



# Exercise and Diabetes

## Exercise Reduces Blood Glucose

Exercise is a cornerstone of diabetes management, along with dietary and pharmacological interventions. Current guidelines recommend that patients with type 2 diabetes perform at least 150 minutes per week of moderate-intensity aerobic exercise as well as resistance exercise 3 times per week. "Regular exercise improves glucose control in diabetes, but the association of different exercise training interventions on glucose control is unclear." High levels of sugar are associated with structural damage to many of the bodily organs particularly eyes, kidneys, distal capillaries and other features as well as early death. Controlling the level of sugar is a vital part of a diabetics daily living.

A group of scientists from the Hospital de Clinicas de Porto Alegre, Brazil performed a systematic review and meta-analysis of previously conducted randomized controlled clinical trials that evaluated the ability of structured exercise training to lower HbA<sub>1C</sub> levels as compared with a control group in patients with type 2 diabetes. The researchers identified 47 studies (8,538 patients) that met their criteria for inclusion.

A systematic review of the studies demonstrated important findings regarding the prescription of structured exercise training. First, aerobic, resistance, and 'combined training' are each associated with HbA<sub>1c</sub> decreases. The magnitude of this reduction is similar across the three exercise modalities. Second, the findings demonstrate that structured exercise of more than 150 minutes per week is associated with greater declines in HbA<sub>1C</sub> than structured exercise of 150 minutes or less per week in patients with type 2 diabetes. This finding is important because the current guideline-recommended exercise duration is at least 150 minutes per week. Third, although high-intensity exercise has been previously shown to have an association with HbA<sub>1c</sub> reduction, the study's findings did not demonstrate that more intensive exercise was associated with greater declines in HbA<sub>1C</sub>.

Structured exercise durations of more than 150 minutes per week were associated with HbA<sub>1C</sub> reductions of 0.89%, while structured exercise durations of 150 minutes or less per week were associated with HbA<sub>1C</sub> reductions of 0.36%. This is a very wide difference indicating the importance of sustaining a high level of activity. More is better.

## Comment

Type II diabetes is often associated with obesity and an ageing population. This is the population who finds exercise difficult and often painful. Water based exercise clearly provides moderately-intense aerobic and resistance exercises, it can be done seven days a week and should be encouraged throughout this population as a means of controlling blood glucose.

## Public Policy – Finance Exercise

In summary, this meta- analysis which appeared in a recent issue of *JAMA* and cumulative evidence from a large number of randomized controlled trials conducted over the past few decades provides

solid evidence for public policy makers to consider structured exercise and physical activity programs as worthy of insurance reimbursement to promote health, especially in high-risk populations.

Public policy should encourage investments in programs and facilities that promote wellness as much as it encourages investment in illness cures. Prevention systems are equally, if not more, important than treatment systems and studies such as this one support that kind of discussion.