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Review

Why do people with a disability engage in extreme sports? A scoping review

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Abstract: People with disabilities increasingly participate in extreme sports, yet little is known about their motivations and experiences. This scoping review aims to explore this understudied phenomenon. The purpose of this scoping review is to gather insights into why people with disabilities engage in extreme sports. We searched PubMed, Embase, PsycINFO, CINAHL and Web of Science from inception to August 2023. Database-specific key words and free-text words were combined. Articles were included if they described extreme sports, motivation or lived experiences, and participants with a physical disability. Articles were excluded if the sport was not extreme, there was no immediate danger, or if not available in English or Dutch. In total 4010 unique records were identified. Full-text analysis was conducted on, a case study, a quantitative study, and two qualitative studies, (63 athletes). Disabilities included spinal cord injury, injured limbs, chronic pain, and post-traumatic stress disorder. Athletes were engaged in skydiving, mono-skiing, kayaking and competitive motorsports. Motivations to engage in extreme sports were thrill seeking, reconstructing of lost identity, and re-inventing themselves. Extreme sports provided some athletes a new meaning of life after acquiring a disability. For each athlete individual motives played a role to engage in extreme sports. Extreme sport was a way for some athletes to participate in society again. By mapping existing evidence on why athletes with disabilities engage in extreme sports, this review provides insights that can inform adaptive sports programs and rehabilitation strategies. These findings should be interpreted with caution due to the limited number and heterogeneity of available studies and highlight the urgent need for further research in this area.

Keywords: Disability Sports; Motivation; Risk Taking; Experiences

Introduction

An extreme sport is a sport that carries a high degree of risk, whereby the smallest error may result in injury or death (Brymer & Schweitzer, 2017; Buckley, 2018; McGannon, 2020). Several explanations have been given for engaging in extreme sports: adrenalin addiction, thrill seeking, and personality disorder (Cohen et al., 2018). Denial of risk and fear, and emotional deficits in their relationship with others were believed to drive extreme athletes to put their lives at risk (McGannon, 2020). Research has shown that the mental health of athletes who engage in extreme sports can be placed on a range from promotion of psychological health to pathological (Brymer & Schweitzer, 2017). Motives of elite athletes to engage in extreme sports were related to goals, social connections, overcoming anxiety

and fear, and positive feelings such as excitement, transcendence, calmness, and pushing personal boundaries (Brymer & Schweitzer, 2013; Willig, 2008).

Extreme sports are not only practiced by elite athletes, but also by people with a disability, some of whom compete at elite levels. For example, in 1996, people with a disability competed in the Sydney to Hobart sailing race against crews without disability. The Sydney to Hobart sailing race is considered an extreme sport because of the risks of severe injury or death. Six sailors died in the race of 1998 (Jeffery, 2016; Mundle, 1999).

People with disabilities who engage in extreme sports are seldom included in research, and as a result it is unknown what motivates them. Anecdotal information suggests that motivation and experiences of the extreme sport participants with a disability may be similar to those without a disability. This raises questions about the complex interplay of personal motivations and societal factors that influence why individuals with disabilities choose to participate in extreme sports. Lived experience may be of particular importance in the motivation of people with disabilities. Lived experience refers to an event in a person's life, how the person lives through that event, responds to that event, and the choices the person makes as a result of reflections on that event and its consequences (Boylorn, 2008). We hypothesize that lived experiences of disability may influence the motivation to engage in extreme sports, particularly as a strategy to overcome societal inaccessibility and reclaim identity. Given the exploratory nature of this topic and the limited available literature, a scoping review was deemed appropriate.

The objective of this scoping review was to summarize the available literature regarding extreme sports practiced by people with disabilities, and their motivation and lived experiences. Understanding these motivations may inform rehabilitation strategies and adaptive sports programs aimed at enhancing societal reintegration and psychological well-being. The research question was: What is known about the motivations and lived experiences of people with disabilities who engage in extreme sports?

Materials and Methods

This scoping review is reported according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses for Scoping Reviews guidelines (Tricco et al., 2018). For the procedures of this scoping review no protocol was separately published, instead the applied systematic approach is elaborated in current article.

The databases PubMed, Embase (embase.com), PsycINFO (EBSCO), CINAHL (EBSCO), and Web of Science were systematically searched. Final search was from inception on October 1, 2025. The search strategies were designed in collaboration with an information specialist (SvdW) to ensure comprehensiveness and accuracy. The structure of the search was based on two concepts: (1) extreme sports and (2) physical disabilities. For each concept, database-specific subject headings, free text words, and synonyms were combined to create two broad search blocks, combined with operator AND. Examples of synonyms for extreme sports used in the search are adventure sports, lifestyle sports, sensation-seeking sports, action sports, high-risk sports, and adaptive sports. We also included the names of specific high-risk sports, such as mountaineering and paragliding. No publication date restrictions were used. In addition to the database searches, Google Scholar was searched for additional relevant studies. After conducting the search strategies, duplicates were removed using reference management software (EndNote). Reference lists of included studies were searched for studies missed in the search (see Appendix A for the full search strategies.)

Articles were included if (1) extreme sports were a main theme of the article as defined by the original authors, (2) motivation, lived experiences, participation in society, or equivalent concepts were reported and (3) equivalents for physical disability such as "impairment", "invalid", "disabled" or "handicap" were used. Studies were excluded if they

concerned (1) when sport was not extreme (i.e. authors did report the applied definition of extreme sports), (2) no immediate danger of severe injuries or death was present, or (3) if the study was not available in English or Dutch.

The records found were sorted from most recent to oldest. The first 300 articles from the initial search were selected for assessment by the two observers (EW, JG) independently. If agreement between observers was 100% the first author would assess the remaining titles and abstracts and in case of doubt the second observer was consulted. If disagreement between the observers was present regarding these 300 both observers would assess all remaining documents. If disagreement between the observers was present in this last scenario the full text was assessed in the next round. Full text was assessed by EW for eligibility. In cases of doubt, an independent observer (PD) gave a binding verdict.

A data matrix was developed for data extraction for pre-selected themes, giving an overview of included articles, authors, publication years, research methods, participant characteristics, types of impairments, and sports participation before and after the intervention (Table 1), as well as the research aims, questions, methods, and relevant findings (Table 2). The studies were read independently by three observers (EW, KvK, PD) and assessed for design (e.g. methods for collection, analysis) and results. They discussed their findings to reach consensus on which themes were elaborated upon in the included studies. If these observers disagreed on the elaboration, and if no consensus could be reached, an independent observer (JG) gave a binding verdict.

Results

Overall, 4010 unique records were identified. No disagreement occurred in the duplicate assessment of the first 300 titles and abstracts hence; EW assessed the remaining titles and abstracts. In total 3890 articles were excluded because they did not fulfil inclusion criteria. After full-text assessment four studies remained (Figure 1). The main reason for exclusion during full text analysis was that the “extreme sports” did not pose an immediate danger resulting in severe injury or death.

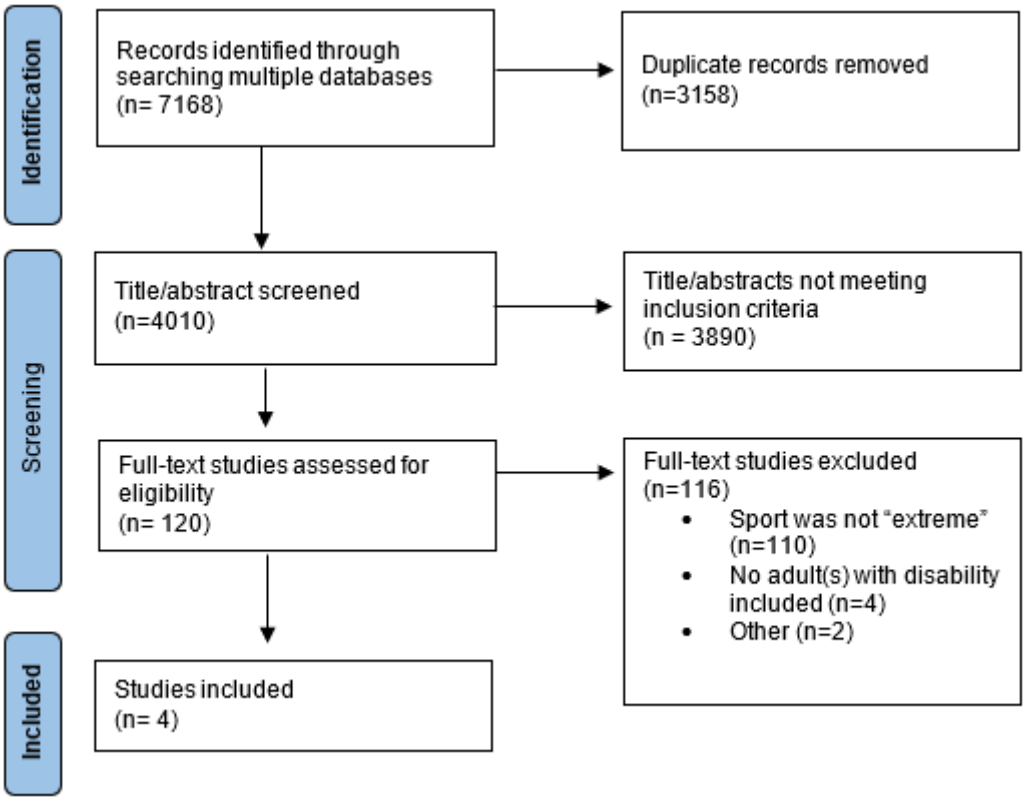

Figure 1. Flowchart of study selection adapted from PRISMA-ScR guidelines (Tricco et al., 2018)

The four studies addressed the motivations or lived experiences of the extreme sports participants with disabilities. The included studies concerned a case study, a quantitative study and two qualitative studies. The number of participants ranged from 1 to 44. In total, 63 participants were included (Table 1). The most common disabilities were spinal cord injury (SCI), injured limbs, chronic pain, post-traumatic stress disorder (PTSD), and unspecified psychological diagnoses. In the quantitative study, survey questionnaires were sent by mail. In the two qualitative studies, interviews were held for data collection.

Data extracted from the articles can be found in Table 2. Three themes emerged during data synthesis (Motivation, Lived experiences and Participation in Society), which are discussed per theme in the following sections.

Table 1. Overview of the included studies

Author(s), publication year	Research period	Type of research	Number of participants (n), age in years (a), gender (g), recruitment (r)	Type of impairment	Sports participation before (B) and after (A)
Pain & Kerr (2004)	nr	Case report	(n) 1, (a) 40, (g) male, (r) referred to sport psychologist	Brain damage, loss of control of right arm and leg	(B) Sky diving, rock climbing, skiing, jet skiing, driving fast cars, go-karting (A) rock climbing, jet skiing, sky diving
Tangen & Kudlacek (2014)	2 times 10-day period	Qualitative research to collect phenomenological data	(n) 4, (a) 55-60, (g) males, (r) selective sampling	Spinal cord injury	(B and A) Motorcycling, free climbing, extreme mountaineering, scuba diving (A) off road hand cycling, mono skiing
Koszalinski et al. (2019)	nr	Quantitative survey	(n) 44, (a) 34.2 ± 16.5*, (g) nr, (r) email	Different physical disabilities#,	(A) Skiing, biking, bike-racing, kayaking, snowboarding
Serfioti & Hunt (2021)	6 months between 2 interviews	Qualitative study with generic approach	(n) 14, (a) 35.1 ± 7.5*, (g) males, (r) opportunity sampling, first interview (*n* = 14), second interview (*n* = 10)	Severe physical injuries (*n* = 12), chronic pain (*n* = 2), additional mental condition (*n* = 8)	(A) Competitive motorsport, karting

Note. #, Other than sight impairment; * Mean ± standard deviation; nr = not reported.

Table 2. Research aims, questions, methods, and findings

Author(s)	year	Aim of the research	Research questions	Data collection	Data analysis	Triangulation	Results/ findings
Pain & Kerr	2004	Describe the failed process of setting and achieving short-term goals. In doing so the client can focus on the present, make small progressive steps, and recognise new achievements, instead of ruminating on past performance level.	nr	Interview and questionnaire	Interpretation results according to reversal theory	nr	The intervention failed, may be because the client deliberately seeks out activities, where he experiences high arousal. The client probably had a paratelic protective frame, giving the person a feeling of safety despite the present danger (danger paradox). The client was likely dependent on high levels of arousal.
Tangen & Kudlacek	2014	To gain insight into how people after a SCI reconstruct their identity and the influence of extreme sport	1. What does extreme sport mean to a person with SCI? 2. How does the identity change in a person with SCI, before and after injury, and how is the process of identity reconstruction experienced? 3. In what way did extreme sport play a role in reconstruction of identity for persons with SCI?	In-depth interviews (a) (t)	Schematically structuring recurring themes and subthemes, co-recode procedure on raw data to enhance dependability, member check	interviews with instructor and voluntary assistant, field notes and reflexive diary of researcher	Participants needed to reconstruct their lost identity after the SCI. The risk factor of extreme sports did not contribute to identity reconstruction. Social aspects, profession and mastery of physical activity (sports) helped in identity reconstruction.
Koszalinski et.al.	2019	To measure sensation seeking in persons with mobility disabilities who participate in high-risk sports	nr	CSSQ-S + ZKPQ	SPSS 2.1	nr	CSSQ-S: 30.2 ± 8.2 ZKPQ -Impulsivity: 2.0 ± 4.1 -Sensation seeking: 6.8 ± 2.7 Participants scored lower in sensation seeking compared to able-bodied participants of high-risk/challenging sports activities. Sensation-seeking does not seem to be involved in motivating factors in this sample.

Serfioti & Hunt	2021	To explore if and how participation in CM can improve injured/disabled British veterans' well-being quality life after transitioning to civilian society and if these effects have sustained.	nr	Two sets of semi-structured interviews 6 months apart (face to face or by telephone)	Thematic analysis: reading and re-reading, producing codes, searching for and developing early themes, revising and refining themes and writing up results.	Discussion between authors about derived themes	CM gave veterans (1) a familiar environment, (2) provided team spirit, (3) gave them an adrenaline rush, (4) induced competition with able-bodied persons and (5) gave a sense of equality. These five key elements of CM gave veterans an increased sense of accomplishment, an opportunity to socialise in a non-clinical environment, enabled embracement of body image and adoption of a healthier lifestyle.

Note. nr; not reported, CSSQ-S; Contextual Sensation Seeking Questionnaire for Skiing and Snowboarding, ZKPQ; Zuckerman Kuhlman Personality Questionnaire, CM; competitive motor cycling, SCI: Spinal cord injury

Motivation

In the case-study sensation seeking and risk-taking behaviour was the main motive (Pain & Kerr, 2004). Among athletes with SCI the reconstruction of lost identity (as a result of the disability) was one of the motives for participating in extreme mono-skiing but some of the participants were also thrill seekers (Tangen & Kudlacek, 2014). Among military veterans (Serfioti & Hunt, 2021) five key elements (familiar environment, team spirit, adrenaline rush, competition, and equality) motivated them to participate in competitive motor sports. In addition, they felt a thrill while preparing for races, practicing, and competing in races. In the quantitative study, the scores on the sensation seeking scales of athletes with a disability were lower than those of able-bodied athletes on the same scales (Koszalinski et al., 2019). The authors of that study concluded that sensation seeking was not the motivation to participate in extreme sports.

Lived experiences

In the study of athletes with SCI the lived experiences referred to sensations and feelings triggered by participating in extreme mono-skiing. These sensations and feelings contributed to the reconstruction of the new identity of the athletes (Tangen & Kudlacek, 2014). In the study among military veterans, competitive motorsports was a way to re-live experiences they had when serving in the military. In that way competitive motorsport was a path to reinvent themselves and it was a way re-gain a sense of belonging which was lacking in their civilian lives (Serfioti & Hunt, 2021). In the case study (Pain & Kerr, 2004) and quantitative study (Koszalinski et al., 2019) lived experiences were not investigated.

Participation in society

For the athletes with SCI (Tangen & Kudlacek, 2014) mono-skiing contributed to the reconstruction of their lost identity, although this reconstruction was a highly individual process. Identity reconstruction was perceived to be necessary. However, the mechanisms behind the identity reconstruction leading to participating in society again were not clear in that study. Military veterans (Serfioti & Hunt, 2021) viewed competitive motorsport as a way to better understand their strengths, to improve their weaknesses and to start re-shaping an identity as part of civilian society. Extreme sports increased the sense of belonging, helped to re-invent themselves and positively affected the identity reconstruction. In the quantitative study (Koszalinski et al., 2019) and case study (Pain & Kerr, 2004) it was not clear if and how extreme sport contributed to social participation.

Discussion

Four studies were identified addressing athletes with disabilities engaging in extreme sports. Similar to able-bodied athletes engaging in extreme sports, different motives were found among athletes with disabilities. The main motives in the case study were sensation seeking by a person with brain damage (Pain & Kerr, 2004), reconstruction of lost identity in the athletes with SCI (Tangen & Kudlacek, 2014) and a familiar environment, team spirit, adrenaline rush, competition, and equality in the military veterans (Serfioti & Hunt, 2021). Regarding sensation seeking, mixed results were found in the included studies. In the quantitative study (Koszalinski et al., 2019) the scores of sensation-seeking were lower than those of able-bodied athletes whereas the participant in the case study (Pain & Kerr, 2004) and some of the athletes with a SCI (Tangen & Kudlacek, 2014) were in fact thrill seekers. The military veteran's thrill of risk-taking was part of all aspects of racing, preparation, practicing and competing during the race (Serfioti & Hunt, 2021).

Three of the four included studies give the impression being focused on a therapeutic perspective of the motives: "reconciling the difference between life as it used to be and as it

would be in the future" (Pain & Kerr, 2004), "practicing extreme sport as a contribution to reconstruct identity" (Tangen & Kudlacek, 2014), "re-invent one's life, acceptance, and reentry in the community" (Serfioti & Hunt, 2021). This therapeutic perspective is understandable, but it excludes other perspectives on motives, like exploring possibilities, gaining independence and recognition (Silver, 2018), but also, fulfilment of basic psychological needs for intrinsic motivation contributing to autonomy, competence, and relatedness (McLoughlin et al., 2017).

Prior to the study, we hypothesized that lived experiences of acquiring a disability might play a role in engaging in extreme sports. For athletes with SCI lived experiences referred to sensations and feelings triggered by practicing extreme sport (Tangen & Kudlacek, 2014). Competitive motorsports enabled the military veterans to re-live experiences they had when serving in the military (Serfioti & Hunt, 2021). In the quantitative study, lived experiences were not found. Hence "lived experiences" were addressed in the studies but the operationalization was different between studies, and it was not in agreement with the definition of Given (Boylorn, 2008). In that definition the emphasis is on people's experiences, how people live through and respond to those experiences. Those aspects of lived experience, the reflection of one's experiences and decisions, as well as the knowledge gained from these reflections is lacking in the included studies. Disability itself as a lived experience and a motive to participate in extreme sport was not explored in the studies thus our hypothesis could not be confirmed nor rejected.

Reintegration into society is one of the goals of rehabilitation. Different activities are used to pursue this goal. The qualitative studies (Serfioti & Hunt, 2021; Tangen & Kudlacek, 2014) showed that extreme sport was a strategy to participate in society again. For athletes with SCI (Tangen & Kudlacek, 2014), mono-skiing contributed to the reconstruction of their new identity, including being able to work, maintaining a relationship, being physically attractive and being functional. Mono-skiing as extreme sport for experiencing risk, thrill, and adventure was considered less important by the athletes. Engaging in competitive motorsports helped military veterans to participate in society (Serfioti & Hunt, 2021). In addition, it increased physical and mental health and gave them a feeling of belonging. In the quantitative study motives, participation to society and lived experiences were not discussed (Koszalinski et al., 2019). In that study it was reported that high-risk sports and risk-taking adventures are common among individuals who are participating in rehabilitation but the motives to participate in extreme sport were not described. The included studies illustrate that practicing challenging sports is one of these activities that could help the rehabilitation participants in their reintegration. However, note that when to introduce rehabilitation participants to (extreme) sports depends on timing, self-esteem, and identity of the person involved (Martin, 2018).

Although the included studies span 17 years, the small number and heterogeneity of studies limit conclusions about changes in the image of extreme athletes with disabilities over time. In the earliest study published the image of the extreme athlete with a disability was that of a relentless risk-taker. In the more recent studies, it became clear that extreme sports allowed the athletes with disabilities to reinvent themselves, to participate in society, provided them with a deeper understanding of emotional, cognitive, and physical abilities, and increased resourcefulness (Serfioti & Hunt, 2021). Historically, extreme sport has been associated with personality traits, high-risk, sensation seeking, arousal, adrenaline rush, a risk of severe injury or possible death (Brymer et al., 2020). In the qualitative study among athletes with a SCI (Tangen & Kudlacek, 2014) the definition of extreme sports of Willig (2008) was applied; "Extreme sport is a recreational physical activity, which carries a risk of serious physical injury or even death". Also, in the quantitative study (Koszalinski et al., 2019) the definition of Willig (2008) is referred to. In the study among military veterans

(Serfioti & Hunt, 2021) the authors refer to the definition of Brymer (2010) "extreme sport covers a wide range of high-risk activities related to adrenaline rush and emotional arousal in which safety gear and particular equipment is required". The authors (Serfioti & Hunt, 2021) also referred to a phenomenological study (Brymer & Schweitzer, 2017) which provided new perspectives on extreme sport and its participants, indicating that extreme sports gave participants a deeper understanding of their emotional, cognitive, and physical abilities and increased their resourcefulness.

Remarkably, the above definitions of extreme sports are based on research on able-bodied athletes. It is not clear whether these definitions are also applicable to athletes with disabilities. Extreme sports practiced by athletes with disabilities could be considered "extreme" because of the extraordinary performance. For example, mono- skiing discussed by Tangen & Kudlacek (2014) could equally be a leisure sport or a high-risk sport, depending on the skiing slopes and the physical condition of the athletes. Also, in competitive motorsport the risks depend on the level of performance, and in the study by Serfioti & Hunt (2021) it is not clear what the level of competitive motorsport was. When looking in more detail at the extreme sports conducted by the participants in the study of Koszalinski et al. (2019) it is unclear whether these activities themselves were extreme or had the risk of severe injury or even death in them. In the case-study (Pain & Kerr, 2004) it is not obvious whether the injuries were the result of extreme sport or lack of skills and mismanaged mistakes. Moreover, none of the included studies provided direct evidence that athletes with disabilities face a higher risk of injury or death compared to able-bodied athletes when engaging in extreme sports. The fact that these sports were performed by a person with a disability, with higher risks than an able-bodied athlete, may have contributed to classifying the sports of the included study as extreme. Thus, using the same definition of extreme sport for both abled-bodied athletes and athletes with disabilities, can be questioned. While Cohen et al. (2018) define extreme sports as high-risk activities that evoke a sense of danger and extremism, we interpret this definition in the context of disability sports to include the unique risks and experiences faced by athletes with disabilities. High-risk sports for athletes with disabilities may result in additional disabling injuries or death, and high risks are a hallmark of those sports in persons with disabilities.

Limitations and future research

This review is limited by the number, quality, and heterogeneity in design of the included studies. Not all titles and abstracts were assessed by two observers independently, but the observers had full agreement on the first 300 records, so we deemed unnecessary for two observers to assess all records identified. By selecting only studies written in English or Dutch, we potentially introduced reporting bias. The four studies had small sample sizes and the types of disabilities the athletes had were limited, reducing generalization to other athletes with other disabilities. In the qualitative study concerning athletes with SCI (Tangen & Kudlacek, 2014) the interviews were conducted by researcher who also had SCI which could potentially bias outcomes because of her lived experiences. Except for the quantitative study, comparisons between athletes with and without disabilities were not made.

An explanation of why athletes with disabilities practice extreme sports and putting their lives in danger after barely surviving an accident or illness remains to be unravelled. To better understand athletes' motives and experiences, additional research is needed. First, it should be clarified why a sport is extreme or high-risk. Future research should systematically examine whether the definition of 'extreme sport' differs for athletes with disabilities compared to able-bodied athletes. This topic could be addressed through qualitative, quantitative, or mixed-method approaches, to avoid assumptions and better reflect the unique risks and experiences of athletes with disabilities. In line with this, future

research should consider integrating stakeholder perspectives to complement literature findings. This could provide richer insights into motivations, barriers, and lived experiences of athletes with disabilities engaging in extreme sports. Second, athletes with other congenital or acquired disabilities should be interviewed to explore lived experiences and other motives to participate in extreme sports, for instance, pushing mental and physical boundaries. Third, future research should investigate whether a deeper understanding of emotional, cognitive and physical abilities also occurs in athletes with disabilities when participating in high risk sports. And fourth, difference or similarities between athletes with and without disabilities participating in extreme sports should be investigated.

Conclusions

The current review indicates that motives to participate in extreme sports by athletes with disabilities include sensation seeking, reconstruction of lost identity, team spirit, competition and equality. For athletes with SCI, lived experiences are those sensations and feelings triggered by mono-skiing. Military veterans re-live experiences they had when serving in the military, during competitive motorsport. For some athletes, extreme sports were a way to participate in society again and for others extreme sports only marginally contributed to it. These findings should be interpreted with caution, as only a limited number of heterogeneous studies could be included. More research is needed to confirm these indications and to explore motivations and lived experiences in greater depth. Understanding these aspects could help tailor rehabilitation programs and sports policies to enhance societal reintegration, well-being, and inclusivity.

Perspectives

The current review highlights the different motivations and lived experiences of athletes with disabilities participating in extreme sports. These findings contribute to the growing body of literature exploring adaptive physical activity, emphasizing that motivations like sensation seeking, identity reconstruction, and team spirit are relevant for athletes with disabilities. Notably, this review aligns with previous research suggesting that participation in extreme sports can support identity reconstruction and societal reintegration, particularly for athletes with spinal cord injuries and military veterans. However, these insights should be interpreted with caution, as they are based on a very limited number of heterogeneous studies. The therapeutic framing of extreme sports participation may overlook additional motivations such as independence, competence, and autonomy, which are critical aspects of adaptive sports participation. This review also underscores the need for clearer definitions of "extreme" sports for athletes with disabilities, given the unique risks and experiences they face. Future research is urgently needed to confirm these indications and explore these nuances more deeply, as understanding athletes lived experiences and motivations could have significant implications for rehabilitation programs and adaptive sports interventions. Such insights could enhance the inclusivity and effectiveness of sports-based rehabilitation practices.

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Availability of data and materials: The data that supports the findings of this study are available in the Tables of this article.

Conflicts of Interest: The authors declare no conflict of interest.

Appendix A

Database	Search String	Found
Pubmed	(("Sports"[Mesh] AND ("Risk-Taking"[Mesh:NoExp] OR "Motivation"[Mesh:NoExp] OR "Sensation"[Mesh:NoExp] OR "Attitude"[Mesh:NoExp] OR "Personality"[Mesh:NoExp] OR "Adaptation, Psychological"[Mesh:NoExp])) OR "Mountaineering"[Mesh] OR "Marathon Running"[Mesh] OR "Skating"[Mesh] OR "Snow Sports"[Mesh] OR "Diving"[Mesh] OR ((dangerous[tiab] OR extreme*[tiab] OR extremous[tiab] OR ((sensation*[tiab] OR thrill*[tiab]) AND seek*[tiab]) OR "high-risk*"[tiab] OR challenging[tiab] OR "risk-tak*"[tiab] OR "risk-compensat*"[tiab] OR "risky-behav*"[tiab] OR "high-sensat*"[tiab] OR "risk-attitud*"[tiab]) AND (sport*[tiab] OR adventur*[tiab])) OR ((participat*[ti] OR rehabilitat*[ti] OR (risk*[ti] AND benefit*[ti]) OR (barrier*[ti] AND facilitat*[ti]) OR motivat*[ti]) AND (sport*[ti] OR adventur*[ti])) OR "challenging-activit*"[tiab] OR "action sport*"[tiab] OR "adventure sport*"[tiab] OR "lifestyle sport*"[tiab] OR "alternative sport*"[tiab] OR "adaptive sport*"[tiab] OR skate*[tiab] OR skating[tiab] OR mountaineer*[tiab] OR kayak*[tiab] OR (climb*[tiab] AND (mountain*[tiab] OR rock*[tiab])) OR "snow-sport*"[tiab] OR snowsport*[tiab] OR sailing[tiab] OR "winter-sport*"[tiab] OR ski[tiab] OR skiing[tiab] OR "motor-cross*"[tiab] OR racing[tiab] OR "race-sport*"[tiab] OR "motor-sport*"[tiab] OR motocross*[tiab] OR skier*[tiab] OR snowboard*[tiab] OR marathon*[tiab] OR triathlon*[tiab] OR parachut*[tiab] OR "hang glid*"[tiab] OR paraglid*[tiab] OR "horse riding"[tiab] OR "horseback riding"[tiab] OR rodeo[ti] OR trampolin*[ti] OR surf*[ti] OR windsurf*[ti] OR sail*[ti] OR handbik*[ti] OR "rocky mountain*"[ti] OR skydiv*[ti] OR diving[ti] OR freediv*[ti] OR freestyl*[ti] OR "north pole"[ti] OR "south pole"[ti] OR (pole*[ti] AND expedition*[ti]) OR antarctic*[ti] OR rowing[ti]) AND (("Disabled Persons"[Mesh] OR "Sports for Persons with Disabilities"[Mesh] OR "Spinal Cord Injuries"[Mesh] OR "Paralysis"[Mesh:NoExp] OR "Hemiplegia"[Mesh] OR "Paraplegia"[Mesh] OR "Quadriplegia"[Mesh] OR "physical-disab*"[tiab] OR disab*[ti] OR "physically-injur*"[ti] OR (disab*[tiab] AND veteran*[tiab]) OR ((serious*[ti] OR severe*[ti] OR major*[ti]) AND injur*[ti]) OR amput*[ti] OR "limb-deficien*"[ti] OR wheelchair*[ti] OR parapleg*[ti] OR "para-sport*"[ti] OR "para-athlet*"[ti] OR paraathlet*[ti] OR paratriathlet*[ti] OR handicap*[ti] OR "cord-injur*"[ti] OR paraly*[ti] OR "cerebral-pares*"[ti]) NOT ("intellectual-disab*"[ti] OR "mental-disab*"[ti] OR "developmental-disab*"[ti]))	1760 171
Embase	('extreme sport'/exp OR ('sport'/exp AND ('risk behavior'/de OR 'high risk behavior'/exp OR 'risk seeking'/exp OR 'risk attitude'/de OR 'motivation'/mj OR 'sensation'/mj OR 'attitude'/mj OR 'personality'/mj OR 'coping behavior'/de)) OR 'aeronautical sport'/exp OR 'horseback riding'/exp OR 'motor sport'/exp OR 'mountaineering'/exp OR 'rock climbing'/exp OR 'roller skating'/exp OR 'marathon running'/exp OR 'skateboarding'/exp OR 'triathlon'/exp OR 'winter sport'/exp OR 'diving'/exp OR 'surfing (water sport)'/exp OR 'water skiing'/exp OR ((dangerous OR extreme* OR extremous OR ((sensation* OR thrill*)	1927 301

Database	Search String	Found
	AND seek*) OR 'high-risk*' OR challenging OR 'risk-tak*' OR 'risk-compensat*' OR 'risky-behav*' OR 'high-sensat*' OR 'risk-attitud*') AND (sport* OR adventur*)):ab,ti,kw OR ((participat* OR rehabilitat* OR (risk* AND benefit*) OR (barrier* AND facilitat*) OR motivat*) AND (sport* OR adventur*)):ti OR ('challenging-activit*' OR 'action sport*' OR 'adventure sport*' OR 'lifestyle sport*' OR 'alternative sport*' OR 'adaptive sport*' OR skate* OR skating OR mountaineer* OR kayak* OR (climb* AND (mountain* OR rock*)) OR 'snow-sport*' OR snowsport* OR sailing OR 'winter-sport*' OR ski OR skiing OR 'motor-cross*' OR racing OR 'race-sport*' OR 'motor-sport*' OR motocross* OR skier* OR snowboard* OR marathon* OR triathlon* OR parachut* OR 'hang glid*' OR paraglid* OR 'aeronautical sport*' OR 'horse riding' OR 'horseback riding'):ab,ti,kw OR (rodeo OR trampolin* OR surf* OR windsurf* OR sail* OR handbik* OR 'rocky mountain*' OR skydiv* OR diving OR freediv* OR freestyl* OR 'north pole' OR 'south pole' OR (pole* AND expedition*) OR antarctic* OR rowing):ti) AND ('disabled person'/de OR 'disabled athlete'/exp OR 'disabled student'/exp OR 'physically disabled person'/de OR 'amputee'/exp/mj OR 'physical disability'/exp OR 'spinal cord injury'/exp/mj OR 'paralysis'/exp/mj OR 'physical-disab*':ab,ti,kw OR ((disab* OR 'physically-injur*' OR (disab* AND veteran*) OR ((serious* OR severe* OR major*) NEXT/2 injur*) OR amput* OR 'limb-deficien*' OR wheelchair* OR parapleg* OR 'para-sport*' OR 'para-athlet*' OR paraathlet* OR paratriathlet* OR handicap* OR 'cord-injur*' OR paraly* OR 'cerebral-pares*') NOT ('intellectual-disab*' OR 'mental-disab*' OR 'developmental-disab*')):ti) NOT 'conference abstract'/it	
PsycINFO	(DE "Extreme Sports" OR ((DE "Sports" OR DE "Adaptive Sports" OR DE "Athletes") AND (DE "Risk Taking" OR DE "Health Risk Behavior" OR DE "Sensation Seeking"OR MM "Motivation" OR MM "Attitudes" OR MM "Personality" OR MM "Coping Behavior")) OR AB (((dangerous OR extreme* OR extremous OR ((sensation* OR thrill*) AND seek*) OR "high-risk*" OR challenging OR "risk-tak*" OR "risk-compensat*" OR "risky-behav*" OR "high-sensat*" OR "risk-attitud*") AND (sport* OR adventur*)) OR "challenging-activit*" OR "action sport*" OR "adventure sport*" OR "lifestyle sport*" OR "alternative sport*" OR "adaptive sport*" OR skate* OR skating OR mountaineer* OR kayak* OR (climb* AND (mountain* OR rock*)) OR "snow-sport*" OR snowsport* OR sailing OR "winter-sport*" OR ski OR skiing OR "motor-cross*" OR racing OR "race-sport*" OR "motor-sport*" OR motocross* OR skier* OR snowboard* OR marathon* OR triathlon* OR parachut* OR "hang glid*" OR paraglid* OR "aeronautical sport*" OR "horse riding" OR "horseback riding") OR TI (((dangerous OR extreme* OR extremous OR ((sensation* OR thrill*) AND seek*) OR "high-risk*" OR challenging OR "risk-tak*" OR "risk-compensat*" OR "risky-behav*" OR "high-sensat*" OR "risk-attitud*") AND (sport* OR adventur*)) OR ((participat* OR rehabilitat* OR (risk* AND benefit*) OR (barrier* AND facilitat*) OR motivat*) AND (sport* OR adventur*)) OR "challenging-activit*" OR "action sport*" OR "adventure sport*" OR "lifestyle sport*" OR "alternative sport*" OR "adaptive sport*" OR skate* OR skating OR mountaineer* OR kayak* OR (climb* AND (mountain* OR rock*)) OR "snow-sport*" OR snowsport* OR sailing OR "winter-sport*" OR ski OR skiing OR "motor-cross*" OR racing OR "race-sport*" OR "motor-sport*" OR motocross* OR skier* OR snowboard* OR marathon* OR triathlon*	332 32

Database	Search String	Found
	OR parachut* OR “hang glid*” OR paraglid* OR “aeronautical sport*” OR “horse riding” OR “horseback riding” OR rodeo OR trampolin* OR surf* OR windsurf* OR sail* OR handbik* OR “rocky mountain*” OR skydiv* OR diving OR freediv* OR freestyl* OR “north pole” OR “south pole” OR (pole* AND expedition*) OR antarctic* OR rowing)) AND ((DE "Disabilities" OR DE "Disability Management" OR DE "Disabled (Attitudes Toward)" OR DE "Physical Disabilities (Attitudes Toward)" OR DE "Paralysis" OR DE "Cerebral Palsy" OR DE "Hemiparesis" OR DE "Hemiplegia" OR DE "Paraplegia" OR DE "Quadriplegia" OR DE "Spinal Cord Injuries" OR DE "Amputation" OR AB (“physical-disab*”) OR TI (disab* OR “physically-injur*” OR (disab* AND veteran*) OR ((serious* OR severe* OR major*) N2 injur*) OR amput* OR “limb-deficien*” OR wheelchair* OR parapleg* OR “para-sport*” OR “para-athlet*” OR paraathlet* OR paratriathlet* OR handicap* OR “cord-injur*” OR paraly* OR “cerebral-pares*”)) NOT TI (“intellectual-disab*” OR “mental-disab*” OR “developmental-disab*”))	
CINAHL	(MH "Extreme Sports" OR ((MH "Sports" OR MH "Aeronautical Sports" OR MH "Motor Sports" OR MH "Mountaineering" OR MH "Skating+" OR MH "Skiing+" OR MH "Triathlon" OR MH "Winter Sports+") AND (MH "Risk Taking Behavior" OR MM "Attitude" OR MM "Coping" OR MM "Personality" OR MM "Motivation+")) OR AB (((dangerous OR extreme* OR extremous OR ((sensation* OR thrill*) AND seek*) OR “high-risk*” OR challenging OR “risk-tak*” OR “risk-compensat*” OR “risky-behav*” OR “high-sensat*” OR “risk-attitud*”) AND (sport* OR adventur*)) OR “challenging-activit*” OR “action sport*” OR “adventure sport*” OR “lifestyle sport*” OR “alternative sport*” OR “adaptive sport*” OR skate* OR skating OR mountaineer* OR kayak* OR (climb* AND (mountain* OR rock*)) OR “snow-sport*” OR snowsport* OR sailing OR “winter-sport*” OR ski OR skiing OR “motor-cross*” OR racing OR “race-sport*” OR “motor-sport*” OR motocross* OR skier* OR snowboard* OR marathon* OR triathlon* OR parachut* OR “hang glid*” OR paraglid* OR “aeronautical sport*” OR “horse riding” OR “horseback riding”) OR TI (((dangerous OR extreme* OR extremous OR ((sensation* OR thrill*) AND seek*) OR “high-risk*” OR challenging OR “risk-tak*” OR “risk-compensat*” OR “risky-behav*” OR “high-sensat*” OR “risk-attitud*”) AND (sport* OR adventur*)) OR ((participat* OR rehabilitat* OR (risk* AND benefit*) OR (barrier* AND facilitat*) OR motivat*) AND (sport* OR adventur*)) OR “challenging-activit*” OR “action sport*” OR “adventure sport*” OR “lifestyle sport*” OR “alternative sport*” OR “adaptive sport*” OR skate* OR skating OR mountaineer* OR kayak* OR (climb* AND (mountain* OR rock*)) OR “snow-sport*” OR snowsport* OR sailing OR “winter-sport*” OR ski OR skiing OR “motor-cross*” OR racing OR “race-sport*” OR “motor-sport*” OR motocross* OR skier* OR snowboard* OR marathon* OR triathlon* OR parachut* OR “hang glid*” OR paraglid* OR “aeronautical sport*” OR “horse riding” OR “horseback riding” OR rodeo OR trampolin* OR surf* OR windsurf* OR sail* OR handbik* OR “rocky mountain*” OR skydiv* OR diving OR freediv* OR freestyl* OR “north pole” OR “south pole” OR (pole* AND expedition*) OR antarctic* OR rowing)) AND (((MH "Persons with Disabilities" OR MH "Amputees" OR MH "Athletes with Disabilities" OR MH "Students with Disabilities" OR MH "Attitude to Disability" OR MH "Paralysis+" OR MH "Paraplegia+" OR MH "Quadriplegia+" OR MH "Hemiplegia" OR MH	1085 102

Database	Search String	Found
	"Spinal Cord Injuries" OR AB (“physical-disab*”) OR TI (disab* OR “physically-injur*” OR (disab* AND veteran*) OR ((serious* OR severe* OR major*) N2 injur*) OR amput* OR “limb-deficien*” OR wheelchair* OR parapleg* OR “para-sport*” OR “para-athlet*” OR paraathlet* OR paratriathlet* OR handicap* OR “cord-injur*” OR paraly* OR “cerebral-pares*”)) NOT TI (“intellectual-disab*” OR “mental-disab*” OR “developmental-disab*”))	
Web of Science	(TS=((“dangerous” OR “extreme*” OR “extremous” OR ((“sensation*” OR “thrill*”) AND “seek*”) OR “high-risk*” OR “challenging” OR “risk-tak*” OR “risk-compensat*” OR “risky-behav*” OR “high-sensat*” OR “risk-attitud*”) AND (“sport*” OR “adventur*”)) OR TI=((“participat*” OR “rehabilitat*” OR (“risk*” AND “benefit*”) OR (“barrier*” AND “facilitat*”) OR “motivat*”) AND (“sport*” OR “adventur*”)) OR TS=(“challenging-activit*” OR “action sport*” OR “adventure sport*” OR “lifestyle sport*” OR “alternative sport*” OR “adaptive sport*” OR “skate*” OR “skating” OR “mountaineer*” OR “kayak*” OR (“climb*” AND (“mountain*” OR “rock*”)) OR “snow-sport*” OR “snowsport*” OR “sailing” OR “winter-sport*” OR “ski” OR “skiing” OR “motor-cross*” OR “racing” OR “race-sport*” OR “motor-sport*” OR “motocross*” OR “skier*” OR “snowboard*” OR “marathon*” OR “triathlon*” OR “parachut*” OR “hang glid*” OR “paraglid*” OR “aeronautical sport*” OR “horse riding” OR “horseback riding”) OR TI=(“rodeo” OR “trampolin*” OR “surf*” OR “windsurf*” OR “sail*” OR “handbik*” OR “rocky mountain*” OR “skydiv*” OR “diving” OR “freediv*” OR “freestyl*” OR “north pole” OR “south pole” OR (“pole*” AND “expedition*”) OR “antarctic*” OR “rowing”)) AND (TS=(“physical-disab*” OR “physically disabled”) OR TI=((“disab*” OR “physically-injur*” OR (“disab*” AND “veteran*”) OR ((“serious*” OR “severe*” OR “major*”) AND “injur*”) OR “amput*” OR “limb-deficien*” OR “wheelchair*” OR “parapleg*” OR “para-sport*” OR “para-athlet*” OR “paraathlet*” OR “paratriathlet*” OR “handicap*” OR “cord-injur*” OR “paraly*” OR “cerebral-pares*”) NOT (“intellectual-disab*” OR “mental-disab*” OR “developmental-disab*”)))	1225 183
	Total:	6329 789
	Total after de-duplication:	3553 457

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