

# The Effect of Supervised Prenatal Exercise on Fetal Growth: A Meta-analysis

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**OBJECTIVE:** To estimate the influence of structured prenatal exercise on newborn birth weight, macrosomia, and growth restriction.

**DATA SOURCES:** A structured search of MEDLINE, EMBASE, CINAHL, Sport Discus, Ovid's All EBM Reviews, and ClinicalTrials.gov databases up to January 13, 2015. The search combined keywords and MeSH-like terms including, but not limited, to “physical activity,” “exercise,” “pregnancy,” “gestation,” “neonatal,” and “randomized controlled trial.”

**METHODS OF STUDY SELECTION:** Articles reporting randomized controlled trials comparing standard care with standard care plus supervised prenatal exercise for which birth size was available were included. Supervision was defined as at least one exercise session performed with study personnel every 2 weeks throughout the program. Interventions consisting solely of pelvic floor exercises, stretching, or relaxation were excluded. Our search yielded 1,036 publications of which 79 were assessed for eligibility. Twenty-eight studies reporting on 5,322 pregnancies were subsequently included in the analysis.

**TABULATION, INTEGRATION, AND RESULTS:** Our meta-analysis demonstrated that prenatal exercise reduced the odds of having a large newborn (birth weight greater than 4,000 g or greater than the 90th percentile for gestational age and sex) by 31% (odds ratio [OR] 0.69, 95% confidence interval [CI] 0.55–0.86; I<sup>2</sup> 25%) without altering the risk of having a small newborn (birth weight less than 2,500 g or less than the 10th percentile for gestational age and sex) (OR 1.02, 95% CI 0.72–1.46; I<sup>2</sup> 0%) or gestational age at delivery (weighted mean difference –0.00 weeks, 95% CI –0.09 to 0.09; I<sup>2</sup> 0%). Newborns of mothers assigned to exercise were lighter than those of nonexercising controls (weighted mean difference –31 g, 95% CI –57 to –4; I<sup>2</sup> 0%). Maternal gestational weight gain (weighted mean difference –1.1 kg, 95% CI –1.5 to –0.6; I<sup>2</sup> 53%) and odds of cesarean delivery (OR 0.80, 95% CI 0.69–0.94; I<sup>2</sup> 0%) were also reduced.

**CONCLUSION:** These data demonstrate that structured prenatal exercise reduces the risk of having a large newborn without a change in the risk of having a small newborn.