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# Influence of exercise intervention on gestational diabetes mellitus: a systematic review and meta-analysis

**Aims**

Exercise intervention might be a promising approach to prevent gestational diabetes mellitus. However, the results remained controversial. We conducted a systematic review and meta-analysis to explore the effect of exercise intervention on gestational diabetes mellitus.

**Methods**

PubMed, EMbase, Web of science, EBSCO, and Cochrane library databases were systematically searched. Randomized controlled trials (RCTs) assessing the effect of exercise intervention on gestational diabetes mellitus were included. Two investigators independently searched articles, extracted data, and assessed the quality of included studies. The primary outcome was the incidence of gestational diabetes mellitus, preterm birth, and gestational age at birth. Meta-analysis was performed using random-effect model.

**Results**

Five RCTs involving 1872 patients were included in the meta-analysis. Overall, compared with control intervention, exercise intervention was found to significantly reduce the risk of gestational diabetes mellitus (std. mean difference 0.62; 95% CI 0.43–0.89; P = 0.01), but demonstrated no influence on preterm birth (OR 0.93; 95% CI 0.44–1.99; P = 0.86), gestational age at birth (std. mean difference −0.03; 95% CI −0.12 to 0.07; P = 0.60), glucose 2-h post-OGTT (std. mean difference −1.02; 95% CI −2.75 to 0.71; P = 0.25), birth weight (std. mean difference −0.10; 95% CI −0.25 to 0.04; P = 0.16), Apgar score less than 7 (OR 0.78; 95% CI 0.21–2.91; P = 0.71), and preeclampsia (OR 1.05; 95% CI 0.53–2.07; P = 0.88).

**Conclusions**

Compared to control intervention, exercise intervention was found to significantly reduce the incidence of gestational diabetes mellitus, but had no significant influence on preterm birth, gestational age at birth, glucose 2-h post-OGTT, birth weight, Apgar score less than 7, and preeclampsia.

**Key words:** Exercise intervention  Gestational diabetes mellitus  Randomized controlled trials (RCTs)  Meta analysis  Systematic review



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