

The effects of physical activity interventions on glycated haemoglobin A1c in non-diabetic populations: A protocol for a systematic review and meta-analysis

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Introduction Epidemiological evidence suggests that physical activity has a positive effect on reducing glycated haemoglobin A1c (HbA1c) levels not only in diabetics, but also in healthy subjects. Moreover, a positive association of HbA1c levels with cardiovascular disease and mortality in non-diabetic populations has recently been reported. This is a protocol for a systematic review and meta-analysis aiming to estimate the effects of physical activity on glycaemic control measured by HbA1c levels in non-diabetic populations; and to determine which type of physical activity has a greater influence on glycaemic control.

Methods and analysis The search will be conducted using MEDLINE, EMBASE, the Cochrane Library and Web of Science databases from inception to mid-2017. Randomised controlled trials, non-randomised experimental studies and controlled pre-post studies written in English, Portuguese, French or Spanish will be included. The Cochrane Collaboration's tool and The Quality Assessment Tool for Quantitative Studies will be used to assess the risk of bias for studies included in the systematic review. Standardised pre-post intervention mean differences of HbA1c will be calculated as the primary outcome. Subgroup analyses will be performed based on the characteristics of physical activity intervention and population included in the studies.

Ethics and dissemination This systematic review will synthesise evidence on the association of physical activity and HbA1c in non-diabetic populations. This study is important from the clinical and public health point because it will estimate the effect of physical activity on the glycaemic control, and it will also examine which is the type of physical activity that

should be recommended for preventing type 2 diabetes and its complications. The results will be disseminated by publication in a peer-reviewed journal. Ethical approval will not be required because the data used for this systematic review will be obtained from published studies and there will be no concerns about privacy. Trial registration number PROSPERO CRD42016050991. © 2017 Article author(s) (or their employer(s) unless otherwise stated in the text of the article). All rights reserved. No commercial use is permitted unless otherwise expressly granted.

HbA1c

meta-analysis

physical activity

hemoglobin A1c

glycosylated hemoglobin

attrition bias

detection bias

endurance training

glycemic control

groups by age

human

non insulin dependent diabetes mellitus

outcome assessment

performance bias

physical activity

pilates

quality control

randomized controlled trial (topic)

reporting bias

resistance training

Review

selection bias

sensitivity analysis

statistical bias

systematic review

yoga

analysis

diabetes mellitus

exercise

glucose blood level

meta analysis

methodology

Blood Glucose

Diabetes Mellitus

Exercise

Glycated Hemoglobin A

Humans

Research Design