



RehabMove 2018: THE IMPLEMENTATION OF $\dot{V}O_2$ KINETICS TO EVALUATE TRAINING EFFECTS IN CANCER PATIENTS

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PURPOSE: Oxygen uptake ($\dot{V}O_2$) kinetics can be used to measure exercise capacity. A constant work rate (CWR) test at moderate intensity measuring $\dot{V}O_2$ on-kinetics may be more suitable for a deconditioned patient population and a valuable source of information on training effects in addition to the regular exercise tests. The main goal of this study was to compare the sensitivity of $\dot{V}O_2$ on-kinetics during a rest-to-submaximal exercise transition to the regular variables measured in an incremental cardiopulmonary exercise test (CPET): ventilatory threshold (VT), $\dot{V}O_{2peak}$ and peak work rate (WR_{peak}) to exercise induced changes, and to evaluate the usefulness of $\dot{V}O_2$ on-kinetics in determining an improved exercise capacity with respect to CPET in cancer patients.

METHODS: Ten cancer patients (7 females) with a variety of cancer types aged between 39 and 64 years were enrolled in a 12-week rehabilitation program, in which they performed combined cycle-ergometer and strength training for two times a week. At initial and final evaluations, $\dot{V}O_2$ on-kinetics were measured breath-by-breath during a CWR test of moderate intensity, and $\dot{V}O_{2peak}$ and VT were measured with a CPET.

RESULTS: Comparisons between pre- and post-intervention showed large effect sizes for $\dot{V}O_{2peak}$ ($r = .59$) and oxygen uptake at VT ($r = .56$). $\dot{V}O_2$ on-kinetics did not change after the training program.

CONCLUSION: The current results suggest that $\dot{V}O_2$ on-kinetics is not more sensitive to exercise-induced adaptations compared to $\dot{V}O_{2peak}$ and VT. However, $\dot{V}O_2$ on-kinetics did increase in eight of the ten subjects, and can serve as a source of information on training progress, especially when other information is lacking due to a non-maximal CPET or an unreliable VT.