation, talent identification 3. Learn to Train (M: 9–12/F: 8–11): learn all fundamental sports skills (build overall sports skills) 4. Training to Train (M: 10–14/F: 10–13): FUNdamental technical and tactical skills, intro mental preparation 5. Training to Compete (M: 14–18/F:13–17): sport-specific physical condition, specialization, competitive conditions 6. Training to Win (M: +18/F: +17): maintenance or improvement of physical capacities, high performance; 7. Retirement	Review of literature and observations
Athlete Recruitment, Retention and Transition: Theory of Sport Development (Green 2005)	Three tasks necessary for an effective pyramid model are identified. 1. Athlete recruitment – entrance: refers to how athletes are first introduced to sports 2. Athlete retention: each athlete's choice to continue to participate in sport, encompassing motivation, socialization and commitment 3. Athlete transition – advancement: as the athlete's skills and conditioning improve, the athlete should move to more advanced levels of training and competition	Review of literature and observations

Development Model of Sport Participation (Côté and Fraser-Thomas 2007)	Developmental trajectories with a distinction between early and late specialization. 1. Sampling years (6–12): recreational sports participation through sampling 2. Early specialization (6–18): elite performance through early specialization 3. Recreational years (12–18): activities that focus on fitness and health 4. Specializing years (12–15): deliberate play and practice balanced 5. Investment years (15–18): elite performance	Review of literature and qualitative data
Attraction, Retention/ Transition and Nurturing – ARTN model (Sotiriadou, Shilbury, and Quick 2008)	Through its organizational perspective provides three different, yet interrelated sport development processes. 1. Attraction: increase people's awareness of sports programs, nurture large numbers of young participants that have the potential to become elite performers 2. Retention/transition: a range of policies, development of programs and competitions to identify talented athletes 3. Nurturing: development of programs and practices to the individual athlete, team or sport to achieve best performances on the national and international sporting stage	Qualitative data (grounded theory) and document analysis
Athletic Talent Development Environmental Model (Henriksen, Stambulova, and Roessler 2010)	Framework for examining the dynamics of the micro and macro developmental environment. 1. Human, material and financial preconditions 2. Everyday activities 3. Organizational culture 4. Athletic achievement	Review of literature and qualitative data (interviews, case studies, participant observation and document analysis)
Foundations, Talent, Elite, Mastery – FTEM model (Gulbin et al. 2013)	Four macro stages of skill and performance development further differentiated into ten microphases 1. Foundations: – Learning and acquisition of basic movement – Extension and refinement of movement – Sport-specific commitment and/or competition 2. Talent: – Demonstration of potential – Talent verification – Practising and achieving – Breakthrough and reward 3. Elite: – Elite representation – Elite success Mastery: – Sustained success	Inductive/deductive approach using combined information sourced from theoretical underpinnings and observations

The HAC model (Wylleman and Lavallee 2004; Wylleman 2019) is the only model that addresses athlete development from a holistic perspective, including other transitions faced by athletes in life. It proposes a developmental model of transitions faced by athletes, which delineates a series of normative transitions occurring in several spheres of athletes' lives, including the athletic, psychological, psychosocial, the academic/vocational level and financial and legal levels (Wylleman 2019). If athletes with an impairment would be included in this model, the psychological and psychosocial aspects surrounding the inclusion of people with impairments in sport, whether is a person who was born with an impairment or a person that acquired an impairment later in life, should be considered as an essential transition influencing the para-athletes' initiation to an athletic career. For athletes with an

acquired impairment, the rehabilitation process generally means not only treatment for an injury but also a possible attraction to the sport (French and Hainsworth 2001). The transition out of competitive sport would be linked to some unique parasport's reasons to leave the sport, namely the impairment progression or (re)declassification (i.e. the athletes' classification changed, and he/she is no longer eligible to compete or the classification or event is eliminated from the Paralympic programme; Bundon et al. 2018).

The LTAD model (Balyi, Way, and Higgs 2013) has been adopted and applied by several nations in different sports for the development of children into elite athletes (Banack, Sabiston, and Bloom 2011; Ford et al. 2011). The model includes four age-related stages for early specialization sports and six age-related stages for late specialization sports. According to Ford et al. (2011), the LTAD model provides a hypothetical framework where the word athlete in this model has an application to children in their formative years, remaining generic and lacking empirical evidence in both able-bodied and the parasport context. Concerning the parasport context, however, this model distinguishes itself from the other highlighted models because it is the only model known in the literature that partially extends the framework to para-athlete development. In doing so, two additional stages related to the context of parasport were added. The first is 'awareness', which relies on the fact that sport opportunities for persons with an impairment are not always known, and awareness-raising actions should be made. The second is 'first involvement', which is the point when people with an impairment have had a positive first experience influencing them to remain engaged in sport (Balyi, Way, and Higgs 2013).

Inspired by Green (2005) who contends that athlete development frameworks must address three key areas: athlete entrance, retention and advancement, the ARTN model (Sotiriadou, Shilbury, and Quick 2008) details three interrelated sport development processes including attraction, retention/transition and nurturing. The FTEM model (Gulbin et al. 2013) presents a similar structure of phases (i.e. foundations, talent, elite and mastery) as the ARNT model. Despite similarities among those models, one difference in the FTEM model is that it integrates general and specialized phases of development for participants within the active lifestyle, sport participation and sport excellence pathways and doubles the number of developmental phases (i.e. ten in total; Gulbin et al. 2013). If athletes with an impairment would be included in any of those models, the attraction to sport would be most likely to aim to increase people's awareness of available sport programmes for people with an impairment, regardless the type or nature of the impairment (Patatas, De Bosscher, and Legg 2018). The retention phase has been described in those models as the phase where policies and programmes are developed in order to maintain the athletes in the sport and further implement strategies or systems to identify talented athletes (Sotiriadou, Shilbury, and Quick 2008). According to Gulbin et al. (2013), the identified athletes were immersed in a formalized observational trial period in order to demonstrate their full athletic profile. In parasport, the efficiency of the rehabilitation process, in the case of athletes with an acquired impairment, may influence the timing at which athletes will move to the retention phase (Patatas, De Bosscher, and Legg 2018). Subsequently, as described in both models, the confirmation of 'talent' is seen as complementary to the process, where talented athletes bridge the gap between the foundation and the elite phase (Gulbin et al. 2013). Talent identification processes in parasport, however, will mostly happen during participation in competitions. In other words, potential talented para-athletes can be identified during participation in their first competition experience; therefore, competition should be considered an essential

phase in parasport (Diaper 2015). Finally, nurturing/advancement/mastery or elite is the phase when the athletes move towards more advanced levels of training and national or international competitions, with sustained success at their highest level. The characteristics of this phase may be similar to both able-bodied and para-athletes. In parasport, however, the support services provided to the athletes at the elite level may vary according to their impairment type and severity, and the athlete's sport classification (Patatas et al. 2020).

The athlete development models presented above lack a parasport context perspective regarding the disability-specific variables that may introduce additional complexity that will likely influence the development of parasport-specific models. In general, stakeholders who work with para-athletes adopt and rely on able-bodied athlete development models to support their practice and develop training programmes (Lemez et al. 2020). Therefore, it is essential to consider particularly the extent to which general research findings in the able-bodied sport context may apply to para-athletes (Dehghansai et al. 2017; Hutzler, Higgs, and Legg 2016). Although there are some elements in the athlete development models that could offer valuable insights into para-athlete development, it is relevant to produce evidence that can envisage models of para-athlete development that accurately represent and reflect the experiences of athletes with impairments.

The uniqueness of the parasport context

Parasport has emerged as an essential means of physical, psychological and social inclusion for people with an impairment (DePauw and Gavron 2005). In that sense, some authors have pointed out the many particularities of parasport due to its complex structure, organization and provision (McMaster, Culver, and Werthner 2012; Misener et al. 2016; Patatas, De Bosscher, and Legg 2018). For instance, the societal attitudes towards people with an impairment and the social-cultural barriers that are imposed to people with impairment may impact their participation in sport (Dowling et al. 2018, Misener 2015; Patatas et al. 2019).

Some examples may correspondingly underpin the reasons as to why the context and more specifically, the culture in which parasport operates in, are potentially distinct from able-bodied sports (Dowling et al. 2018). From a para-coaching point of view, bearing in mind that coaches are considered vital stakeholders in supporting and influencing para-athletes' development (Cregan, Bloom, and Reid 2007; Douglas, Falcão, and Bloom 2018; Townsend, Smith, and Cushion 2015), studies have shown that para-athletes often have different demands. This requires that coaches have a structure of support that provides education, learning and qualification to gain disability-specific knowledge. The disability-specific knowledge may include (1) understanding the nature of the athlete's impairment, by adapting their coaching methods to fit the athletes' functional capacity and ability (Cregan, Bloom, and Reid 2007); (2) in addition to the conventional role of a coach, they also may need to engage more on other specific parasport factors, such as being in direct communication with the athletes' support team/or caregivers (Fairhurst, Bloom, and Harvey 2017) and (3) the necessary sport adaptations, for example, within the same parasport, a coach is required to develop and adapt training methods for athletes with different impairment types (Banack, Sabiston, and Bloom 2011). These authors suggested that several context-specific factors influence the trajectories of para-athletes in sport, which require qualification courses and learning opportunities for coaches and multidisciplinary team that are specific to this domain. One of them is the classification system(s) of Paralympic sports (Fairhurst, Bloom, and Harvey 2017).

The classification system(s) makes Paralympic sport idiosyncratic (and possibly to some, arbitrary). The Paralympic sports literature (e.g. Brittain 2016; Howe and Jones 2006; Sherrill 1999; Tweedy 2002; Tweedy and Vanlandewijck 2011; Vanlandewijck and Chappel 1996) widely recognizes the classification system(s) as an essential – but controversial – feature of the domain. The classification system(s) aims to create fair and equal competition opportunities through the categorization of classes according to the athletes' impairment and abilities, but in doing so, it makes parasport more complex than able-bodied sports (Jones and Howe 2005; Legg and Steadward 2011). The sport-specific class to which an athlete is allocated is likely to be a very influential and complex element from the parasport context that operates throughout every part of the system, and which may act as a primary factor possibly influencing para-athletes' development from foundation to retirement (Patatas et al. 2020). One ongoing debate surrounding the classification of athletes in parasport reveals that it can be considered a non-inclusive process due to its focus on prioritizing some impairment types rather than others (Hammond and Jeanes 2018; Kitchin and Howe 2014). While some athletes with a particular level of impairment (e.g. less severe impairments, minimum impairment) are being prioritized by the system, due to their ability to excel and, consequently achieve international sporting success (Hammond and Jeanes 2018), athletes with more severe impairments remain unable to access sporting opportunities (Hammond and Jeanes 2018; Kitchin and Howe 2014), as well as to access coaches with disability-specific knowledge that can provide suitable training programmes tailored to their needs (Patatas et al. 2020). Similarly, Howe and Jones (2006) called attention to the fact that, with the growth of the Paralympic Games, some organizational adjustments in the programme had to be made in order to meet schedule and media demands. Those adjustments, however, mostly implied withdrawing some events from particular sport classes from the programme, which dramatically impacted the events for athletes with more severe impairments.

Accordingly, the elements presented in this section intended to highlight the uniqueness of the parasport context which may underpin the complexity within para-athlete development and underline the difficulty in understanding how para-athletes' pathways can be constructed and organized in a given context (Fairhurst, Bloom, and Harvey 2017).

The context of parasport in Brazil

Concerning the management of parasport in Brazil, the Brazilian Paralympic Committee, founded in 1995, is the organization responsible for the organization of Paralympic sport in the country, as well as for fostering the inclusion for persons with an impairment within the sport (Patatas et al. 2019). Currently, Brazil is experiencing a moment of ascendancy within the international Paralympic Movement, given the Olympic and Paralympic Games hosted in the country in 2016, and the achievement of the 8th place in the Rio 2016 Paralympic Games medal table with a record of total medals won in the history in Paralympic Games (Cardoso et al. 2019). Haiachi et al. (2016) stated that the Rio 2016 Paralympics Games led to promising development for the consolidation of para-athletes' sporting careers in Brazil. Continuous investments in sporting infrastructure, the creation of a national training centre and the maintenance and widening of athletic programmes to enable excellence allowed Brazilian Paralympians to develop successful and stable athletic careers. That said, understanding para-athlete development through the lens of Brazilian parasport system may introduce various benefits and may offer initial insights and good practices that can be

useful for other countries and contexts. However, undoubtedly, one needs to be careful with generalizing results from the Brazilian context. Diversity within different sport systems should be taken into account when transferring knowledge to other countries (De Bosscher et al. 2015). Therefore, it is expected that this paper further opens a dialogue on how the findings presented here may be generalisable through transferability to other contexts (Smith 2018). According to Hoekstra et al. (2019, 2), 'the identification of similarities and differences in national approaches allows designating potential benefits from each approach and to further enhance national strategies for the promotion of sport for people with an impairment'.

Method

Sampling and participants

The sample was purposively selected through a maximum variation strategy to guarantee the representation of a variety of individuals with high levels of expertise on the topic under investigation (Sparkes and Smith 2014). Athletes develop along a continuum of trajectories that have been primarily top-down shaped and influenced by relevant stakeholders (Brouwers, Sotiriadou, and De Bosscher 2015). Accordingly, as a criterion to be included in the research, participants were required to be stakeholders that are involved in shaping and developing para-athlete pathways, such as coaches, high-performance directors, sport managers, among others. Therefore, stakeholders from the Brazilian Paralympic Committee, with inter(national) experience and practice of performance, leadership and management in different parasports were included in this study. The participants were contacted and recruited by the primary investigator who travelled to Brazil to conduct the interviews.

A total of 32 (7 females and 25 males) stakeholders were interviewed, including: high-performance directors ($n = 4$), sport managers/coordinators ($n = 8$), academics ($n = 4$), classifiers ($n = 2$), head coaches ($n = 5$) and national coaches ($n = 9$), from five sports: para-athletics, para-swimming, para-powerlifting, wheelchair basketball and goalball. The mean age of the participants was 41 years old (age range 28–65) and mean years of sporting experience was approximately 19 years (range 10–32). The participants' responses were based on their experience achieved through working with para-athletes from the foundation/participation to the elite competitive phase.

Data collection

Ethics approval for data collection was obtained from the institutional review board authorizing this research (ECHW_034). Before the interviews took place, all participants were given an information sheet which included a briefing on the nature of the research and secured participants of their confidentiality. Additionally, participants were explained that any identifying information, such as position or roles, would not be directly linked to their participation in this research. Informed consent from participants was obtained. Two researchers with theoretical and practical experience in parasport developed the semi-structured interview protocol, and it was pilot tested with a panel of three academics with significant experience in the Brazilian parasport context to improve the readability and functionality of the interview questions. Due to the novelty of the topic being researched, interviews were used to purposely encourage participants to talk at length, which permitted unforeseen phenomena to arise (Richardson et al. 2015).

The interview protocol included a series of open-ended questions grounded in the definitions of the developmental phases from the athlete development models, as presented and discussed in the literature review section. The questions focused on the critical elements that this study proposes to investigate, such as participants' perceptions on how athletic career pathways in parasport are developed, the differences among impairment groups within sports, the transitions and interactions between phases and the parasport-specific factors that influence the development of each phase. To conclude, final questions summarized the topic of the study and allowed participants to add any further information they deemed relevant. The interviews ranged in length from 50 to 60 min and were recorded electronically. All interviews were carried out in Portuguese, which allowed the interviewees to express themselves better. According to Welch and Piekkari (2006), communicating in the participants' mother language enables authenticity in the responses. To ensure the precision of the translation and accuracy of the context, the researchers conducted the back-translation technique (Brislin 1970) for the quotes used in the manuscript.

Data analysis

Thematic analysis was used as a suitable and comprehensive method to analyse the collected data by identifying and interpreting common themes, in particular when little is known about the topic under-research (Braun and Clarke 2006). To ensure that the analysis was conducted thoroughly and to develop a robust qualitative practice during the entire research process, the thematic analysis was carried out following the orientation towards looking at data proposed by Braun and Clarke (2006). It is important to stress that thematic analysis is not a technical task but an immersive process and a craft that is not easily reduced to sequential steps (Braun, Clarke, and Weate 2016). The analysis started with the familiarization of the data. This process consists of critical engagement with the data, reading and rereading all data items analytically, making notes and identifying concepts (Braun and Clarke 2006). Minor edits were made in the transcriptions to ensure confidentiality and improve the clarity of the statements. The coding process started by inductively labelling a code with each relevant extract from the text, gathering a rich set of codes, associating each code to an emergent theme (Braun and Clarke 2006). The subsequent phases involved a process of developing themes and sub-themes and searching for patterns and connections across participants. Emergent and recurring themes were identified through constant comparison, and the open coding resulted in an initial coding framework with themes and sub-themes that included the characteristics of the para-athletes' pathways phases. The themes were discussed among the authors and inconsistencies were discussed until agreement was reached. To conclude, the authors resorted to the assistance of a group of academics acting as 'critical friends' (Smith, Bundon, and Best 2016; Smith and McGannon 2018), to identify whether the themes were categorized correctly. This process aimed to mitigate subjectivity and alleviate potential researcher bias (Burke 2016).

Results

The results of the thematic analysis identified six developmental phases and the specific characteristics that outline athletic career pathways in Paralympic sport. Those are considerably influenced by disability-related elements and are highlighted in Table 2. The results

Table 2. Overview of themes and sub-themes that characterize the phases of athletic career pathways in Paralympic sports.

Phase	Theme	Sub-theme
Attraction	First involvement and attraction to a particular parasport are diversified and may diverge according to the impairment type, nature and severity	Attraction happens when the person discovers the possibility of practising sports after acquiring an impairment
		Athletes with a congenital impairment starting earlier when have opportunities to practice or late when participation is not encouraged
		Athletes with an acquired impairment starting at a late age, with previous sports experience or no previous sport experience
	Guiding the potential para-athlete to the parasport that fits better with the impairment type and abilities	Improving the first stage of development according to the functional capacity of the athlete
		Promoting early sport-specific skill acquisition according to each impairment type and severity
		Deliberate play, promoting sports diversification through a sampling of sports prior to specialization
	Attraction to parasport through the rehabilitation processes	Attention to the parasport specificities when learning fundamental movement skills (congenital impairment) and re-learning (acquired impairment) Resilience and inclusion through sport after acquiring or being diagnosed with an impairment using sport to help to deal with the discovery of the new body and as a tool for social inclusion
Retention	Challenges in finding sport opportunities in clubs with qualified coaches/ professionals	Limited coaching with basic knowledge of the impact and implications of different impairment types
		A limited number of clubs with structure, accessibility and adequate training methods focused on para-athlete development
	Retention phase is usually shorter than other phases	Athletes with an acquired impairment with previous sports experience may stay for less time than athletes with a congenital impairment or skip the retention phase
Competition	Participation in competition	Participation in competition can occur very early in an athletic career of a para-athlete
		Para-athletes usually start participating in competitions while in the foundation phases (attraction and retention)
	Competition provides a pool for talent identification	Most para-athletes are often identified as a potential talent during their participation in competitions
Classification influencing the transition to the talent ID and development phase		
Talent Identification and Development	Coaches' expertise is used to identify talented para-athletes	The national coaches identify and shape the athlete pathway – understanding the impact of skills development (physical and cognitive) in each impairment type
	Lack of knowledge about impairment and parasports can slowdown talent ID	Talent identification is influenced by the lack of knowledge and awareness about impairment – not enough well-qualified professionals to identify talented para-athletes in clubs, schools or rehabilitation centres
	Para-school games and other regional competition as a pool to select new talented para-athletes	Talent ID and development can come very fast in a para-athlete pathway
		Para-school games provide a broad base in the sports initiation phase where potential talents will be identified and can faster determine the athlete pathway

Classification influencing the transition to the Elite phase		
Elite	Regular participation in competitions	Participation in (international) competitions can start early in a para-athlete's career and is vital for the maintenance of a successful career at the elite level
	Level of severity and type of impairment influencing pathways' development	Athletes with severe impairments may take longer to reach the elite phase due to the limited sport opportunities, qualified professionals, and by the competition system
	Short athletic career pathways	A limited talent pool of athletes who meet sport-specific classification needs Talented athletes in higher sports class or athlete in a less competitive sports class can have a fast progression through the system
	Long athletic careers	Few people in each sports class facilitate pathways' progression – Transition phase from talent development to elite is fast Athletes can maintain at the top (elite phase) for an extended period due to the lack of a renovation of new talents
Classification influencing the transition to the Retirement phase		
Retirement	Transition to out of sport (post-career)	It is essential to raise awareness since the beginning of an athlete's career and promote education and qualification for post-career transitions The para-athletes need psychological preparation to make the transition to post-career less traumatic, avoiding loss of identity Retirement can be voluntary or involuntary – unique parasport's reasons to leave the sport (impairment progression or changes in classification

section further reports on each phase, as identified by the participants, and elaborates on the unique parasport characteristics that were consistently recognized in each phase. In order to illustrate these points, several quotations from the interviews are used throughout the text.

The attraction and retention of para-athletes

All respondents reported that the type and the nature of the impairment have a significant impact on how a potential athlete will be involved with a particular sport during the attraction and retention phases. Whereas the attraction to a particular sporting discipline may be similar for a variety of sports, it necessarily needs to be compatible with the type and level of severity of the impairment. Depending on the impairment type, the sports' attraction can take place in distinct stages of a persons' life and at different ages. It is important to keep in mind that some sports are offered to certain impairment types but not to others. Participant 6 summarized this as:

> The attraction phase is when athletes discover that there are sport opportunities for them. It can happen when the person is already an adult, or as a child, depending on if it is a congenital or an acquired impairment. Subsequently, they will get to know their aptitude for a particular sport, and they will be guided by a coach in choosing the best sport that is compatible with their impairment, functionalities, and motor skills.

Concerns about how the first phases of an athletic career should promote and improve the full development of an athlete were pointed out by the interviewees. Their arguments

were based on the functional capacity, considering the type and level of severity of the impairment and the fact that there are generally few people with an impairment involved in the sport. Participant 2 explained how deliberate play in the first stage could be conducive to parasport, as sports diversification through sports sampling can influence specialization in a later stage:

> If we must divide the athletes by age groups, for example, an initial phase of eight to ten years old, how many athletes will we have in this age group? Only a few. Also, depending on the impairment type, it may be even less. So, I believe that a development program in the attraction phase should cluster the athletes with different – but similar – impairment types into groups, yet beyond the age group. In this way, the athletes could experience a broader range of sport opportunities within a slightly wider age group.

Concerning the athletes with an acquired impairment, several discussions emerged from the interviews, especially when most stakeholders considered that the most significant differences would appear within the two first phases of the athletic pathway. Participant 10 emphasized the following:

> To define the phases of development, due to the heterogeneity of athletes' profiles and the differences in the impairment type, it is important to think that people with an acquired impairment will start the pathway in a sport in the middle of a given phase, different from the others [athletes with a congenital impairment]. Besides the impairment type, the attraction to the sport will also depend on the previous sport experience they had and the sport they practised before acquiring an impairment.

Regarding the retention, which is the phase in which programs are developed to maintain the athletes in the sport, the experts unanimously agreed that this phase is usually dependent on parasports' specificities, uniqueness and particularities, since the 'retaining of an athlete in sport would be dependent on the club offer [sport opportunities] and the qualified professionals to attend and retain this athlete practising sports' (Participant 17). According to Participant 1, 'it is challenging to find a club that will be able to receive athletes with an impairment and develop an adequate training session, taking into consideration all their needs. Yet, I see that the key is still to increase awareness and improve coaches' education and qualification for the first phases of the athlete's development'.

Participation in competitions and the talent identification and development of para-athletes

Participation in competitions is very common at the foundation level (i.e. initiation), especially if athletes used to compete/participate in able-bodied sports before acquiring an impairment. The competition phase is deliberately situated before the talent identification phase, given that in para-athletes' developmental trajectories participation in competition can occur very early in their athletic career. As a result, most athletes are often identified as a potential talent during their participation in specific competitions for development (e.g. school games) or part of rehabilitation programmes.

During these phases (competition and talent identification and development), the classification has an enormous impact on the development of a para-athlete career. This impact can be either positive or negative. According to Participant 4 'the classification and talent

identification walk side by side in this path. A correct classification at the beginning of an athlete's career can facilitate the pathway progression and can have a positive influence in the transition from the foundation to the elite level'. Athletes with a class profile or borderline characteristics can have advantages during the talent identification process because they have a 'prone to performance, which means that they might achieve better results or win medals and will likely receive better support and more investments' (Participant 12). As stated by Participant 3, 'we [stakeholders] know that in some sports there will be what we call a 'class profile athlete', which are the athletes who have the highest potential to become a gold medallist. So, they will be our priorities when it comes to talent identification and development and resource allocation'.

According to Participant 17, 'the coach's expertise is a fundamental tool for talent identification'. In parasports, talent identification occurs mainly through coaches' observations in competitions and an experienced coach not only identifies and shapes an athlete but also understands the implications that each impairment type would have on an athlete's development. However, it is important to note that the 'lack of information and knowledge about disability and the general lack of sport opportunities for people with an impairment can slow down talent identification, especially in rehabilitation centres and special schools, when there is no qualified coach available' (Participant 10). Furthermore, Participant 19 explained that talent identification and development could come very fast in a para-athlete pathway:

> An athlete can be identified as a talent in the very beginning of his/her career, for example, it can happen when he/she participates in a school or a regional competition, and a coach sees the potential in that athlete. So, this phase can not only happen very soon in a para-athlete pathway, but it can also overlap with other phases, for example, the retention or competition phases.

The elite phase and international performances for para-athletes

The transition to the elite phase in parasport may happen fast in an athlete's pathway. Usually, the athlete progresses by gaining and improving motor skills and other abilities until reaching a point of perfection, accompanied by a set of demands and challenges for practice and competitions. However, 'in parasport, depending on the impairment type and the classification, there will be a large number of athletes passing directly from the foundation phases to the elite level. Within a few years in an athletic career, they can either skip some phases, perform early at international competitions, and possibly win medals very easily' (Participant 3). One of the reasons for this fast pathway progression is explained by Participant 19:

> This fast progression depends on several factors. Apart from talent, of course, the most important would be the classification, which is highly influential. Due to a wide variety of impairments, there are not many athletes in each sport class, so the athlete who stands out a little bit more than others takes advantage and has a fast progression, reaching the elite level very quickly.

When describing the characteristics of this phase, the experts stated that the elite phase might be the longest in a para-athletes' pathway. This has consequences, including very long careers and fewer athletes per sport class. Concerning the first, according to Participant 13: 'in high-performance sport, for example, athletes who are 30 or 40 years old are still at

the top in some sports. They tend to stay longer because we do not have an influx of new athletes. This is related to the inefficient talent identification process and in some places, the lack of sport opportunities to people with an impairment'. Relating to this, Participant 20 highlighted:

> Some classes tend to be less competitive. If you do not have a high influx of talented athletes, not so many new athletes will appear to reach out for medals. Thus, those athletes who are already there [at the top] can keep up, turning their career more successful for an extended period.

The retirement phase: transition to post-career

The retirement is the last phase of a para-athlete's pathway in sport, and it is the beginning of an athlete's transition out of the sport. Accordingly, the influence of the classification plays a significant role in this phase. Explained by Participant 4, 'an athlete can be unclassifiable or ineligible due to a reclassification, which is normally related to a progression of the impairment or changes in the sport classification system'. In all cases, the athlete can experience a sudden and, most important, an involuntary retirement, 'forcing a premature career termination' (Participant 12). After a voluntary or involuntary career termination, a career transition should be planned for each athlete who reaches this phase, considering that 'career adjustment is a major life-changing experience' (Participant 20). Expert 1 also stressed that the preparation for the post-career should not start when the athlete is close to retirement, 'the idea is to provide awareness to the athletes already in the beginning of their career because the sooner they are aware of the importance of their qualification and education for the life post-athletic career, the better'. On that note, Participant 12 supported the idea that 'the career transition should not only be seen as a preparation for the job market in the post-athletic career phase but also as psychological preparation for the athlete to leave his/her athletic career without suffering any psychological and emotional trauma'.

Discussion

Drawing upon the existing athlete development models in the literature to gather insights into the different developmental phases, this study aimed to explore how para-athletes' career pathways are developed while identifying and describing the disability-specific characteristics that influence each phase. The results showed that para-athlete's development has a high degree of variation according to the sport and the various impairment types. This has implications for the development of the phases of para-athletes' pathways. Moreover, the findings of this study suggested that delivering a disability-specific approach and understanding the related nuances of parasport (e.g. the classification system(s), type and nature of impairment) are essential when considering multiple pathways to expertise, designing models and allocating resources. This confirms previous research claiming that it is important to recognize to what extent the different impairment types and nature (e.g. acquired and congenital) are relevant for developing evidence-based models of development for athletes with an impairment (Dehghansai et al. 2017; Lemez et al. 2020).

Generally, the perception of the stakeholders supported the common description of phases in the athlete development models for able-bodied sport (e.g. Balyi, Way, and Higgs

2013; Green 2005; Gulbin et al. 2013; Sotiriadou, Shilbury, and Quick 2008; Wylleman 2019). The interviewees, however, emphasized the disability-specific characteristics that are present within each phase of development and influence how the para-athlete will transition through an athletic career. They elaborated upon how athletes with an impairment experience multiple and different transitions and challenges in their sporting career, such as the rehabilitation process, the intricacies of the classification system(s), the lack of awareness about sport opportunities, different motor acquisition and learning, differences within impairment types and nature, aetiology modification, specific support and needs, adapted training, equipment and guides. Furthermore, when working with athletes with an impairment, one needs to consider sport readiness and modifications in stages of development, since different impairments may change the timing of development, and in some cases, the achievement of milestones at different time intervals (Wilson and Clayton 2010). The nature or origin of the impairment may, therefore, determine an early or a late start in parasport. Consequently, the level of severity of the impairment and previous sport experience prior to the injury are factors that have implications for the development and duration of the phases in para-athletes' career pathways. When elaborating upon the construction of the phases, the participants emphasized that the way a para-athlete advances through the pathway can be understood as a linear progression, but it should also be inclusive for non-linear progressions. This entails that athletes with an impairment may enter or exit in different points along the pathways. As an example, the athletes with an acquired impairment who have had previous sport experience may be identified as a talent in an earlier phase of their sporting career. Furthermore, the participants agreed that even though the phases of the pathway may remain the same, there may be cases where athletes will start from a different phase, and generally, the length of the phases may vary according to the nature of the impairment.

Corroborating previous research (e.g. Patatas et al. 2020), the findings of this study also indicated that the classification system(s), an essential feature of parasport, was identified by the stakeholders as an influential factor that shapes para-athlete development and progression in each phase. Concerning the influence of the classification on specific phases of para-athletes' career pathways, the results of this study suggested that the trajectory of athletes in parasport might vary according to their sport class. The literature has confirmed that 'Paralympic sport simply cannot exist without the classification system' (Connick, Beckman, and Tweedy 2018, 389) and that the 'classification has a significant impact on which athletes are successful in Paralympic sport' (Tweedy and Vanlandewijck 2011, 259). Therefore, in line with the results from this study and in accordance with the literature, it is possible that the parasport system can be seen as a 'classification-oriented system', meaning that – apart from determining competition and athlete support policy programmes (Patatas et al. 2020) – classification can be seen as a strategic and fundamental determinant for successful para-athletes' career pathways. In addition to this, if athletes are allocated to an incorrect class, there will be a considerable chance that personal and financial loss may affect their athletic pathway (Tweedy and Vanlandewijck 2011). This 'classification-oriented system' not only sheds light on the complexities within parasport systems but also demonstrates how the sport-specific classification system(s) may influence when and why athletes are identified and perceived as talented/promising competitors (who may deliver medal-winning performances). In able-bodied sport systems, the 'road to success' starts, firstly, by developing structures and programmes to identify talented athletes at an early age

(Güllich and Emrich 2006; Vaeyens et al. 2009) – with the aim of winning medals at major international competitions. However, it is possible to identify two significant differences in the 'road to success' within the parasport system. First, a successful para-athlete or a talented para-athlete does not necessarily mean he/she is young. Legg and Higgs (2016), for example, pointed out that talent identification has different connotations in parasport, given that para-athletes tend to be older (either because they may have acquired an impairment later in life or may have faced challenges in accessing a given sport). Therefore, age in parasport is a less significant determinant for sporting success. Second, instead of developing programmes and structures to identify talented athletes, in parasport the processes to identify talented athletes revolve around identifying athletes who may perform better in a particular sport class, which may bring faster results or medals. This situation can create a smart track opportunity in which a talented para-athlete can enter the elite level at any age or stage. The results of this study suggested that, instead of solely identifying athletes, the national sport organizations tend first to identify which class within a sport would represent a higher likelihood of winning medals. The para-athletes are identified accordingly; as a result, those identified may receive more support throughout their careers. Put differently, the way classification operates and directs the 'road to success' in parasport is simple: the factors of particular sport classes (for instance, few athletes competing in a class), a low technical level of athletes in a given class, or how the sports events are distributed and (not) included in the Paralympic Games programme can serve as critical parameters for talent identification. Lastly, it seems that, in order to develop athletes in Paralympic sports, one should not look only at the sports, as in the able-bodied system, but within the sports and the intricacies of the classification system(s).

It is imperative to note, however, the potential negative effects of this kind of prioritization that could potentially lead to less support for some sports or particular impairment types, such as athletes with more severe impairments. Likewise, it is important to consider that low-point athletes play a critical role in team sports like wheelchair rugby and basketball, which means that all athletes should be developed regardless of their classification. Prioritization should, therefore, be implemented with caution, to avoid raising further issues surrounding the in/exclusion of 'impaired' bodies within the Paralympic movement (Purdue and Howe 2013). In that sense, some key points emerged from the interviews about whether a limitation concerning sport opportunities exists for the athletes with more severe impairments and whether the classification system and the competition programmes limits their participation. Several authors have argued that a sound classification process would ensure that successful athletes will be those who have the most advantageous combination of physical and psychological attributes and athletes would not succeed merely because their impairment is less severe than those of opponents (Tweedy and Vanlandewijck 2011). However, according to Howe (2008), an increase in the severity of the impairment is directly linked to the marginality within the sporting practice, where the para-athletes who receive the greatest exposure are the most able ones or the least impaired. The author also argued that there is a need to adopt a more accommodating body culture when it comes to awarding an elite status in Paralympic sport. Howe (2008, 515) stated that there is a 'tendency in mainstreaming elite by comparing the quality and quantity of training an athlete has undergone to achieve their best performance' and relating this to their impairment.

This study has presented an overview of the disability-specific factors influencing the development of para-athletes' career pathways in the context of Brazil. One critical point

to consider is the generalisability of the results of this study concerning the influence of the classification on para-athlete development. The impacts of the classification highlighted in this study are mainly related to the sports that encompass a broad range of impairment types (i.e. multi-impairment events), such as athletics, swimming and cycling, among others. These influences, however, may be less apparent in sports that do not use a point system for classification, such as wheelchair tennis and powerlifting. It is also very important to note that the very particular set of presuppositions, beliefs and values among the sample of stakeholders presented in this research are embedded in their perceptions and experiences within the Brazilian Paralympic sport system, which may have unduly influenced the findings of this study. Correspondingly, it is wise also to consider the fact that the sample of stakeholders taking part in this research is experiencing a period during which several sports' classification system(s) face ongoing changes and developments worldwide.

Even though this study has encompassed a large sample of stakeholders with an extensive range of knowledge and involvement with different phases of para-athletes' pathways, the para-athletes themselves have not been involved in this research. Para-athletes' opinion and experience of transitioning through the career pathways would complement the current research and offer additional insights into the findings offered in this study. Furthermore, the athletes' opinions would provide feedback about perceived challenges and barriers to athletes' development. Similarly, another avenue for further research, that might be equally beneficial, is to integrate an athlete-centred/driven, micro-level approach to studying the development of athletic career pathways in Paralympic sport (i.e. combining whole-person, whole-career and whole-environment approaches). Such an approach would add different layers of concern (e.g. psychological/emotional, psychosocial, academic/vocational, financial and legal levels), taking a holistic approach to para-athletes' career development, as provided within the HAC model (Wylleman 2019; Wylleman and Lavallee 2004).

Recommendations and future directions

As for the gap in the literature introduced at the beginning of this study, theoretical discussions were built and presented throughout this study to emphasize the complexities involved in determining whether generic able-bodied models and approaches – in all instances – could capture the diverse range of particularities and idiosyncrasies of the parasport context. The results of this study lead to the conclusion that the existing models are not sufficiently flexible to include para-athletes – at least in their current formats. One might arrive at such an assumption, merely by the fact that, to our knowledge, most of such models have not been extended to adequately incorporate parasport and its broad context. Hence, it is clear that the existing models could not merely be adapted to the parasport context, covering all the variability and nuances of para-athlete development. As a result, the findings of this study lend weight toward the need for models other than those traditionally used for able-bodied athletes; rather, para-athlete development models need a disability-specific approach.

The findings of this study also suggest that given the heterogeneity of para-athletes' profiles, parasport pathways should be regarded with fluid and dynamic approaches that embrace the particularities of each impairment group. Nevertheless, the current research

also demonstrated that it is possible to define typical phases (or stages) of athletes' development, although it seems that an (age-related) athlete development model may not be an ideal approach. These age-related phases that determine at what age an athlete would be at or should transition to a particular phase, which is found in most of the existing able-bodied athlete development models, is the main disadvantage of adapting those models. Accordingly, it would be naïve and inappropriate to assume that just one single model would suffice as a blueprint for such a diversified system. The definitions of para-athletes' pathway phases presented in this study can be applied towards the genesis of appropriate evidence-based models for para-athlete' development. Therefore, this initial frame of reference presents and describes building blocks of para-athlete career pathways that can be rebuilt according to different impairment groups in a flexible and fluid approach. The hope is that future research can draw upon the current findings to use it as the basis for a set of ideas, conditions and working assumptions that help delineate how para-athlete development models could be approached, perceived and developed.

Conclusion

This study advances knowledge regarding para-athlete development in several ways. First, by identifying and describing particular elements within the sport pathway phases that require modification to the parasport context. Second, this study highlighted the need for more research examining developmental trajectories of para-athletes in sport, which have not only the purpose of enhancing performance but also promoting sporting participation. Third, we demonstrated that those pathways need to be well-versed by the environment and context in which they will be operationalized and managed. Finally, sports organizations and stakeholders, when designing a framework that incorporates athletes with an impairment, may draw upon the disability-specific approaches to better recruit and develop para-athletes in order to provide adequate support to encourage participation and promote excellence.

Note

1. Parasport and Paralympic sport is currently being used in the literature as synonym of sport for athletes with an impairment (Wareham et al. 2018) and throughout this paper the term parasport will be used, as it is defined by the International Paralympic Committee (IPC) as 'all sport for athletes with an impairment whether they feature on the Paralympic programme or not' (International Paralympic Committee 2017, 36).

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