EDITORIAL

Sedentary behaviour associated with type 2 diabetes

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THE FINDINGS OF A LARGE PROSPECTIVE COHORT STUDY SUGGEST THAT SEDENTARY BEHAVIOUR increases the risk of developing metabolic syndrome and type 2 diabetes.[1]

The epidemic of type 2 diabetes, and its precursor metabolic syndrome, has been linked to several genetic, environmental and lifestyle risk factors, but the model of risk is still being refined, and sedentary behaviour is one of the areas being explored.

Sedentary behaviour is defined as waking behaviour characterised by an energy expenditure ≤1.5 metabolic equivalents while in a sitting or reclining posture. This equates to time watching TV or using the computer. Sedentary behaviour can be objectively measured using an accelerometer, an instrument attached to the thigh that records posture and movement.

'An extra hour of sedentary time was associated with 22% increased odds of type 2 diabetes independent of high-intensity physical activity'

The study was undertaken in the Netherlands and used data from the Maastricht study, an observational, prospective, population-based cohort study that focuses on the aetiology and outcomes of type 2 diabetes. Eligible participants were recruited from adults aged 40-70 who responded to mass media campaigns or postal invitation.

The overall study population consisted of 2,497 participants with an average age of 60 (± 8.1) years. Just over half (52%) of the sample were men. The participants were classified as normal glucose metabolism (NGM) 1,395 (55.9%), impaired glucose metabolism determined by an oral glucose tolerance test (IGM) 388 (15.5%) and type 2 diabetes 714 (28.6%).

The type 2 diabetes group contained more smokers, and more people with raised BMI and restricted mobility but alcohol consumption levels were lower than in the other groups. On average diabetes was controlled to HbA_{1c} 6.9%. Median duration of diabetes was six years. More than 85% of participants in all groups provided at least six valid days of data from the accelerometer which they wore for 24 hours a day.

When the data were analysed, increased sedentary time was associated with both metabolic syndrome and type 2 diabetes. An extra hour of sedentary time was associated with 22% increased odds of type 2 diabetes and 39% increased odds of metabolic syndrome, independent of high-intensity physical activity.

The odds ratio (OR) per additional hour of sedentary time for type 2 diabetes was OR 1.22 (95% CI: 1.13-1.32) and for metabolic syndrome 1.39 (95% CI:1.27-1.53). The pattern in which sedentary time was accumulated was analysed, but was not strongly associated with risk.

Although statistical adjustment for confounding variables such as BMI and high-intensity exercise were performed, the authors note that their cross-sectional study does not confirm a causal relationship.

It was possible that type 2 diabetes patients had more sedentary time because of poorer health, but when patients who were on insulin, who might be thought to have more advanced diabetes and therefore poorer overall health, were excluded from the analysis, the results did not change.

The study authors state: 'Future studies in participants with type 2 diabetes should be conducted to confirm our results, and to explore dose-response relationships and causality. Nevertheless, our findings could have important implications for public health as they suggest that sedentary behaviour may play a significant role in the development and prevention of type 2 diabetes, independent of high-intensity physical activity.

'Consideration should be given to including strategies to reduce the amount of sedentary time in diabetes prevention programmes,' they add.

The public health message here is to attempt to reduce sedentary behaviour. Recent evidence also shows that regular gentle exercise, such as walking, can confer significant health benefits, suggesting that modest changes in lifestyle may have profound results at population level.

As GPs, perhaps we should reflect on the increasing hours we spend sitting in front of our computers.

REFERENCE
1 van der Berg JD, Stehouwer CDA, Bosma H et al. Associations of total amount and patterns of sedentary behaviour with type 2 diabetes and the metabolic syndrome: the Maastricht Study. *Diabetologia* 2016;59:709-18

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