

# Disability sport and the Paralympics: the physiotherapist's role in ensuring fair competition

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The history of disabled people participating in sport is closely allied with modern thoughts and techniques of rehabilitation and recovery from injury. In the 1940s one of the earliest pioneers of disabled sports, Sir Ludwig Guttmann, became the director of the Spinal Injuries unit at Stoke Mandeville Hospital, and through his encouragement of the patients to participate in competition it was observed that the enjoyment and motivation could drive much better levels of achievement and recovery than just hours of working away in a physio gym.

Dame Agnes Hunt (who, with Sir Robert Jones, was one of the co-founders of the famous RJAH orthopaedic hospital at Oswestry) was herself very ahead of her time in advocating physical activity (this time horse riding) for her young TB patients – originally at the open-air 'sanatorium' at Baschurch, Shropshire – she noticed not only physical but huge psychological benefits for these children, who had previously been wheelchair bound and hence isolated in the days when access for the disabled was very poor.

Swimming has always been a useful adjunct to rehabilitation and physiotherapy, giving the dual benefits of buoyancy and ease of movement, thus allowing the patient to achieve effortless walking or swimming and so helping to strengthen muscle and gain general fitness. Early swimming races were one of the first sports in which participants were able to compete against other individuals of similar impairment and succeed due to training or technique. Gradually basketball, hand ball and table tennis became the main sports of the 'Disability Games' as they were then called (later the Stoke Mandeville Games) and their inclusion and acceptance led to the first holding of the games alongside the Rome Olympics in 1960.

**The term Paralympics was coined for the Seoul Summer Olympics of 1988. What does it mean? See page 224.**

## CLASSIFICATION

Recent years have brought a huge growth in the participation of all manner of sports by people with an impairment or disability, and as competition has grown and become more fiercely contested with more and more at stake in the way of training grants and financial sponsors, it has become necessary to classify competitors according to their ability or impairment in an attempt to make competition fair. All athletes with a disability who intend to compete at a national or international level must produce a certificate stating their medical diagnosis. Their impairment is then assessed, by a classifying physiotherapist, or a doctor, and the resulting 'functional profile' is combined with others of similar ability into a grading system. In this way the competition within each grade can be judged



*Assisting a rider with special equipment for the hand*

regardless of the level of skill in the specific sport. Classification is an objective process and a statement of fact not a test, so the assessment is done on the ground, ie away from the horse or wheelchair or boat or whatever it is that they are going to use for their chosen sport. Level of training and level of fitness are obviously not assessed as they can change, whereas an impairment usually cannot.

The World Health Organisation (2000) definition of impairment is as follows: 'Impairments are problems in body function or structure such as significant deviation or loss.' They may be broadly classified as *physical* (or loco motor), *sensory* (to include blindness and deafness) and *intellectual*. The system for classification must be simple to use, flexible enough to apply to all impairments, sport specific and it should be acceptable to the sportsman. The Meaden system of classification has been used since 1992.<sup>(1)</sup> Developed by



*Balance testing in sitting*

Dr Chris Meaden, a physiotherapist, it was originally for use in dressage with disabled riders but since rolled out to triathlon and to athletics, sailing and some other sports (basketball and tennis have their own system). This is now internationally recognised and is accepted by the Olympic association. Swimming has a very similar system developed in the 1980s by Birgitte Blomquist and first used at the Paralympics in Barcelona.



Finger-to-nose testing as a coordination test

## PHYSIOTHERAPY INVOLVEMENT

As well as working for this trust for several years as a musculoskeletal physiotherapist, specialising in rheumatology, I have been involved with disabled sport and with the classifying of disabled riders for the last 12 years, and more recently with athletes. It is usually done away from a competition and in a physio room, where there is an adjustable bed and the competitor can have privacy and a parent/friend with them to act as a witness. Disputes sometimes arise and the athlete is free to appeal if they think they have been wrongly graded (because if too highly graded the competition is much harder and they are up against possibly more able people so less likely to win; conversely if too low the other competitors are put at a disadvantage). One must always be aware that condition can deteriorate (eg, in the case of a person with a neurological condition) or may improve (such as a recovering head injury), so I often go to competitions to observe and make sure that I think the person is in the right grading (this can be a tricky conversation in some cases and it is wise to have a classifying colleague at hand to corroborate).

The assessment is done on internationally recognised scales, scoring 1 to 5 on each:

1. **Power** of movement, measured on the Oxford Scale of muscle strength (0 to 5): 0 being no power; 1 being only a flicker of movement up to 5 full strength.<sup>(2)</sup>
2. **Range** of movement, (very sport specific, we are not measuring ranges which are not required for that sport): 0 = no movement possible or no limb, 1 = less than 25% of movement possible up to 5 = 100% of movement possible within the required range.<sup>(3)</sup>
3. **Coordination**, again 0 to 5: 0 = not possible, 1 = able to initiate the movement but not complete, 2 = severe

impairment able to accomplish the movement but in a very unorthodox way, up through minimal impairment and speed to 5 = normal movement.<sup>(4)</sup>

## Scoring

These scores are then added up limb by limb and a separate score for the trunk and for the neck and a profile is arrived at. As with any assessment it is always necessary to be vigilant for 'lack of trying hard', ie the person is trying to appear more disabled than they really are, and also to be aware that taking a joint to end range can be painful and pain cannot be quantified objectively. As a physiotherapist involved in patient assessment and treatment, I am used to testing muscles and ranges of movement and like to think that I can usually tell when an effort is genuine. Some subterfuge in watching the competitor when they are not aware has been known to happen at events, leading to some awkward re-grading having to take place.



Foot placement as part of a coordination test

The current view gaining ground amongst competitors with a disability is that the Paralympics should be held along with the 'normal' games and any distinctions become much more blurred as we are now more a society which likes to enable participation at whatever level rather than differentiate those who are less able (or 'differently' able as it would be nice to think).

The use of special equipment in certain sports to make up for an impairment or loss is allowed but strictly regulated so as to not allow unfair advantage, for example special grips on reins for a one-handed or hemiplegic competitor; or a tiller extension for a sailor with limbs missing. The press coverage surrounding the sprinter Oscar Pistorius is a case in point. He is a South African athlete who is a double amputee, and he runs with carbon fibre blades which act as springs, and so in theory could give him an advantage of better forward propulsion than a runner with ordinary calf muscles. So while enabling him to compete, the use of the blades has generated claims that he has an unfair advantage. He would very much like to blur the boundaries completely and compete against able-bodied runners at the London summer Olympics but after a ruling by the International Association of Athletics Federations in 2007 banning the use of any 'technical device' such as blades, springs or wheels etc, effectively these hopes were ended. This ruling was overturned in the courts later in 2007 and technically he was eligible to compete in the Beijing games of 2008; his qualifying times however were not quite



Muscle testing on the physio gym

good enough, but he succeeded in taking Gold in the Paralympics. Whether or not he will be eligible to compete this summer in London and so fully succeed in integrating able-bodied and disability sport remains to be seen and will be closely monitored by all those involved.

## REFERENCES

1. Meaden C. Assessing people with a disability for sport. *Physiotherapy* 1991;77(6):360-6
2. Daniels L, Worthingham C. *Muscle testing: techniques of manual examination*. 4th Ed. Philadelphia: Saunders (WB) Ltd; 1980
3. Assessment of swimmers with a physical disability. In IPEC Swimming Classification Manual 2005. (Originally written by Birgitte Blomquist in 1985)
4. O'Sullivan, Cullen, *et al.* *Functional assessment and treatment*. Philadelphia: Slack Books; 1992. (As referenced in *Neuro-rehabilitation for the Physical Therapy Assistant* (Umphred and Carlson). Slack Books. 2006.) (Also, cf. Federation Equestrian International (FEI) *Para-equestrian Handbook*, 2010)

## The 'para' prefix

The term 'paralympic' is a neologism (Greek *neo* – new, *logos* – word) that appears to be self-explanatory, but when one looks more closely at its origins, the situation gets complicated. The prefix 'para' is defined in the Shorter Oxford English Dictionary as having two meanings in medicine. It can denote something 'running alongside' as in '**paraspinal muscles**' or can denote 'disordered function or facility' such as in the blood condition '**paraproteinaemia**'.

Either definition can be applied to the term 'paralympic'. They take place alongside the Olympics, or they are games for people with disordered function. What they are probably not, although the dictionary is ambiguous, is what many of us think they are: games for 'paraplegic people'. Like the editor, you may have recognised a 'para-dox' here: the suffix 'plegic' means 'absent function'. Not 'paralysed'...!

The author of the article informs the editor that it was the intention of the International Olympic Committee that what used to be called the 'disability games' was changed to something that reflected the inclusiveness of the Olympic movement. The term 'para' in its Olympic context is meant to signify 'running alongside' the games.

Modern medical curricula excuse the student from a classical education! More's the pity.