PEDro Newsletter 10 October 2023

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Welcome to the PEDro Newsletter for October 2023

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Infographic: Systematic review found that aerobic exercise during pregnancy may reduce the incidence of gestational diabetes mellitus and gestational hypertension

Last month we summarised the systematic review by Zhang et al 2023. The review concluded that aerobic exercise during pregnancy may reduce the incidence of gestational diabetes mellitus and gestational hypertension.

Some findings are included in this infographic.

EFFECTS OF AEROBIC EXERCISE PERFORMED DURING PREGNANCY ON HYPERTENSION AND GESTATIONAL DIABETES

Zhang J et al. Effects of aerobic exercise performed during pregnancy on hypertension and gestational diabetes: a systematic review and meta-analysis *J Sports Med Phys Fitness*. 2023 July ;63 (7): 852-863

WHAT DID THEY DO?

Study design: Systematic review of 11 randomised controlled trials

Population: 3,165 pregnant women

Intervention: Aerobic exercise (e.g., walking on land or in water, cycling, yoga), minimum 3 days/week, 30-60 minutes, 6-40 weeks.

Comparator: Standard antenatal care and education

Outcome: Incidence of gestational diabetes mellitus and gestational hypertension

Majority of trials (8/11) had a low risk of bias

FINDINGS

People who perform aerobic exercise during pregnancy, compared to standard antenatal care, experience a reduction of:

- 61% odds of developing gestational diabetes mellitus (OR 39% 95%CI (30% to 50%))
- 62% odds of developing gestational hypertension (OR 38% 95%CI (27% to 54%))

Incidence of adverse events was not reported

Note: The certainty of the evidence was not assessed

Aerobic exercise during pregnancy reduces the incidence of gestational diabetes mellitus and gestational hypertension compared to standard antenatal care

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Zhang J, Wang HP, Wang XX. Effects of aerobic exercise performed during pregnancy on hypertension and gestational diabetes: a systematic review and meta-analysis. *J Sports Med Phys Fitness*. 2023 Jul;63(7):852-863. doi: 10.23736/S0022-4707.23.14578-6

Read more on PEDro.

Systematic review found that physical exercise interventions showed significant effects on the reduction in depressive symptoms in people with Parkinson's Disease.

Parkinson's Disease is a neurodegenerative disorder, which results in both motor and non-motor impairments. Depression is one of the most common non-motor symptoms for people with Parkinson's Disease, ranging from 20-50%, with a 2022 systematic review and meta-analysis finding an overall prevalence of 38%. Depression in Parkinson's Disease has been associated with worse motor symptoms, disability and quality of life. Exercise has been shown to result in smaller increases in Leva-dopa medications, improvements in gait speed and endurance, less disability and improved quality of life, but it's effect on depressive symptoms is unclear. This systematic review aimed to estimate the effects of physical exercise interventions compared to control on depressive symptoms in people with Parkinson's Disease, and also to investigate whether the effects differ by exercise type or intensity.

A search of two databases (PubMed and Web of Science) from inception to February 2022 was performed to identify randomised controlled trials evaluating physical exercise interventions. The participants were people with Parkinson's Disease (no age range specified). The intervention was any type of physical exercise training of more than one session. The comparator could be either mild and regular physical activity programs (e.g. stretching only) or no physical exercise training. The primary outcome was the change in depressive symptoms. Three reviewers independently selected the trials, extracted data and evaluated trial quality. Disagreements were resolved through arbitration by a fourth reviewer. Trial quality was assessed using the Cochrane risk of bias tool, however no tool was used to evaluate the certainty of the evidence. Individual effect sizes were quantified for each study by calculating standardised mean differences (SMD) and 95% confidence intervals (CI). Then overall effect sizes were estimated by statistically incorporating individual effect sizes, using a random-effects meta-analysis model. Pre-defined moderator variable analyses were performed to determine whether the effects differ by exercise type (e.g. aerobic, strength, balance, flexibility or combined training) or intensity (e.g. light-moderate or moderate-vigorous).

Nineteen trials (1,302 participants) published between 2015 and 2021 were included in this review. Some trials had more than one exercise intervention and there were 23 total comparisons from the 19 trials. The trials were conducted in 10 countries from Asia, Europe, North and South America. All trials included men and women, with a range of mean age at enrolment of 59.3 to 75.5 years and range of mean disease duration of 1.8 to 8.0 years. Frequency of training was 1 to 5 sessions per week and the duration of the exercise programs ranged from 3 to 288 weeks, with most from 13 to 26 weeks. Combined

exercise programs (e.g. balance and strength) were the most common type (14 programs), followed by aerobic training only (five programs), then flexibility training only (two programs) and one program each for strength training only and balance training only. Of the 14 combined training programs, 12 included aerobic training. Moderate-vigorous intensity exercise programs were the most common (17 programs) and six exercise programs involved light-moderate intensity exercise.

Overall, physical exercise interventions had significant positive effects on the reduction in depressive symptoms in patients with Parkinson's Disease with a SMD of 0.83 (95%CI 0.52 to 1.14). The pre-defined moderator variable analysis revealed that combined exercise training programs had significant positive effects on the reduction in depressive symptoms in patients with Parkinson's Disease with a SMD of 1.11 (95%CI 0.64 to 1.59), however neither aerobic training alone nor flexibility training alone had a significant effect. The other pre-defined moderator variable analysis revealed that both exercise intensities had significant positive effects on the reduction in depressive symptoms in patients with Parkinson's Disease (light-moderate exercise intensity SMD of 0.97 (95%CI 0.52 to 1.42) and moderate-vigorous exercise intensity SMD of 0.78 (95%CI 0.41 to 1.15)).

Physical exercise interventions have significant and large positive effects on the reduction in depressive symptoms in patients with Parkinson's Disease. These effects are more closely associated with exercise type than exercise intensity.

Kim R, Lee TL, Lee H, Ko DK, Jeon B, Kang N. Effects of exercise on depressive symptoms in patients with Parkinson Disease. *Neurology* 2023; 100:e3777-e387. DOI: 10.1212/WNL.0000000000201453

DiTA update (9 October 2023)

DiTA contains 2,434 records. In the 09 10 2023 update you will find:

- 2,164 reports of primary studies, and
- 270 reports of systematic reviews.

For the latest primary studies and systematic reviews evaluating diagnostic tests in physiotherapy visit *Evidence in your inbox*.

Next PEDro and DiTA updates (November 2023)

The next PEDro and DiTA updates are on 6 November 2023.

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