

The Health Risks Associated with Prolonged Sedentary Behaviour: A Systematic Review

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Abstract

Sedentary behaviour is associated with an increased risk of obesity, cardiovascular disease, type 2 diabetes mellitus, and a range of other adverse health outcomes. However, few systematic reviews or meta-analyses have synthesised the evidence of sedentary behaviour and adverse health outcomes in adults. This systematic review differed from other systematic reviews in that it included only prospective studies with clearly defined measurements of prolonged sedentary behaviour in otherwise healthy adults. A comprehensive search of major databases for studies measuring cardiovascular and metabolic outcomes identified 19 prospective studies, 16 of which were included after critical appraisal. The review revealed difficulties in identifying a consistent and unified definition of sedentary behaviour, and ambiguities in quantifying sedentary behaviour due to methodological limitations. Despite this, the results suggested that prolonged sedentary behaviour in adults, particularly sitting for more than three hours at a time, was consistently and strongly associated with an increased risk of cardiovascular disease, all-cause and cardiovascular disease mortality, and — to a lesser degree — type 2 diabetes mellitus; these associations appeared to be independent of a range of age, sex and lifestyle factors — and also, importantly, physical activity. No conclusions could be made for the risk of overweight or obesity, or for gallstones, due to conflicting results and methodological problems identified in the primary studies. Overall, high-quality systematic review and any meta-analysis of sedentary behaviour is constrained by the quality of the primary studies, including variation in the definition of sedentary behaviour and the methods used to measure it. These results strengthen the case for modifying physical activity guidelines to include recommendations on minimising sedentary behaviour, thereby making guidelines more relevant to contemporary lifestyles.

Declaration

I, Margaret Heaslop, certify that this work contains no material that has been accepted for the award of any other degree or diploma in any university or any other tertiary institution, and, to the best of my knowledge and belief, contains no material previously published or written by any other person, except where due reference has been made in the text.

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Margaret Jane Anne Heaslop

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