

# Comparative effect of statins and types of physical exercise on arterial stiffness: Protocol for network meta-analysis

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**INTRODUCTION:** The purpose of this study protocol is to provide the methodology for a review to compare the effect of statins vs physical exercise interventions and the effect of different types of physical exercise, on reducing arterial stiffness associated with cardiovascular diseases and mortality. **METHODS AND ANALYSIS:** The literature search will be conducted in MEDLINE, EMBASE, Cochrane Central Register of Controlled Trials, Cochrane Database of Systematic Reviews, and Web of Science databases from their inception until July 31, 2019. We will include randomized controlled trials, nonrandomized experimental studies, and controlled pre-post studies assessing the effect in the general population of statins and physical exercise interventions on arterial stiffness measured by pulse wave velocity. 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. A Bayesian network meta-analysis will be carried out to determine the comparative effect of the different physical exercise interventions and/or statin intervention. **ETHICS AND DISSEMINATION:** This study will generate evidence about the effectiveness of both statins and exercise on reducing arterial stiffness that potentially can be transferred to patients and practitioners. Moreover, in light of the importance of reducing arterial stiffness for preventing cardiovascular disease, the evidence provided by this study will be potentially suitable to be included in cardiovascular clinical practice guidelines. **STRENGTHS AND LIMITATIONS:** This protocol

describes the methods of a study examining, using network meta-analysis strategies, the efficacy of statins and different types of exercise on improving arterial stiffness, which is an early marker of atherosclerosis. The results of this study could immediately help clinicians to recommend the best evidence-based intervention to their patients to reduce arterial stiffness and, as a consequence, prevent major complications, such as heart failure, stroke, or myocardial infarction. TRIAL REGISTRATION NUMBER: PROSPERO CRD42019123120.