

## THE EFFECT OF REGULAR EXERCISE COMMENCED IN EARLY PREGNANCY ON THE INCIDENCE OF GESTATIONAL DIABETES MELLITUS IN OVERWEIGHT AND OBESE PREGNANT WOMEN : A RANDOMIZED CONTROLLED TRIAL

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**Background:** The aim of our study was to evaluate whether regular moderate exercise commenced in early pregnancy could decrease the incidence of GDM in overweight and obese women. **Methods:** We conducted a randomized controlled trial at Peking University First Hospital. Singleton non-smoking pregnant women who were  $\geq 18$  years old, with a prepregnancy body mass index (p-BMI)  $\geq 24$  kg/m<sup>2</sup> before 12<sup>+6</sup> gestational weeks were recruited and randomly allocated to either an exercise intervention group (EG) or control group (CG). The primary outcome was incidence of GDM. This trial was registered at [www.clinicaltrials.gov](http://www.clinicaltrials.gov), identifier: NCT02304718. **Results:** From December 2014 to April 2016, 300 women with a mean p-BMI of  $26.78 \pm 2.75$  kg/m<sup>2</sup> were recruited. We randomly assigned 150 women to each group. 132 out of 150 women in EG and 133 out of 150 in CG underwent 75g OGTT. The incidence of GDM was 22.0% (29/132) in EG, while 40.6% (54/133) in CG (odds ratio =0.41, 95%CI, 0.24-0.71). EG had lower blood glucose levels at 0h, 1h and 2h in OGTT compared to CG levels ( $4.76 \pm 0.41$  vs.  $4.96 \pm 0.51$  mmol/L,  $p=0.001$ ;  $7.99 \pm 1.67$  vs.  $8.57 \pm 1.86$  mmol/L,  $p=0.009$ ;  $6.57 \pm 1.18$  vs.  $7.03 \pm 1.62$  mmol/L,  $p=0.009$ ; respectively). There were statistical significances in secondary outcomes between EG and CG, such as elevated physical activity levels ( $1741 \pm 798$  vs.  $1327 \pm 1300$  Met-min/week,  $p=0.010$ ), reduced gestational weight gain ( $4.08 \pm 3.02$  vs.  $5.92 \pm 2.58$  kg,  $p=0.001$ ) and insulin resistance levels ( $2.92 \pm 1.27$  vs.  $3.38 \pm 2.00$ ,  $p=0.033$ ). **Conclusions:** Regular moderate exercise commenced early in pregnancy can decrease the incidence of GDM in overweight and obese Chinese pregnant women.