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Effect of different cadences on a cycle ergometer on blood pressure in people with hypertension: an empty systematic review of randomized controlled trials

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Alexey Antonov[1], Alexander Miroshnikov[1], Polina Rybakova[1]

[1]Russian university of sports "GTSOLIFK"

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Polina Rybakova
Russian university of sports "GTSOLIFK"

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Disclaimer

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Abstract

Current guidelines recommend exercise as part of primary and secondary prevention of CVD. However, little has been discussed about the effects of different cadences on a bicycle/exercise bike in the prevention and treatment of hypertension. Systematic responses directly related to exercise depend on the intensity, duration and frequency of exercise.
Based on the analysis of the problem situation, data from modern scientific periodicals and requests from sports physicians, clinicians and specialists in exercise therapy, the aim of the study was formulated.
The aim of the study is to systematically search for and summarize randomized controlled trials on the effect of different cadences on a bicycle ergometer on blood pressure in people with hypertension.

Attachments

PDF

Sources of informati...

342KB

Guidelines

The review was conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) statement [Dickson]. The study protocol was written and registered before the search began and was not changed during or after the search, according to the Preferred Reporting Items for Systematic Review and Meta-Analyses Protocols (PRISMA-P) [Shamseer].
The literature search was carried out according to PRESS (Peer Review of Electronic Search Strategies) [McGowan].

Materials

Search Strategy

Sources of information and search strategies The literature search was carried out according to PRESS (Peer Review of Electronic Search Strategies) [McGowan] in the databases (without restrictions on the date and language of publication): PubMed, MedNar, Cochrane Library, Epistemonikos and Elibrary, using the keywords presented in the section "Description".

To increase the breadth of coverage of the topic under consideration, a grey literature search was conducted in the SportRχiv database according to the checklist of Benzies et al. [Benzies]. The reference lists of the retrieved studies were then hand-searched to identify potentially eligible studies not covered by the electronic search. No publication date or language restrictions were imposed. To be included in the review, a study had to meet the following inclusion criteria based on the **PICOS system** [Amir-Behghadami]. P (Population) – people with hypertension over 18 years old; I (Intervention) – performance of exercise protocols (long-term and short-term) on a cycle ergometer with different HR; C (Comparison) – comparison with a control group or the beginning of the intervention; O (Outcomes) – change in BP; S (Study) – RCT. Studies were excluded if: (a) HR was not stated; (b) the intervention was mixed.

Study selection. Initially, two review authors (PD Rybakova and AG Antonov) independently and in parallel screened article titles, abstracts, and, where appropriate, full texts from database records according to the eligibility criteria. Duplicates and articles that did not meet the criteria were excluded from the search. Any discrepancies were resolved by consensus discussion, and any disagreements were resolved by another reviewer (AB Miroshnikov).

Study extraction. Following the search, two review authors (PD Rybakova and AG Antonov) independently and in parallel screened the full texts according to the inclusion criteria. Duplicates and articles that did not meet the criteria were removed. Whenever disagreements arose between the assessments of the two researchers, consensus was reached either by discussion or with the help of a third reviewer (AB Miroshnikov). Inter-rater (kappa) agreement ranged from 0.53 (weak) to 1.00 (almost perfect), as recommended by McHugh [McHugh].

Data synthesis. Meta-analysis was not performed due to empty review

Before start

On October 1, 2024, we conducted a pilot screening according to the inclusion/exclusion criteria. We found that there was very limited data and conducted a full search strategy before protocol registration. We did not find any studies according to the inclusion/exclusion criteria. For this reason, this systematic review is designated as **"empty"**.

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