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# Sports-related injuries and illnesses in paralympics sport study

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#### Abstract

Paralympics sport provides sporting opportunities for athletes with a disability, with the Paralympics Games as the main event. Participation in sport is, however, associated with a significant risk for sustaining injuries and illnesses. Our knowledge of sports-related injuries and illnesses in Paralympics sport is very limited and there are no large-scale epidemiological cohort studies. The purpose here is to present a protocol for a prospective longitudinal study: The Sports-Related Injuries and Illnesses in Paralympics Sport Study (SRIIPSS).

Keywords: Paralympics games, paralympics sport, injuries and illnesses

#### Introduction

Sport for athletes with disabilities has existed for more than 100 years. Today, the global network 'The Paralympics Movement' provides sporting opportunities for Paralympics athletes with physical, visual or intellectual impairments, from grassroots to elite level, with the Paralympics Games as the main event. During the past decades, Paralympics sport has seen a large development in both the number of athletes, sports performance and technology, and many Paralympics athletes have reached performances similar to able-bodied elite athletes.

It is well-known that physical activity and participation in sport generates several positive health effects. Low physical fitness and reduced physical activity is associated with many adverse health events, including major non-communicable diseases. Participation in sport is therefore of great importance, especially for persons with disabilities, as individuals with a chronic disease or disability have lower physical fitness compared to non-disabled individuals. Sport is today included in most rehabilitation programs for people with disabilities, to promote both physical and psychological well-being.

# Injuries and illnesses in Paralympics sport

Participation in sport is, however, associated with a significant risk for sustaining injuries and illnesses that may have long-lasting effects, including mortality, morbidity and high costs for society. Remaining free of injury and illness has therefore become a fundamental component of successful performance in sport.

Previous research has shown that injury rates in Paralympics sport are generally high with a trend towards more injuries compared with sport for able-bodied athletes. Injury patterns related to the impairment, the equipment involved and the specific mechanics of the sport have been proposed to be related to the injuries. Maintaining health in athletes with already existing disabilities can be problematic. The athletes may have complex pre-existing medical conditions, such as neurodegenerative disorders, spinal cord injury, amputations, rare syndromes with anomalies in different body systems, vision loss and intellectual impairments, and medical issues like autonomic dysref lexia, infections, hyperthermia, skin lesions, spasticity, fatigue, pain and epilepsy can be present. Moreover, the athletes may be exposed to repetitive and sometimes improper biomechanical load in their daily life. Based on the facts that the Paralympics Games is now one of the world's largest multi-sport events and that training intensity and performance levels have increased during the past years, there are surprisingly few epidemiological studies covering sports-related injuries and illnesses in Paralympics sport.

Thus, further studies are needed to ensure the development of safe participation in Paralympics sport.

### Sports injury research

Recent research has shown that several categories of sportsrelated injuries are preventable. However, for effective prevention implementation of injury measures, comprehensive epidemiological knowledge is required. To reduce overtraining, injuries and illnesses, regular monitoring of athletes is an important aspect in athletic preparation. Although the International Paralympics Committee (IPC) has successfully implemented an epidemiological surveillance system during the Paralympics Games, there is still a lack of longitudinal prospective data following Paralympics athletes over entire training seasons. A recent review identified large differences in injuries across sports and highlighted the need for sport-specific studies. Current studies within Paralympics sport vary in quality and have mainly recorded injuries related to trauma, medical attention or time loss. Most studies are retrospective and have only recorded injuries during competitions. In addition, a diversity of injury definitions has been used and most studies have not examined impairmentrelated risk factors and injury severity. Thus, there is a need further longitudinal epidemiological studies that for prospectively assess sports-related injuries and illnesses in Paralympics sport based on risk exposure.

Today, most injury surveillance systems exist in professional and commercial able-bodied elite sport settings, for example soccer, tennis and rugby. In addition, many of the surveillance systems require that medical practitioners complete the injury report form. However, the characteristics, preconditions and contexts differ between sports. For example, medical attention injuries may be difficult to apply when there is limited access to medical personnel. It has also been proposed that some methods for injury registration may underestimate overuse injuries. Also, in terms of injury capture rates, medical staff may underestimate the injury burden compared to athletes themselves.

# Conclusion

In Paralympics sport everyday access to coaches and medical personnel is scarce and sport, especially in the Scandinavian countries, is primarily based on voluntary dependency. Moreover, Paralympics sport has a wide geographical spread, both in Sweden and internationally, and involves more than 28 different sports and 10 different impairments types. In addition, patterns of sports-related injuries and illnesses differ in some ways from those among able-bodied athletes, as the impairment itself is involved in the cause and consequential chains. The impairment that the athlete has may also cause difficulties in the definition and interpretation of sports-related injuries and illnesses. However, health should not only be related to the absence of a disease or an injury. It also includes the individuals' capacity to carry out activities in relation to their self-perceived functioning and health.

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