

## Oxygen pulse as a protective factor of insulin resistance in sedentary women with overweight or obesity

Rojas, L. G., Sánchez, J. S., Capellacci, M. C., Claro, R. M., & Ramírez, J. C. (2018). Oxygen pulse as a protective factor of insulin resistance in sedentary women with overweight or obesity. *Nutricion hospitalaria*. <10.20960/nh.1549> Accessed 28 Mar 2021.

### Abstract

**Background:** obesity is associated with insulin resistance (IR). Through exercise, insulin resistant obese patients can effectively improve their cardiorespiratory fitness (CRF). The effect of exercise on patients CRF can be determined by oxygen pulse (PO<sub>2</sub>) analysis. Despite its usefulness, there is limited literature on PO<sub>2</sub> analysis in patients with obesity and insulin resistance. **Objective:** the goal of the present study is to evaluate the relation between PO<sub>2</sub> and IR in sedentary obese women. **Methods:** fifty-five women were submitted to a maximal exercise test for evaluation of maximal oxygen consumption and PO<sub>2</sub>. The subjects with a homeostatic model assessment of IR index greater or equal to 2.5 were considered as insulin-resistant (IR). Participants were divided into two groups, IR group (n = 35) and non-IR group (n = 20). **Results:** the IR group had lower values of PO<sub>2</sub> relative to body weight ( $11.0 \pm 1.7$  versus  $12.6 \pm 1.4$  ml/kg/beat,  $p = 0.001$ ) and relative to lean mass ( $21.7 \pm 2.9$  versus  $23.2 \pm 2.8$  ml/kg/beat,  $p = 0.038$ ) than non-IR group. No statistical differences were found in maximal oxygen consumption between the groups (non-IR =  $1.53 \pm 0.27$  l/min, IR =  $1.51 \pm 0.28$  l/min;  $p = 0.386$ ). PO<sub>2</sub> relative to body weight and HOMA-IR was inversely correlated ( $p < 0.001$ ;  $r = -0.465$ ). Logistic regression analysis showed an association between PO<sub>2</sub> relative to weight ( $p = 0.001$ , OR = 0.47) and fat free mass ( $p = 0.01$ , OR = 0.73), both models adjusted by age. **Conclusions:** this study demonstrates a relation between HOMA-IR and PO<sub>2</sub>. Our results suggest that PO<sub>2</sub> could be a protective factor against insulin resistance..