International Paralympic Committee

VISTA 2013 equipment and technology in Paralympic sports

Keynote speech abstracts

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Paralympic performances and new technologies; issues of classifications and representation

Ivo van Hilvoorde

Categorizations within disability sports appear to be an on-going struggle to find the right balance between a good competition based on differences in talent on the one hand and the demonstration of excellence within a group with relevant similar skills on the other. Disability sports are about showing performances within categories of similar disabilities, without making those disabilities the central element of athletic prowess. Categorization and classification are on-going processes and discussions need to be continued, not least because our views on disabilities change and evolve, as does the technology to compensate for certain disabilities.

Elite sport is, by definition, constructed around the notions of differentiation, categorization and selection, all with the cause of showing 'virtuosity', 'supremacy' and 'super-humanness'. It may be difficult to justify the difference in admiration for the elite athlete and the impaired athlete with recourse only to concepts such as 'talent' or 'effort'. Some talents are more valued in a society than others, in spite of a changing terminology that suggests that being disabled is the occasional experience of each human being.

In this presentation I will discuss the role of technological innovation in discussions on the fairness, credibility and (re)presentation of disability sports. How does technology affect the concept of 'disability' itself? What is the influence of a 'technocentric ideology' on the credibility of Paralympic Sports and what does it mean for the aims of the Paralympic Movement in terms of empowerment, inspiration and representation of disability (sport) in general? Technological innovation not only raises fundamental (sport philosophical) questions about the fairness of Paralympic competition, but also about more general issues that deal with the image and presentation of Paralympic performances, also in relation to able-bodied sports and to mass sport.

Besides the need for a critical rethinking of the normative boundaries between ability and disability, and between Olympic Games and Paralympic Games, this debate needs to be enriched by an empirical and critical analysis of the process of categorization itself. Who are deciding, who is doing the 'boundary work', based upon what arguments and what stakes?

Paralympic sporting equipment: performance enhancement or necessary for performance

Brendan Burkett

Highly active people with a disability, Paralympians, often depend on assistive devices to replace their lost function and to enable activities of daily living, including the ability to participate in competitive sport. Paralympic sports evolved from medical rehabilitation programs in the 1950s. The objective of a rehabilitation program is to regain a level of function for the client; for an athlete, the highest expression of this return to function is to compete at an elite level in the Paralympic Games. In the endeavour to go higher, faster and longer, athletes have found that standard sport equipment can inhibit their sporting performance.

To satisfy these demands significant new technological developments in wheelchair design and prostheses have occurred, and radical equipment designs such as energy-absorbing prostheses, seated throwing chairs, and racing wheelchairs have revolutionized sports medicine thinking.

The greatest challenge with Paralympic sporting equipment is the technology must match the individual requirements of the athlete, and the sport, in order for Paralympians to optimize their performance. Within the 'Performance enhancement or necessary for performance?' debate, any potential increase in pure mechanical performance from the sporting equipment must be considered along with the 'control and compensatory factors' the athlete has to manage.

Given that a grey area remains regarding how well an athlete is able to transfer any potential mechanical advantage into a real advantage, the sporting benefit-of-the-doubt should probably fall in favour of the technology being necessary for performance, rather than performance enhancing. The challenge for researchers will be to effectively 'match' the technology with the athletes' requirements.

In the best interest of the athlete, and to avoid potential legal problems and unwarranted issues for sporting administrators and participants, the role of technology needs to be openly debated and final recommendations made well before the 2016 Olympic and Paralympic Games in Rio de Janeiro.

Products for grassroots sports development - A case study of the Motivation court sport wheelchair for low-income countries

Chris Rushman

An introduction to how Motivation's design, innovation and local manufacturing experience, led to low-cost grassroots sports products successfully implemented in high-income and low-income countries

Using a Case study it will be examined how a considered design rationale, led to a sports wheelchair product, designed successfully for low-income countries, to cross over into the high- income country sports development sector. This case study identifies important criteria to balance cost and performance and appropriateness in low-income countries.

An athlete-centred approach to the design development process, coupled with strong strategic partnerships can deliver effective and low-cost sports wheelchairs.

The Case study shows how a low-cost sport wheelchair product can perform effectively across a range sports at the grassroots level and is suitable for low and high income country sports development sectors.

The athlete-centred approach to the design process is one of the key factors for the successful development of low-cost sports products.

Products for high-tech applications – from product development to individual athlete support - and back

Simone Oehler

Ottobock has been promoting sports for people with disabilities for more than three decades. It all began with four prosthetics providing repair services in an improvised pavilion at the summer games in Seoul, Korea 1988. Since then Ottobock has been part of all the Paralympic summer and winter games. This commitment to the Paralympics also led to individual athlete support.

It's Ottobocks daily business to develop and sell prosthesis. So starting off with modifying an existing product Heinrich Popows running prosthesis was continually adapted and optimized to match the technology to the athletes' abilities and requirements in sports. This was accomplished in close cooperation of the athlete, Ottobock technicians and biomechanical experts. By this it is a win-win situation for all, the athlete provides important impulses while testing the device and the experts contribute their experience from working with patients for a long time. They all work for a common goal: the best possible sport prosthesis for a top performance.

So coming from an all in one approach and setting standards in prosthetic technology the next logical step was to develop products for sport performance - not necessarily only for competitive sports but also for ambitious recreational athletes doing every day sports.

The talk will give more details and background on the compounding factors during the development process of Ottobocks sport products. How it all starts with experience from existing products, testing with patients and athletes, analysing load measurements and testing on test machines all to fulfil the goal of a product that allows fun, recreational sport for amputees.