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Case report

A Physiological Case Study of a Paralympic Wheelchair Tennis Player: Reflective Practise

Nicholas J. Diaper^{1,2}, Victoria L. Goosey-Tolfrey^{2,3} [More Information >>](#)

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ABSTRACT

This study was designed to examine the physiological changes caused by long-term training in a world class female tennis player in preparation for a major championship. Additionally, we aim to describe the training interventions and determine a suitable cooling strategy that was to be used at the 2004 Paralympic Games. The athlete underwent regular physiological assessment during 2003-2004. Physiological measures involved body composition, submaximal and peak oxygen uptake and key variables associated with maximal sprinting. In addition, a suitable match-play cooling intervention and hydration strategy was also explored. Body composition improved over the course of the study. Aerobic capacity fell by 21%, yet the submaximal physiological variables such as lactate profile and pushing economy improved. The trade off of aerobic capacity was perhaps noticeably counter-balanced with the maintenance of the peak sprinting speed and improvement found in the fatigue profile across ten repeated sprints. The extensive training programme was responsible for these changes and these adaptations resulted in a more confident athlete, in peak physical condition leading into the Paralympic Games. It is difficult to appreciate the extent to which this work had an impact on tennis performance given the skill requirements of wheelchair tennis and this warrants future attention.

Key words: Wheelchair propulsion, aerobic capacity, longitudinal study, training.

Key Points

- Physiological adaptations were apparent over the two-year training period.
- The training emphasis resulted in a reduction in aerobic capacity, yet an improvement in repetitive sprint performance was seen leading into the Major competition.
- An effective cooling technique was identified that could be used during wheelchair tennis performance.

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