A Systematic Review of Outcomes of Maternal Weight Gain According to the Institute of Medicine Recommendations: Birthweight, Fetal Growth, and Postpartum Weight Retention


Ideal weight gain during pregnancy has long been debated. Balancing the amount of weight gain needed to optimize the size of the baby without jeopardizing both the short- and long-term health of the mother, is essential. Thus, outcomes of weight gain among pregnant women, specifically birthweight, fetal growth, and postpartum weight retention, remain crucial issues for women of child-bearing age and their clinicians.

The context of our work was recommendations for maternal weight gain set by the Institute of Medicine (IOM) of the National Academy of Sciences. In 1970, the IOM determined that if a mother’s weight gain were restricted, it was likely to harm her baby’s birthweight, and the IOM eased weight gain recommendations to a range of 20 to 27 pounds. In 1990, the IOM issued standardized guidelines that increased these levels and gave specific suggestions for women in different groups (e.g., those who were normal weight, obese, or ethnic minorities). To examine these issues, especially in the context of rising gestational weight gains beyond recommended levels in recent years, we systematically reviewed 35 studies that let us evaluate these outcomes together; this allowed us to assess the risks and benefits of various levels of gestational weight gain for both infants and mothers.

Strong evidence supports associations between excessive gestational weight gain and increased birthweight and fetal growth (large-for-gestational-age babies) and between inadequate gestational weight gain and decreased birthweight and fetal growth (small-for-gestational-age). Moderate evidence supported the association between excessive gestational weight gain and postpartum weight retention. Clear clinical recommendations based on our review are challenging because of several limitations in the literature. Improving future research calls for using consistent definitions of gestational weight gain and both maternal and fetal outcomes, assessing factors that may confound analysis, and doing a better job of collecting data on weight and weight gain in pregnant women.

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