

High precompetition injury rate dominates the injury profile at the Rio 2016 Summer Paralympic Games: a prospective cohort study of 51 198 athlete days

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ABSTRACT

Objectives To describe the incidence of injury in the precompetition and competition periods of the Rio 2016 Summer Paralympic Games.

Methods A total of 3657 athletes from 78 countries, representing 83.4% of all athletes at the Games, were monitored on the web-based injury and illness surveillance system over 51 198 athlete days during the Rio 2016 Summer Paralympic Games. Injury data were obtained daily from teams with their own medical support.

Results A total of 510 injuries were reported during the 14-day Games period, with an injury incidence rate (IR) of 10.0 injuries per 1000 athlete days (12.1% of all athletes surveyed). The highest IRs were reported for football 5-a-side (22.5), judo (15.5) and football 7-a-side (15.3) compared with other sports ($p < 0.05$). Precompetition injuries were significantly higher than in the competition period (risk ratio: 1.40, $p < 0.05$), and acute traumatic injuries were the most common injuries at the Games (IR of 5.5). The shoulder was the most common anatomical area affected by injury (IR of 1.8).

Conclusion The data from this study indicate that (1) IRs were lower than those reported for the London 2012 Summer Paralympic Games, (2) the sports of football 5-a-side, judo and football 7-a-side were independent risk factors for injury, (3) precompetition injuries had a higher IR than competition period injuries, (4) injuries to the shoulder were the most common. These results would allow for comparative data to be collected at future editions of the Games and can be used to inform injury prevention programmes.

INTRODUCTION

Paralympic sport continues to grow with increased popularity among competitors and spectators alike. Indeed, the Rio 2016 Summer Paralympic Games saw the largest cohort of athletes participating at this pinnacle event, namely 4378 athletes competing in 22 sports.¹ The protection of the health of the athlete and efforts to reduce both injury and illness in this population remain foremost on the agenda of the International Paralympic Committee (IPC)² and ongoing efforts to collect epidemiological data to better inform injury prevention programmes has remained a strong focus.^{3–8}

It is important that before comprehensive injury prevention programmes can be instituted, adequate baseline data must be collected to allow

for the eventual determination of the success of implemented prevention strategies.^{9–10} The first large prospective study of injury epidemiology in athletes with impairment, that expressed injury rates and injury proportions per 1000 athlete days, was reported following the London 2012 Summer Paralympic Games.^{6–7} In that study, 633 injuries were reported in 10.9% of the total number of athletes monitored over the Games period. Furthermore, the injury incidence rate (IR) was 12.7 (95% CI 11.7 to 13.7) injuries per 1000 athlete days. The incidence of injury was highest in the sports of football 5-a-side (IR of 22.4 (95% CI 14.1 to 33.8)),¹¹ goalball (IR of 19.5 (95% CI 13.2 to 27.7)) and Para powerlifting (IR of 19.3 (95% CI 14.0 to 25.8)).¹² Furthermore, the most commonly affected anatomical area was the shoulder (IR of 2.1 (95% CI 1.7 to 2.6)), which is in accordance with previous literature describing the epidemiology of injury in both the Summer and Winter Paralympic Games settings.^{5–13–14} Additionally, acute injuries were the most commonly reported injury in terms of onset (IR of 6.3 (95% CI 5.6 to 7.2)).

The aim of this study was to establish further baseline data regarding the incidence of injury in a Summer Paralympic Games setting.^{5–6} This study described the profile of injuries, including factors associated with injury risk, 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. Furthermore, the data presented in this study, in combination with the data gathered from the London 2012 Summer Paralympic Games, allow for comparative data to be used when following the efficacy of longitudinal injury prevention programmes and specific prevention programmes at future editions of the Summer Games.

METHODS

Setting

This study was conducted by members of the IPC Medical Committee as part of the 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.



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