

Biomechanical Research and Support for Para-Sports



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Abstract. In 1998 Winter Paralympics was held in Nagano, and in 2020 summer, we will host Tokyo Paralympics after the Olympics. Both the Paralympic Summer and Winter Games are no longer held solely for rehabilitation purposes for injured persons, but for elite athletes with a wide variety of impairments from all over the world. The Paralympic games were designed to emphasize the participants' athletic achievements and not their disability. In this paper, several examples of studies on Paralympic sport events in biomechanics research area are presented. The sports taken up would be swimming, alpine skiing, wheelchair basketball, and wheelchair tennis. The Olympic sports and the Paralympic sports are not necessarily different genres. In many cases, the same biomechanical analyses methods and principles used in non-disabled sports activities can be applied to disability-based sports. The methodology and the knowledge of Sports Biomechanics are expected to contribute to the development of Paralympics or competitive sports for the disabled, especially in the following aspects; (1) to analyze certain sports skills and to advise athletes how to improve their skill levels, (2) to develop and amend sports equipment and apparatus based on the motion analysis, (3) to support competitors in training to improve their performance levels, and (4) to advise and support for the functional classification of the athletes.

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