


Military rehabilitation programs and Paralympic Movement

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ABSTRACT

The objective of this systematic review was to identify the rehabilitation programs used by armed conflict veterans and their approach to the Paralympic movement. The PRISMA protocol was followed by searching the following databases: ISI Web of Science™, Scopus, SPORTDiscus and Periodical Capes. Of the 666 initial results found, 8 were selected from 2004 to 2018. Only 7% of the studies identified programs that had women. The average age of veterans attended ranged from 18 to 59 years. The main activities carried out by the rehabilitation programs involved sports and recreation programs, competitive sport programs and programs with outdoor activities. Other initiatives were also identified, reinforcing the need to combat the social isolation imposed by the acquired injury, to promote well-being and the development of an active and healthy life, whether in the social field or even in the sports field (athletic identity). In the case of veterans of armed conflict, the feeling that service to the country is not over is present, instead of defending the country in war, now represent the nation on the tracks, courts and fields of international sport, a different battlefield.

Keywords: Armed conflict; Community reintegration; Veterans; Athletic identity; Social support.

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INTRODUCTION

The great wars and armed conflicts were responsible for the creation of rehabilitation centres in different countries such as the United States, Great Britain, Germany and Italy (Brittain, 2012). These centres still have little research on their effectiveness, but sports and recreation programs are endorsed by the scientific community (Lundberg et al., 2011). The process of reintegration into the community of these armed conflict veterans goes through indirect (political; social programs - adapted sports and recreational activities; rehabilitation and therapy programs; school, work and volunteering) and direct (social support and personal factors - self-efficacy, motivation) (Hawkins et al., 2015).

Sport and war have always come close to having a structured speech for centuries to come: "the true mission of sport is to prepare young people for war" (Dwight Eisenhower - American President 1953/1961) or as "expression and vehicle of military expansion" speech by the British empire. The relationship between the military and sport has become increasingly visible and complex as a result of what has been called the war on terror (Batts & Andrews, 2011). On the other hand, sport has also been used with the spread of peace in military perspectives, sharing values such as: social promotion and opportunity; equity and social balance; acceptance and social attention; eligibility, integration and social inclusion (Mataruna-Dos-Santos, 2018). Studies address the role of sport as a means of education, conflict prevention or even in solving world problems such as social exclusion and human rights violations (Nobrega & Mataruna-Dos-Santos, 2019).

The culture of militarization, which is more prevalent in the United States, has profoundly impacted programs that are important for social development, causing some misunderstanding on the part of society. Eisenhower's dictum now reverses as armed conflict prepares young people for Paralympic movement. The process of militarization infiltrates aspects of everyday American life and is often used as propaganda to cover up the long-term consequences of war. The speech makes "the body of the soldier / athlete participates twice in the service of the nation, once in the theatre of war and once in the stage of international sport" (Batts & Andrews, 2011).

Armed conflict brings injured and injured to the nations involved. More than physical trauma, it is psychological problems such as Post Traumatic Stress Disorder (PTSD) that brings short, medium- and long-term problems. This psychological response caused by an intense traumatic experience that has occurred outside of ordinary activities is causing about 15% to 20% of war veterans to chronically experience this disorder. Exercise therapy has been recognized for its benefits to physical and mental health. (Caddick & Smith, 2014; Otter & Currie, 2004). There are an estimated 21.8 million veterans in the United States, according to the 2015 Census Bureau. Therapy through sport can be implemented in what Mataruna-Dos-Santos (2018, p.5) calls military sports interventions: (1) in peacetime; (2) in time of war or conflict; or at (3) times of reconstruction or reconciliation.

In this sense, sport becomes a perfect ally in combating the aftereffects of armed conflict. The Paralympic movement has paralleled disability rights movements, and both have contributed much to creating opportunities for people with disabilities and changing perceptions of society (Cooper & Nowak, 2011). In the case of veterans of armed conflict the feeling that service to the country is not over is present in the speech of most athletes that instead of defending the country in war now they represent the nation on the tracks, courts and fields of international sport, a different battlefield, but with analogous elements of honour, patriotism and sacrifice.

The link between rehabilitation programs, high-performance sports competitions and injured veterans in armed conflict is rarely discussed. For example, the number of veterans surviving armed conflict today is greater than in previous times. This is due to the advancement of medicine, the improvement of trunk, head and waist protection equipment in conflict areas and the improvement of medical knowledge on the battlefield. With the consolidation of the Paralympic Games, war veterans become part of an eligible group and most effectively interested in being involved in the Paralympic movement (Brittain, 2016). Thus, the objective of the study is to identify the rehabilitation programs used by armed conflict veterans and their approach to the Paralympic movement.

METHODS

This systematic review was performed following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) protocol (Moher et al., 2009).

After an exploratory reading, the following search terms were defined, in combination with the keyword "military rehabilitation program": "disability sport", "adapted sport", "Paralympic programs", "armed conflict", "military forces", "combatant", "veteran", and "soldiers". Within each group, the Boolean operator OR was used, and the groups of keywords were combined using AND.

The inclusion criteria were: (1) original articles from scientific journals (no impact factor considered); (2) written in English, Spanish or Portuguese; (3) full texts available.

Articles were excluded if: (1) they did not mention the military rehabilitation program or any relations with the context (Paralympic movement and military forces); (2) they were not, total or partially, about military rehabilitation program; (3) they did not include, total or partially, ex-combatants and (4) they were not literature review.

A search of the literature was carried out in four different databases: ISI Web of Science™, Scopus, SPORTDiscus and Periódicos Capes¹ (133 databases in Science of Health with emphasis in Physical Education).

The search offered a total of 666 studies, which were imported to the reference manager software EndNote X8 (Thomson Reuters, Philadelphia, PA, USA). After removing 619 studies did not match the inclusion criteria, 47 eligible studies were selected for revising titles and abstracts. After discarding four duplicates, 35 studies without a relevant methodology for the review were selected eight for full text review (Figure 1).

¹ The Higher Education Personnel Improvement Coordination (CAPES) Journal Portal, created on November 11, 2000 by the Ministry of Education with the aim of strengthening postgraduate education in Brazil, has been consolidated as a fundamental tool for teaching and research in Brazil. It has a collection of over 45,000 full-text titles, 130 reference bases, 12 patent-only databases, as well as books, encyclopaedias and reference works, technical standards, statistics and audio-visual content. For more information visit: www.periodicos.capes.gov.br

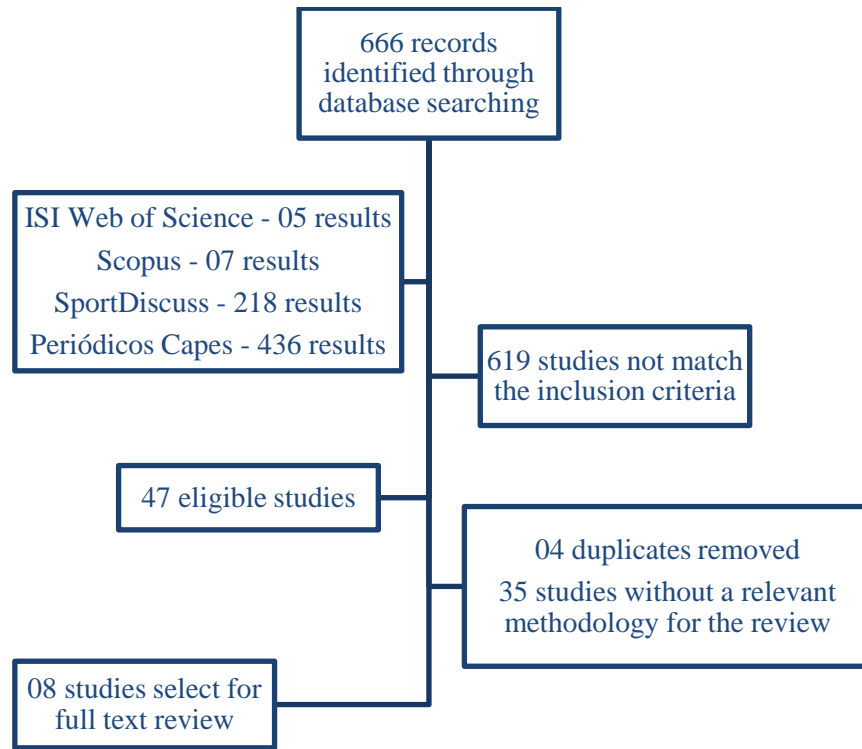


Figure 1. Flow chart of the management and selection of studies.

RESULTS

A total of eight articles were finally selected for further analysis. Their details are described in Table 1. The first paper was published in 2004 and the last one in 2018. The majority of them used a qualitative approach involving American veterans.

Only 7% of the studies identified programs that had women, which reinforces the need to increase female participation in rehabilitation programs. The average age of the veterans attended ranged from 18 to 59 years. This amplitude regarding age is positive as it highlights the concern with all age groups, regardless of the time of injury.

Vietnam, Iraq, Afghanistan and the Global War on Terrorism were the operations that mobilized the largest number of soldiers in the armed forces. In order to organize the results, the articles were classified according to year of publication, the objective of study, the sample, program and results, presented in Table 1.

Table 1. Articles selected for the systematic review.

Article	Objective	Sample	Program	Results
<i>Otter and Currie (2004)</i>	Investigated Veterans' perceptions of participation in a rehabilitative program	Vietnam in a 14 Australian Veterans exercise	Community Rehabilitation Programme Exercise	The group's perceived lifestyle prior to participating in the program; lifestyle and psychological changes; increased social support.

<i>Spomer et al. (2009)</i>	Determine the characteristics of individuals who participate in the National Veterans Wheelchair Games (NVWG) and the Winter Sports Clinic (WSC)	132 American Veterans	National Games (NVWG) and Sports Clinic (WSC) for veterans with disabilities	Participants felt that the NVWG/WSC increased their knowledge of sports equipment; learning sports; mobility skills; acceptance of disability; improved their life and increased physical and cognitive limitations when compared to the non-attendees.
<i>Lundberg et al. (2011)</i>	Examine changes in quality of life, mood states, and sports related competence for veterans	18 American Veterans	Therapeutic adaptive sports and recreation program	The impact that therapeutic adaptive sports and recreation programs potentially have for combat veterans in areas of quality of life, reduction of mood disturbances, and sports related competence.
<i>Bennett et al. (2014)</i>	Examine the perceptions of veteran with combat related disabilities following participation in therapeutic program	28 American Veterans	Therapeutic program fly-fishing	Relate to the concept of the four functions of recreation for people who have experienced a negative life event: (a) distraction; (b) gain optimism about the future; (c) facilitate the reconstruction of a life story; and (d) help with personal transformation or posttraumatic growth.
<i>Hawkins et al. (2015)</i>	Understand the subjective experiences of injured service member and their perception of how contextual factors influenced their community reintegration	09 American Veterans	Rehabilitation program	The importance of social support and personal factors as the primary means for being reintegrated into their homes and communities. Other themes indicated factors that had an indirect, including adapted sports, recreation, and other social programs; rehabilitation programs and therapists; school, work, and volunteering; and organizations and policies in developing social supports and personal factors.
<i>Rogers et al. (2016)</i>	Understand perceived outcomes of participating in an outdoor gaming activities.	10 American Veterans	Outdoor recreation program	Non-traditional therapeutic interventions, such as hunting or outdoorsman activities, achieve immediate positive outcomes for participants.
<i>Bennett et al. (2017)</i>	Examine the outcomes of a therapeutic program	40 American Veterans	Therapeutic program fly-fishing	Significant decreases from the pretest to posttest for symptoms of PTSD, depression, perceived stress, and functional impairment, and an increase in leisure satisfaction from pretest to 3-month follow-up.

<i>Hwang et al. (2018)</i>	Report the profiles of physical activity affect for two groups of injured	22 American Veterans	Warrior Transition Units	Statistical differences in Positive Affect, Negative Affect, Tranquillity, and Fatigue across groups at the beginning of the activities; however, Positive Affect was significantly different across groups following the activities.
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DISCUSSION

Sport and Recreation Program

Using exercise and recreation programs are highly effective strategies for promoting a healthier lifestyle for veterans. Both psychological (mind) and physical (body) improvement are combating social isolation, low levels of motivation and high levels of irritation (Roberts et al., 2019).

In the USA war veterans receive care at hospitals in the Department of Veterans Affairs (VA). VA provides recreational therapy and ongoing care to improve the empowerment process, improve body structure functioning to achieve optimal levels of well-being. In 1946, a group of military personnel created the Paralyzed Veterans of America (PVA) from the perspective of living with dignity and active employees in society. Since its inception, PVA has supported sport and recreation as important modalities for the health and well-being of its members and all disabled veterans (Lundberg et al., 2011).

Also, in the USA, the Adaptive Sports New England's, with a Paralympic sport program brings together youth and adults who have physical or visual impairments to learn, practice and compete in a variety of sports. The program support veterans and other athletes of all levels of skill and competitiveness with expert coaching, camaraderie and shared ideas among Para-sport mentors, protégés and peers (Adaptive Sports, 2019).

Competition Sport Program

Veterans have also been important to the Paralympic movement, were the first participants and competed in all Paralympic Games editions. In 1981, the VA created the National Veterans Wheelchair Games (NVWG). The first NVWG was collaborated by the VA, the PVA and brought together about 600 athletes in Richmond, Virginia from three countries (United States, Puerto Rico and Great Britain) to restore the competitive side through sports participation (Cooper & Nowak, 2011; Sporer et al., 2009).

NVWG becomes an integral part of VA rehabilitation and reintegration programs and a starting point for the athletic careers of many Paralympic athletes. Considered the largest annual multi-sport event linked to veteran wheelchair rehabilitation programs in the world (Cooper & Nowak, 2011; Sporer et al., 2009).

Another action promoted by the VA is the National Winter Sports Clinic for Disabled Veterans (NDVWSC) which started in 1987. The goal was to encourage veterans to become aware of their abilities, their potential, promoting healthy activities as well as improving quality of life of veterans with disabilities. Although not focused on competition, many winter Paralympic athletes participated in the NDVWSC and some received their first ski lessons there (Sporer et al., 2009).

The rising number of wounded in armed conflict in the 2000s has prompted veterans to pursue competitive sport to test themselves and challenge perceptions of its potential. In this regard, the Paralympic Military and Veteran Sports Program (PMVSP) was created in 2004, in collaboration with the VA, the US Department of

Defense (DOD) and the US Paralympic Committee. The PMVSP offers sports and recreational activities at many military bases, at various VA medical centres, and helps uncover potential athletes for high performance Paralympic sport to represent the USA in international competitions and Paralympic Games (Batts & Andrews, 2011).

VA and DOD have created programs to support talented veteran athletes in international competitions. In the last competitive events 10% of the delegation consisted of athletes participating in these sports programs. VA has an incentive program to support the participation of veterans who are athletes and elite members or potential members of a Paralympic team. Sports camps with military athletes aimed at presenting the Paralympic movement are often held to present the benefits of sport in the process of reintegration into the community. The increase in sports participation is also the result of technological progress from the production of adapted equipment (prostheses, orthoses and sports chairs) (Batts & Andrews, 2011; Cooper & Nowak, 2011; De Luigi & Cooper, 2014; Sporner et al., 2009).

Another sporting competition organized by the DOD and the US Paralympic Committee is the "Warrior Games" having their first edition in 2010. These sporting competitions, NVWG, NDVWSC and Warrior Gamers, offer US military veterans' opportunities to develop skills, a positive perception, yourself and strive to achieve your athletic and life goals. Participation of these competitions thus reduces the pressure on their level of demand but can also be seen as a springboard for the Paralympic Games (Cooper & Nowak, 2011; Davis et al., 2013; Sporner et al., 2009).

Following the international movement of multisport events for veterans of armed conflict, the UK through Prince Harry (Duke of Sussex) creates Invictus Games in 2014, based on the USA Warrior Games. The event is characterized by gathering representatives of allied nations injured during active military service, with a view to contributing to their rehabilitation process with the sport as a driving force (Dawney; Sherwin, 2014).

Programs with outdoor activities and camping

Alternative outdoor programs can serve as complementary therapies for treating veterans of armed conflict. Getting out of the hospital / rehab environment and changing the routine proved to be an important experience for making social connections and working on personal knowledge (Rogers et al., 2016). The sense of belonging and the development of social ties from the group formed in the development of activities generates social cohesion, i.e., it is related to the nature and quality of friendships and the feeling of closeness between group members.

The process of coexistence and immersion for a certain period facilitates the development of a social community through the participation of sports activities individually or collectively. In this sense, the outdoor activities program can be used to increase feelings of self-determination (relationship, competence and autonomy), reduce symptoms and disorders that alter the general well-being of the individual.

In Australia two programs were found. *Outward Bound* designed to incorporate problem-solving tasks into a physical and social environment, encouraging individuals to alter their self-image, mastery and competence through physical experience from mental challenges. *Pandanus Park*, on the other hand, is a program that serves as a social support for veterans to create a conducive environment for recreation by encouraging a more active and social lifestyle. A supportive environment helps individuals better cope with their difficulties and anxieties and build bonds, building trust, pride and friendship (Otter & Currie, 2004).

In the United States, Sun Valey Adaptive Sports (SVAS) develops Higher Ground sports programs in Ketchum, Idaho, for individuals who have been seriously injured in armed conflict as a form of rehabilitation. Developing physical skills and a sense of competence while providing meaningful, healthy and fun experiences to help members successfully navigate their new lives is the mission of the program (Lundberg et al., 2011).

Other initiatives

Some programs and care centres for armed conflict veterans did not appear in the systematic review. This fact is related to the difficulty of producing research that scientifically reinforces the work developed by the rehabilitation programs and its relationship with the Paralympic movement.

The fact is that before World War II the vast majority of people with spinal cord injuries died within three years, the death rate was 80% ((Legg et al., 2004; Rademeyer, 2015). The physiological and psychological values of sport in the rehabilitation of paraplegic patients became prominent at Stoke Mandeville Hospital after the British government hired Ludwig Guttmann in 1943. From this moment on, the sport has an effective importance in the rehabilitation process, mainly in three main areas: as a curative factor; presenting a recreational and psychological value and as a means of social reintegration (Brittain & Green, 2012).

From the moment sport is gaining ground as a rehabilitation tool new programs emerge around the world such as Soldier On in Canada (2006), Wounded Warriors Project in USA (2003), Battle Back in England (2008), Australian Defense Force Paralympic Sport Program in Australia (2010). For many, veterans of armed conflict are the “soul of the Paralympic movement” (Batts and Andrews (2011).

The Center for the Intrep is part of the US Armed Forces Amputee Care Program, which opened in 2007. The mission is threefold: to provide the best care for injured patients in armed conflict; educate rehabilitation professionals and conduct research to improve care for war-wounded patients (Granville & Menetrez, 2010).

In Brazil in 2018, the Paralympic Military Program (PMP) was created by the Brazilian Paralympic Committee (CPB) with the mission of presenting and developing Paralympic sport to the military of the Armed Forces, Auxiliary Forces (Police and Fire) and public security agents that have acquired a disability, whether in service, during training or in their daily life. Within this program there are two major strategic actions: the Paralympic Military Camping and the Paralympic Military Festival, both aimed at bringing Paralympic sports closer to the disabled military. There are nine Paralympic sports: athletics, wheelchair fencing, 5-a-side football, weightlifting, judo, swimming, parataekwondo, table tennis, seated volleyball and shooting sports (Ávila & Alves, 2019).

The CPB saw in this initiative a new way of approaching the Paralympic modalities also for a “new public”, i.e. military personnel with disabilities. They are the same who, in their preparatory and work training, even before acquiring any disability, received methods used in sports such as concentration, selflessness, focus, concentration, in short, everything that is presented in the “construction” of an athlete, also serves for military training, thus facilitating their approach to the Paralympic sport.

FINAL CONSIDERATIONS

The visibility imposed by the Paralympic Games with each edition makes the veteran rehabilitation programs of armed conflict considered as a gateway to the Paralympic movement (Goff, 2012). Although in some countries veterans who have acquired some kind of disability are compulsorily taken to the reserve,

Paralympic military programs appear as a way to resume the feeling of serving the country. Paralympic athlete incentive programs are already a reality for national team members. During the ParaPan American Games, many athletes with disabilities were seen saluting the national flag in the podiums after winning and receiving medals, as did the athletes of the Armed Forces Olympic program. This demonstrates the development of a sense of belonging that can be exploited, and there could be a recruitment process for people with disabilities so that they could make up the military ranks. In this way they could defend the country in the sports field, but also corroborate the development of programs and projects of the war field, in which cognitive cooperation becomes an increasingly valued element in military planning and execution. This recommendation is one of the contributions of this article.

Different sports competitions become part of the national and international calendar. By working with different levels of demands, more veterans join the sport and enjoy its benefits. Consolidated competitions such as Invictus Games, Warrior Games, NVEW and CNDDE draw attention around the world and need to have their knowledge transferred to nations that do not yet develop sport programs adapted to military personnel with disabilities. International Military Sports Council (CISM) could be used as a benchmark for the promotion of Paralympic sport based on existing competitions and even lessons learned about the Paralympic Games.

The relationship between rehabilitation programs and the competitive environment has been shown to be positive but having different levels of demands has also proved extremely important for the physical and mental rehabilitation process of armed conflict veterans. Sports competition should not be conducted as a stressor causing negative consequences for psychological, behavioural and immunological aspects (Roberts et al., 2019). Arab and Persian Gulf countries are constantly engaged in war activities and with a high number of disabled victims. However, no studies addressing this nature were found, nor did Paralympic sport programs for this nature. Given the above as discussed, Mataruna-Dos-Santos, Zardini-Filho and Cazorla (2019) the sport for the Arab and Gulf Countries should give opportunities to youth, be it Olympic or Paralympic nature. Thus, military sport, especially for women, should be expanded globally and in the prominent region where there is a predominance of men practicing physical exercises in order to have a gender equity balance (Mataruna-Dos-Santos, Khan & Al-Shibini, 2018).

Working in sports, recreation, competitive environment, outdoor and camping needs to be encouraged not only in countries involved in armed conflict, but in all countries where a portion of the population is no longer an active member of the community. Fighting this isolation and promoting well-being, the development of an active and healthy life, whether in the social field or even in the sports field (athletic identity) should be a commitment of the rulers (Martin & Munroe-Chandler, 2015).

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