



Peter Harrison Centre
for Disability Sport

How Wheelchair Athletes can benefit from research findings: Training tools to help monitor the effort of wheelchair exercise

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The Sport Science research strand of the PHC is examining how wheelchair athletes can optimise their training strategies. It is hoped that this research theme will help to create guidelines for athletes in training and also provide tips that can be implemented to others who engage in wheelchair exercise and who are seeking general health improvements for their daily living activities.

A study in this area entitled '*Regulating intensity using perceived exertion (RPE) in spinal cord injured participants*', was conducted in 2008 and the research findings are due to be published in *Medicine and Science in Sports and Exercise* early next year. In the meantime here is some background information to this research area.

Background: Why RPE, why not use heart rate monitoring?

Many people use heart rate monitors in their training, however these are not suitable for all disability groups. Moreover, the use of RPE allows an athlete and coach to monitor intensity without equipment.

- The use of HR monitors for quadriplegics is not recommended because of the attenuated HR response due to impairment of the autonomic nervous system.
- Some spinal cord injured individuals may also be unable to evaluate exercise intensity as a result of certain medication.
- For these individuals it is recommended to use ratings of perceived exertion (RPE) for the workout (Figure 1– which is known as the Borg Scale).



Figure 1: The Borg Scale

What is the Borg Scale?

With the **Borg Scale**, we are describing how hard we perceive a certain amount of exercise. We would give low scores of perceived exertion to easy, middle range scores to medium and high scores to hard exercise. In other words: The harder the exercise, the higher our rating of perceived exertion on the **Borg Scale** as shown in Figure 1. This scale is widely used by sports coaches to assess the intensity of training and competition.

We know that RPE can be considered an effective mechanism to measure the effort in able-bodied athletes. But can wheelchair athletes regulate training intensities by rating their perceived exertion and are there differences between quadriplegics and paraplegics? These are questions that research at the PHC are exploring.

If you would like any further information about this area or future PHC studies please contact Dr Vicky Tolfrey at: V.L.Tolfrey@lboro.ac.uk.