



## Weight and Body Composition Trajectories between Early Pregnancy and Four and Nine Months Postpartum

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Optimising weight management following childbirth may potentially reduce the long-term risks of obesity-related disorders such as heart disease, cancer and diabetes among women of childbearing age; as well as reducing their risk of obesity-related obstetric complications in future pregnancies. There are gaps in knowledge about changes in maternal weight and body composition after childbirth.<sup>1,2</sup> The aim of this prospective longitudinal study was to examine trajectories in maternal weight and body composition between early pregnancy and four and nine months postpartum.

Maternal weight and body composition were measured using advanced Bio-electrical Impedance Analysis (BIA) at the first antenatal visit and subsequently at four and nine months postpartum.

Of 1035 women recruited before 18 weeks gestation, 1018 delivered a baby at the Hospital, 494 returned at 4 months postpartum and 328 returned at 9 months postpartum. The 328 women who returned at 9 months were older and less likely to smoke postpartum than those who did not. Of the 328 women who attended all appointments, mean weight at the antenatal visit was  $69.3 \pm 14.3$  kg, mean Body Mass Index (BMI) was  $25.3 \pm 5.0$  kg/m<sup>2</sup> and 14.4% were obese. Four months postpartum, the mean change in weight from the first antenatal visit was  $+1.6 \pm 4.2$  kg, the mean change in BMI was  $+0.6 \pm 1.5$  kg/m<sup>2</sup> and 19.2% were obese. Nine months postpartum, the mean change in weight from the first antenatal visit was  $+0.2 \pm 4.7$  kg, the mean BMI change was  $-0.06 \pm 1.8$  kg/m<sup>2</sup> and 16.8% were obese. Proportionate changes were observed in fat mass and fat-free mass analysed using BIA. However, when analysed by BMI category, nonobese women on average had gained weight at four months postpartum, but had lost most of the gain by nine months. In contrast, obese women lost weight at four months postpartum, but had gained weight by nine months.

This study found that trajectories in maternal weight and body composition after pregnancy are not linear, and are different in obese women compared with non-obese women. These findings will inform research studies and public health interventions intended to tackle postpartum weight gain.

- 1 Messina J, Johnson M, Campbell F, Everson Hock E, Guillaume L, Duenas A *et al.* Systematic review of weight management interventions after childbirth. London: National Institute for Health and Clinical Excellence; 2009.
- 2 Institute of Medicine. Weight Gain During Pregnancy: Reexamining the Guidelines. Washington, DC: The National Academies Press; 2009.