Author's response to reviews

Title: Relationship between maternal obesity and infant feeding-interactions

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Responses to reviewer #1

General overall comments

We thank this reviewer for his/her helpful criticisms. We have addressed the following general comments as follows:

1. In regards to the limitations of the study, we now include an explanation as to why we had a small number of infants on page 10, line 19 of the Methods section. It is a very cumbersome, time consuming protocol, requiring about 30 hours of direct observation and metabolic testing in the EMTAC. This limited the number of volunteers for the study.

2. In regards to the ability to evaluate feeding and maternal-infant interactions, biological mothers were trained and allowed as much time as they needed to practice utilizing the hand-access ports of the EMTAC for feeding and interacting with their infants. The training and all anthropometric measurements began at 7:00AM. The metabolic testing in the EMTAC started around 9:30 AM and was completed by 9:30 AM the following morning. Moreover, body composition measurements were obtained in both the biological mothers and infants prior to the start of the 24-hour metabolic measurements. All of the biological mothers in our study reported being comfortable with interacting and feeding their infants during the metabolic tests. An investigator that was part of the study was always present to answer any questions or concerns. Moreover, comfortable lodging and meals were provided for the family of the infants during the study. We added some of this information on page 14, line 9 of the Discussion section. Furthermore, we also added an additional figure depicting the interaction and feeding of the infant while in the EMTAC. We feel the extra figure is necessary to show readers and reviewers how the biological mothers interacted with their infants during metabolic testing.

3. We moved the last sentence of the Introduction to the first line of the Discussion as requested by the reviewer.

General comments in Methods

1. We utilized complete data for seven subjects. The data for the additional three subjects in the previous version of the manuscript was not complete in regards to maternal body size or weight. Thus they were eliminated from the manuscript.

2. We did not obtain prepregnancy weight of our biological mothers.

3. The American Academy of Pediatrics recommends that solid foods not be introduced before the infant reaches four months of age. None of the infants in our study were receiving complementary foods prior to four months of age. We included this information on page 8, line 10 of the Methods section. After 4-months of age three of the infants of obese mothers were fed complementary foods when they were selected for the study.

4. In regards to determining macronutrient intake during each feeding. The investigators recorded the exact amount of formula and complementary food fed during each feeding episode. Using this information and the manufacturer proximate analysis for the macronutrients, we were able to calculate macronutrient intakes throughout the 24-hour metabolic testing period. This information, previously omitted, has now been added to the Methods section on Page 8, line 19. Moreover, this method of
determining nutrient intake is valid and has been used previously in four prior studies of nutrient intake and metabolic rate in infants and adults. These references are as follows and have been included in the manuscript:


5. We agree with the reviewer that we had a small number of subjects and the possibility that the data are not normally distributed. However, metabolic data previously published from our laboratory with a greater number of subjects were normally distributed (refs #s 1 and 2 above). Moreover, there are no studies of infant metabolism that included accurate assessment of family dynamics such as that presented in our manuscript. This is the first study of its kind to suggest possible maternal influences in regards to future childhood obesity beginning in infancy.

**General comments in Results**

1. In regards to the reviewer’s concerns about the amount and time of consumption of formula and complementary foods by obese infants, we showed that these infants had a longer period of time between feedings. It is also possible that they were hungrier at the time of feeding, thus increasing the speed in which they consumed their nutrients from formula or complementary foods. However, we can only theorize as to the reason for these results because we had no biochemical or hormonal measures of hunger in the infants. This was stated in the Discussion section of the manuscript page 16, line 15.

2. In disagreement with the reviewer, we feel that all of the tables are necessary in order to present our results. Many clinicians and research scientists utilize various types of growth and metabolic data in interpretation of the results. It is important to present all of the anthropometric and metabolic data from both the biological mothers and infants.

3. In response to the comment by this reviewer on the energy intake of one of the infants from normal weight biological mothers, we do not have enough data to conclude anything about the high energy intake of this. The biological mother of this infant was the youngest of the group (18 years) while the oldest was 37. Age of the biological mother might have something to do with the greater energy intake of this infant, however, we do not have data to make any inferences in relation to age and energy intake of infants. Furthermore, there was no correlation between the biological mothers age and energy intake of the infants. Therefore, we did not present this data in the manuscript.

4. As requested by this reviewer, we added the “r value” and the “p value” to the figure depicting the relationship between maternal body composition and energy intake.

5. In contrast to the reviewers comment about the last figure, we feel this figure allows the reader to see exactly how normal weight and obese biological mothers interacted with their infants over the course of the metabolic test. This information would be hard to derive with just a line graph.
General comments in Discussion

1. We did not reweigh the infants upon completion of the metabolic test. Infants gain approximately 5 g/kg at four months of age (Am J Clin Nutr, 1998, 67:885-896). It would have been difficult to evaluate daily body weight variations with just one 24-hour metabolic measurement.

2. It is possible that the extra energy intake in the infants born to obese biological mothers could be channeled to additional daily body weight gain. Therefore, we suggest that infants born to obese biological mothers have a greater body gain in comparison to those born to normal weight biological mothers. We included this suggestion on page 16, line 2 of the Discussion section of the manuscript.

3. We reviewed the references as suggested by the reviewer regarding the cost of depositing a gram of body fat. In the manuscript we to convey the information in regards to the “energy cost” in depositing one gram of body fat. In this version of the manuscript we have corrected this part of the Discussion section and now convey the information according to the suggested references, mainly the cost of depositing body fat.