

Commentary on a Cochrane Review of Diet and Exercise Interventions to Prevent Excessive Gestational Weight Gain

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Abstract

Excessive weight gain during pregnancy is associated with poor maternal and neonatal health outcomes. A Cochrane review found that healthful diet and/or exercise interventions reduced the risk of excessive gestational weight gain on average by 20%. The largest reduction occurred in combined diet and supervised exercise interventions.

Keywords diet, gestational weight gain, physical activity, pregnancy weight gain

Editor's note: This is one of a series of commentaries on Cochrane Reviews of various topics pertaining to health care of women and newborns. Cochrane Reviews are systematic reviews of research in health care and health policy that are published in the *Cochrane Database of Systematic Reviews*. For more information on Cochrane Reviews, visit www.cochranelibrary.com.

Weight gain is a normal physiological change that occurs during pregnancy. However, excessive weight gain during pregnancy is associated with negative health outcomes for women and their offspring, including gestational diabetes, hypertension, caesarean birth, macrosomia, and stillbirth (Cedergreen, 2006; Hedderson et al.; 2006; Stotland et al., 2006; Centre for Maternal and Child Enquiries (CMACE), 2010). In the United States, the Institute of Medicines (IOM) published guidelines in 2009 that recommended gestational weight gain weight gain ranges for women who were underweight, normal weight, and overweight pre-pregnancy.

Interventions that address healthful eating and/or physical activity behaviors may reduce the risk for excessive gestational weight gain and potential negative health outcomes. Dietary and physical activity interventions that are used in the general population may or may not be appropriate or effective in pregnancy. A previous review (Muktabhant et al., 2012) was inconclusive, meaning it remains unclear which types of interventions are most effective and whether there are differences according to all risk groups.

Objective

The objective of the review by Muktabhant et al. (2015) was to evaluate the effectiveness of diet or exercise interventions, or both, for preventing excessive gestational weight gain and associated pregnancy complications.

Methods

The review included randomized controlled trials of pregnant women of any body mass index (BMI). An electronic search of the Cochrane Pregnancy and Childbirth Group's Trial Register was undertaken and included studies published up to November 2014. The reference lists of all relevant retrieved papers were hand-searched. There was no restriction on language or date of publication.

Trials were organized into five categories according to the type of intervention: (a) diet counseling only versus routine care; (b) diet and exercise counseling versus routine care; (c) specific dietary interventions (e.g., low-glycemic index diet) versus routine care; (d) exercise interventions only versus routine care; and (e) diet and supervised exercise interventions versus routine care. The primary outcome was excessive weight gain, as defined by investigators. There were several secondary outcomes defined for both women and newborns, including preterm birth, preeclampsia, hypertension, cesarean birth, and macrosomia.

Two review authors independently assessed trials for inclusion and risk of bias, extracted data and checked for accuracy. Subgroup analyses were performed according to the initial risk of adverse effects related to poor weight control. Sensitivity analysis were performed to assess the robustness of the findings.

Results

In total, 65 randomized controlled trials were included in the 2015 Cochrane review, including 41 new studies since the 2012 Cochrane review. Forty-nine studies (29 new) including data from 11,444 women were included in the quantitative meta-analysis. Twenty studies were identified as having a moderate to high risk of bias. Studies included participants of various weight categories,

but many studies did not report results for high- and low-risk women separately. Most studies were conducted in high-income countries. The interventions in the 65 identified studies were classified as follows: diet only (8 studies), diet and exercise counseling (25 studies), exercise only (20 studies), diet and supervised exercise (5 studies), and diet counseling/other (7 studies).

Excessive gestational weight gain was usually defined according to the IOM guidelines. Overall, interventions for diet and/or exercise reduced risk of excessive gestational weight gain on average by 20% (average risk ratio 0.80, 95% confidence interval 0.73-0.87, n = 7096). The largest reduction occurred in the supervised exercise and diet interventions. The evidence was graded by the Cochrane review authors as high quality.

Conclusion of the Cochrane Review

The Cochrane review by Muktabhant et al. (2015) found high-quality evidence that diet or exercise, or both, during pregnancy can reduce the risk of excessive gestational weight gain, which may reduce maternal and neonatal complications. The most effective interventions combined supervised exercise with dietary advice. Forty-one new studies were identified since the previous Cochrane review of the topic was published in 2012. Most studies occurred in high-income countries and did not separate results for normal-weight, overweight, and obese women; therefore it is not clear if interventions are more or less effective depending on the study setting, population and pre-pregnancy weight category.

Implications for Practice

The relatively large number of new studies identified since the last review of this topic was carried out in 2012, indicates that excessive gestational weight gain during pregnancy is a matter of important public health concern. In a time when obesity is prevalent in children and adults

worldwide, there is also an increased awareness of the role of preconceptual and maternal health on infant outcomes.

The results of this Cochrane review (Muktabhant et al., 2015) demonstrate that healthful diet and/or exercise interventions can help reduce risk of excessive gestational weight gain; interventions that combine both diet and exercise appear to be the most effective. In general, pregnant women should be encouraged to engage in healthful eating behaviors and participate in moderate-intensity physical activity. Because this Cochrane review included trials mainly from high-income countries, further research in low-income countries is recommended.

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