TRAJECTORY AND DETERMINANTS OF CHANGE IN LEAN SOFT TISSUE OVER THE POSTPARTUM PERIOD

BACKGROUND

Pregnancy is now an independent risk factor for obesity in women due to excess **gestational weight gained** (GWG) and subsequently retained in the postpartum period. The relative composition of the retained weight is important, as changes in **fat mass** (FM) and **lean soft tissue** (LST) are a predictor of metabolic health complications later in life. In the short term, losses in LST can contribute to the development of obesity because they reduce a person's metabolic rate. In the long term, low levels of LST could further exacerbate the deleterious effects menopause can have on body composition. In contrast, the accrual of LST has many benefits including increased metabolic rate, reduction in inflammatory markers and decreased risk of age-related diseases such as sarcopenia.

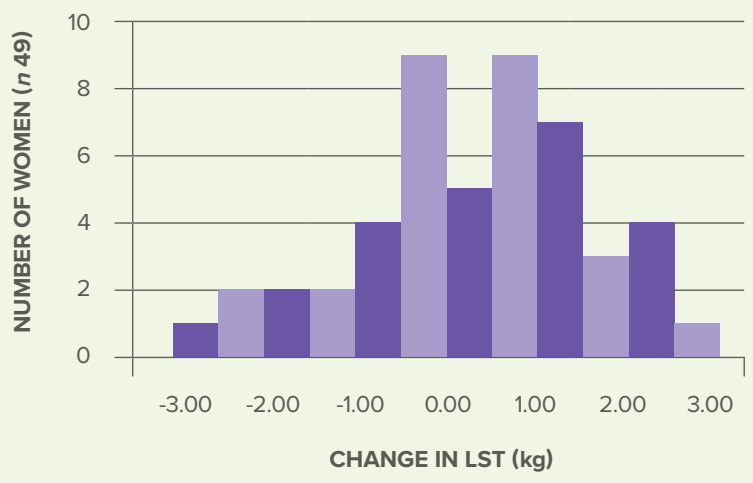
THE STUDY

This study was part of a longitudinal observational study investigating determinants of body weight and body composition during the postpartum period. We aimed to characterize postpartum changes in LST (via dual-energy X-ray absorptiometry). We also examined the effects of energy intake (via 3-d food diary), physical activity (via questionnaire) and breast feeding practices (via 3-d breast-feeding diary) on changes in LST between 3 and 9 months postpartum. All participants were healthy postpartum women (n = 53) between 22 and 42 years of age, had a singleton term pregnancy (37–42 weeks) and were no more than 3 months postpartum at the time of enrolment. Women reported being in good health, were nonsmokers and not taking any medication which could affect their body composition or energy metabolism.

FINDINGS

- On a group level, women lost weight over the postpartum period, most of which was from the FM compartment.
- Approximately 60% of the women experienced a significant increase in LST, while others lost LST between 3 and 9 months postpartum.
- 30% of women had over a 1 kg increase in LST, while 15% had lost over 1 kg of LST.
- Despite differences in LST change, body weight was not significantly different at 3 or 9 months postpartum between women who gained LST or lost LST.
- Gain in LST at 9 months postpartum was associated with more frequent and longer episodes of breastfeeding at 9-months and higher energy and fat intakes at 3 months.
- Physical activity was not associated with changes in LST and sport activity scores were not different at 3 and 9 months postpartum among women who gained or lost LST.

FIGURE 1.
Histogram of the change in lean soft tissue (LST) between 3 and 9 month postpartum.



CONCLUSION

This research has illustrated that LST change throughout the postpartum period is highly variable. The findings of this study suggest that dietary intake early in the postpartum period and frequent and longer episodes of breastfeeding at 9 months postpartum contributes to improvements in postpartum LST. Given the importance of LST on health, more research about of the specific physiological and behavioural determinants of LST could help guide effective interventions and improve women's health during and after the postpartum period.

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