

## Insulin Resistance and Maximal Oxygen Uptake

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### Summary

*Background:* Type 2 diabetes, coronary atherosclerosis, and physical fitness all correlate with insulin resistance, but the relative importance of each component is unknown.

*Hypothesis:* This study was undertaken to determine the relationship between insulin resistance, maximal oxygen uptake, and the presence of either diabetes or ischemic heart disease.

*Methods:* The study population comprised 33 patients with and without diabetes and ischemic heart disease. Insulin resistance was measured by a hyperinsulinemic euglycemic clamp; maximal oxygen uptake was measured during a bicycle exercise test.

*Results:* There was a strong correlation between maximal oxygen uptake and insulin-stimulated glucose uptake ( $r = 0.7$ ,  $p = 0.001$ ), and maximal oxygen uptake was the only factor of importance for determining insulin sensitivity in a model, which also included the presence of diabetes and ischemic heart disease.

*Conclusion:* Maximal oxygen uptake may be a more important determinant for insulin sensitivity than ischemic heart disease and type 2 diabetes.

**Key words:** insulin resistance, maximal oxygen uptake

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