

Sport, sex and age increase risk of illness at the Rio 2016 Summer Paralympic Games: a prospective cohort study of 51 198 athlete days

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ABSTRACT

Objective To describe the epidemiology of illness at the Rio 2016 Summer Paralympic Games.

Methods A total of 3657 athletes from 78 countries, representing 83.5% of all athletes at the Games, were monitored on the web-based injury and illness surveillance system (WEB-IISS) over 51 198 athlete days during the Rio 2016 Summer Paralympic Games. Illness data were obtained daily from teams with their own medical support through the WEB-IISS electronic data capturing systems.

Results The total number of illnesses was 511, with an illness incidence rate (IR) of 10.0 per 1000 athlete days (12.4%). The highest IRs were reported for wheelchair fencing (14.9), para swimming (12.6) and wheelchair basketball (12.5) ($p < 0.05$). Female athletes and older athletes (35–75 years) were also at higher risk of illness (both $p < 0.01$). Illnesses in the respiratory, skin and subcutaneous and digestive systems were the most common (IRs of 3.3, 1.8 and 1.3, respectively).

Conclusion (1) The rate of illness was lower than that reported for the London 2012 Summer Paralympic Games; (2) the sports with the highest risk were wheelchair fencing, para swimming and wheelchair basketball; (3) female and older athletes (35–75 years) were at increased risk of illness; and (4) the respiratory system, skin and subcutaneous system and digestive system were most affected by illness. These results allow for comparison at future Games.

INTRODUCTION

Although profiles of injuries in the Paralympic Games setting have been extensively studied, illness remains a relatively unstudied area. Comprehensive illness studies in the Paralympic athlete population have only been reported for the London 2012 Summer Paralympic Games and the Sochi 2014 Winter Paralympic Games.^{1–3}

The existing literature indicates certain patterns of illness. Respiratory illnesses account for the most illnesses in this athlete population, with an incidence rate (IR) of 3.5 (95% CI 2.9 to 4.1) illnesses per 1000 athlete days at the London 2012 Summer Paralympic Games.^{1,2} Furthermore, there is a higher prevalence of non-respiratory illnesses including skin, digestive and genitourinary illness in athletes with various impairments when compared with the able-bodied athlete population.¹ Indeed, prior data reveal that some illnesses are impairment

or sport specific. Urinary tract infections are seen with higher prevalence in athletes with spinal cord injuries (29.9% of all illnesses at London were in athletes with spinal cord injury) and impairment categories that require the use of a wheelchair or limb prostheses for locomotion.^{2,4} Furthermore, illnesses of the eye and adnexa were more prevalent in the Winter Paralympics (IR of 2.7 (95% CI 1.7 to 4.4)) and were reported with higher frequency in the indoor curling events.³

We aimed to establish further baseline data for the incidence of illness in a Summer Paralympic Games setting. We describe the profile of illnesses in a cohort of 3657 athletes whose attending physicians used the web-based injury and illness surveillance system (WEB-IISS) at the Rio 2016 Summer Paralympic Games. This initiative forms part of a larger prospective cohort study of Paralympic athletes at the various Games settings from the London Games onwards.

METHODS

Setting

This study was conducted by members of the International Paralympic Committee (IPC) Medical Committee as part of an ongoing prospective study examining injury and illness epidemiology in both the Summer and Winter Paralympic Games settings, and was conducted during the 3-day precompetition period and 11-day competition period of the Rio 2016 Summer Paralympic Games.

Participants

Informed consent was obtained for the use of deidentified data from all athletes during registration for the Games.

The present study used the WEB-IISS, which was successfully implemented at the London 2012 Summer Paralympic Games and Sochi 2014 Winter Paralympic Games. The system was designed for teams with their own medical support at the Games. A more detailed description of the WEB-IISS can be found in the previous literature.¹

The organising committee medical facilities were used predominantly by countries who did not have their own medical support. However, given that the WEB-IISS was not used by the Rio local organising committee, we were unable to obtain reliable data regarding illnesses in this athlete group. Therefore, data regarding illness collected at the Rio organising



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