

Accelerometer-Based Assessment of Sedentary Behaviour in Patients with Type 2 Diabetes mellitus

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Introduction

Sedentary behaviour and physical activity can have wide-ranging health effects in patients with Type 2 Diabetes mellitus (T2DM). Both are known to be modifiable health behaviours. Current health behaviour recommendations encourage patients to limit sedentary behaviour and break up prolonged sitting every 30 minutes. Recent findings highlight the positive physiological and metabolic effects of brief periods of physical activity interrupting prolonged sitting in T2DM patients (Kanaley et al. 2022). This study aims to examine the sedentary behaviour characteristics in T2DM patients using objective accelerometry data.

Methods

Physical activity and sedentary behaviour were assessed using waist-worn accelerometers (Actigraph GT3X+) during waking hours. Participants (n = 121) were selected as a subsample within the Personalised Selfmanagement Support Programme (P-SUP; Konering et al. 2021; Innovationsfond: 01NVF18033). Assessments took place during baseline measurements. Accelerometers and detailed instructions were mailed to the participants. Wear-time criteria were ≥ 4 days with ≥ 10 hours per day. Data was analysed in 1-minute epochs of tri-axial vector-magnitude using a cut point of 150 counts per minute.

Results

n = 90 participants (50% female, 67.5 ± 9.4 years) accumulated sufficient wear time for subsequent analysis. Participants spent $7:58 \pm 2:13$ hours per day with sedentary behaviour. $19.4 \pm 9.6\%$ of the total sedentary time was spent within bouts between 30 and 60 minutes and $11.6 \pm 8.6\%$ within bouts longer than 60 minutes.

Discussion

Our results highlight the extent of total sedentary time and time spent in prolonged sedentary bouts. Behavioural interventions to reduce the total sedentary time and promote the interruption of prolonged sedentary bouts may be needed in T2DM patients. Further research regarding the length and intensity of activity breaks is required.

Literature

- Kanaley, J. A., Colberg, S. R., Corcoran, M. H., Malin, S. K., Rodriguez, N. R., Crespo, C. J. et al. (2022). Exercise/Physical Activity in Individuals with Type 2 Diabetes: A Consensus Statement from the American College of Sports Medicine. *Medicine and Science in Sports and Exercise*, 54(2), 353–368.
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