Gestational weight gain and later maternal health: are they related?\textsuperscript{1,2}

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In 2009, the Institute of Medicine (IOM) and the National Research Council (NRC) published new recommendations for gestational weight gain (GWG) \textsuperscript{(1)}. This first revision in almost 20 y revealed many gaps in the scientific literature. Notable among these was the dearth of information relating GWG to long-term maternal health. In particular, there is concern that excessive GWG is a risk factor for postpartum weight retention \textsuperscript{(1, 2)}, which may contribute to maternal obesity and its midlife sequela.

The new IOM/NRC guidelines were innovative in 2 important ways. First, a central element in their development was the explicit consideration of the simultaneous trade-offs in outcomes between mothers and their offspring. For example, high GWG is associated not only with an increased risk of excessive postpartum weight retention but also with a decreased risk of delivering a small-for-gestational-age infant. Second, a quantitative risk analysis was performed to extend consideration of this risk trade-off for many years into the future \textsuperscript{(1)}. This was hampered by lack of data on how to weigh the severity of the competing long- and short-term outcomes for mother and child across the range of GWG.

Given the challenges faced by the expert committee in revising the GWG guidelines, the article by Fraser et al \textsuperscript{(3)} in this issue of the Journal is noteworthy. They used data from 3877 of the 14,541 women in the Avon Longitudinal Study of Parents and Children (ALSPAC) to examine the association between prepregnancy weight and GWG with maternal body mass index (BMI), waist circumference, and blood pressure 16 y after the birth of the study child.

The work of Fraser et al \textsuperscript{(3)} contributes to our understanding of how a given reproductive cycle influences a woman’s later health \textsuperscript{(see, eg, references 4–7)}. Each reproductive cycle includes a pregnancy and perhaps a period of lactation as well as a period of recuperation in which a woman is able to return to her prepregnancy weight \textsuperscript{(5)}. Each portion of the cycle varies in length, and each may be accompanied by a change in body composition, especially body fatness. Moreover, each reproductive cycle is unique for a given woman. Thus, a full understanding of how body fatness at conception, GWG, the duration and intensity of lactation, as well as changes in body composition during the recuperative period affect a woman’s later risk of chronic disease is a complex undertaking. To date, studies like that of Fraser et al \textsuperscript{(3)} have focused on a single pregnancy and have adjusted for parity. However, to understand these relations more completely, longitudinal data covering all portions of each of a woman’s reproductive cycles are needed.

The findings of Fraser et al \textsuperscript{(3)} remind us that how heavy a woman is when she conceives is a more important determinant of her obstetric risk than is GWG. This is why the IOM/NRC committee called for offering all overweight or obese women “preconceptional services, such as counseling on diet and physical activity as well as access to contraception” \textsuperscript{(1)}.

Their finding that GWG before 28 wk was associated with later adverse outcomes in women and their children \textsuperscript{(8)} draws attention to the potential importance of GWG at a time when most women are receiving obstetric care yet may not have become concerned about GWG. Fraser et al \textsuperscript{(3)} call this “a window of opportunity to intervene,” and we agree that it is. The results of the Fit for Delivery Study, published recently in the Journal \textsuperscript{(9)}, as well as those of studies like it \textsuperscript{(reviewed in references 1, 10, and 11)}, show both how difficult it is for women to gain within

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the GWG guidelines and that a substantial proportion of subjects can do so with assistance. Together, the results of these studies support the call by the IOM/NRC committee to offer appropriate services to all pregnant women to help them to gain within the GWG guidelines (1).

Today, ≈60% of American women of childbearing age are overweight or obese (12), and practitioners find it difficult to counsel them about weight before or during pregnancy (13–16). This context makes it difficult to assist women to conceive at a healthy weight, gain within the guidelines, and achieve a healthy weight postpartum. It is unlikely that interventions by clinicians alone will be sufficient to achieve these goals. Action is also needed to counter the environmental (17) and social determinants of excess weight. Until these factors are addressed, health promotion messages may require evidence and an ethical framework for action that are not yet available (18). Given that high GWG was also associated with childhood obesity in this cohort (8), there is an urgent need to address these issues.

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