The Importance of Physical Activity in Spinal Cord Injuries – A Case Study

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ABSTRACT

Purpose: With the increasing number of new spinal cord injuries (SCI) in our society, the importance of physical activity levels and predictors need to be examined to help these patients to prevent secondary complications that could potentially lead to death. Although it is been well established that physical activity has the potential to promote health and enhance quality of life in persons without disabilities, large proportions of the population are physically inactive to the point that it negatively impacts their overall health status. By examining the oxygen consumption (VO2), and energy expenditure in power soccer athletes with SCIs this could provide information regarding the type and level of physical activity necessary for positive health benefits in individuals with SCI that is currently limited.

Methods: VO2, RER, RPE and METs were assessed on an athlete with SCI using objective measurements via a portable gas analyzer during free play, drills, and scrimmage. Results. The average VO2 over the three various activities was 4.83 mL/kg/min, and the average rating of perceived exertion (RPE) was 12.5, indicating a somewhat hard effort. This case study participant had a constant RER value of 0.92. Conclusion: Though there is not a large increase in muscle movement during the scrimmage this athlete with SCI increased his VO2 and therefore will have some cardiovascular improvements.

LITERARY REVIEW

To examine the oxygen consumption (VO2), and energy expenditure in power soccer athletes with SCI.

OBJECTIVE

To examine the oxygen consumption (VO2), and energy expenditure in power soccer athletes with SCI.

METHODS

SUBJECT CHARACTERISTICS

A 62 year old power soccer athlete with an T5 level SCI, was tested at the Paralympic Training Facility in Birmingham, AL.

His BMI was 28 and he has been actively involved in sport for the past 40 years, of which the last 3 years specifically in power soccer.

MEASUREMENTS

CosMed K4b2 Portable Metabolic System®

- A portable system to measure the gas exchange on a breath-by-breath basis.

- Borg Rating of Perceived Excretion (RPE)

- Scale from 6 – 20 to rate the degree of perceived exertion you feel. Include the total amount of exertion and physical fatigue.

RESULTS

Based on CosMed K4b2® results, showed a significant increase in oxygen consumption during both free play and during scrimmage.

RPE increased throughout the entire practice session, highest rating occurring during the highest VO2.

DISCUSSION

- Some SCI athletes have an increase VO2, and energy expenditure with increasing levels of exercise intensities.

- RPE is a good resource to guide exercise prescriptions for patients with SCI when heart rates can not be used due to ANS.

- Though there is not a large increase in muscle movement during the scrimmage this SCI athlete increased their oxygen consumption and therefore will have some cardiovascular improvements.

- The more physical activity participation can potentially decrease in secondary complications (heart disease, cancer, and strokes) for this population.

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REFERENCES