Applying Scientific Principles to Enhance Paralympic Classification Now and in the Future

A Research Primer for Rehabilitation Specialists

Sean M. Tweedy, PhD*, Mark J. Connick, PhD,
Emma M. Beckman, PhD

KEYWORDS

- Activity limitation • Descriptive science • Impairment • Para sport
- Para athlete taxonomy

KEY POINTS

- Para sport classification permits the realization of the Paralympic Vision by defining who is eligible to compete as a Para athlete and by providing a structure for competition that aims to control for the impact of impairment on the outcome of competition.
- Development of classification systems based on scientific evidence is required but has only recently been made possible by adoption of a clear, unambiguous statement of the purpose of classification by the International Paralympic Committee and its member organizations.
- Rigorous descriptive science with its focus on measuring, recording, analyzing, and predicting can improve extant systems of classification and lead to the development of new systems of classification. Both paths should be pursued.
- The absence of valid ratio-scaled measures of impairment is currently the most significant barrier to the development of evidence-based systems of classification and addressing this is the Paralympic Movement's most pressing scientific challenge.
- A recently published study demonstrated that development of data-driven classification structures based on ratio-scaled measures of impairment is possible and yields a valid class structure that is superior to the extant system.

INTRODUCTION
Vision of the Paralympic Movement and Evidence-Based Classification

The Vision of the Paralympic Movement is "to enable Para athletes to achieve sporting excellence and inspire and excite the World."[1] Para sport classification systems perform 2 functions that are critical for the realization of this vision. First, they define who is eligible to compete in Para sport and, therefore, who can be a Para athlete. In this way classification is fundamental to Para sport, providing a framework for determining who can and who cannot compete. Second, they group athletes into sport classes that control for the impact of impairment on the outcome of competition and ensure that, as far as possible, sporting excellence determines which athlete or team is ultimately victorious.[2,3]

In this way, Para sport classification systems provide a unique framework that permits Para athletes to demonstrate that elite athletic performance is a relative, rather than an absolute, concept, and that achieving excellence in the context of significant physical, sensory, or intellectual impairment can be particularly inspiring.

Classification systems that are invalid, or perceived to be invalid, pose a significant threat to the Vision of the Paralympic Movement. At the elite level, the legitimacy of an individual or team's competitive success can be significantly diminished by the perception that they are in the wrong class. The perception can also have potentially adverse personal and financial consequences for that athlete or team. At the grassroots level, a classification system that is perceived to be unfair will discourage participation among people with disabilities rather than achieve the goal of fostering it.[2] Therefore, the organizations governing the Paralympic Movement have a duty to ensure that systems of classification are valid, defensible, and based on the best available scientific evidence.

Governance and Terminology in Para Sport

The International Paralympic Committee (IPC) is the global governing body of the Paralympic Movement.[4] Its constitutional duties include the preparation and delivery of the Summer and Winter Paralympic Games, the flag-ship sporting events for the Paralympic Movement. The IPC is structurally and administratively independent from the International Olympic Committee but, as the prefix Para indicates, the Paralympic Games run parallel with the Olympic Games and have been held in the same year as the Olympic Games since their inception in 1948.[5]

The IPC is also the governing body for 10 of the 40 Para sports; a Para sport is a sport that is either governed directly by the IPC or by a member organization. Not all Para sports are Paralympic sports, this term being reserved for sports that are contested at the Paralympic Games. Para dance sport (governed by the IPC) and Para world sailing (governed by World Sailing), are examples of Para sports that are not currently included in the Paralympic program. Similarly, Para athlete refers to any athlete competing in a Para sport, whereas Paralympic athlete denotes someone who has competed at the Paralympic Games.

Table 1 presents the 28 sports currently on the Paralympic program, 22 of which will be contested at the 2020 Tokyo Paralympic Games, and the remaining 6 will be contested at the 2018 PyeongChang Winter Paralympic Games. As **Table 1** indicates, athletes with physical impairments are eligible for 25 Paralympic sports, those with visual impairment are eligible for 13, and those with an intellectual impairment are eligible for 3. This article focuses on the classification of Para athletes with physical impairments.