Author’s response to reviews

Title: Anthropometric and clinical correlates of fat mass in healthy term infants at 6 months of age.

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Author’s response to reviews:

Herein you will find the comments to the reviewers. All changes are highlighted in yellow within the manuscript and tables.

EDITORIAL AND REVIEWERS COMMENTS

Technical Comments:

1. Title Page - Please note that the order of authors in your manuscript file differs from the order of authors entered within the submission system - please correct so they are consistent with each other.

Thank you for the observations. Authors’ order has been corrected both in the manuscript and within the submission system.
2. Please change ‘Introduction’ heading to ‘Background’ in the manuscript body.

The word “Introduction” has been changed to “Background” in the manuscript body (line 34).

Editor Comments:

Please address the following points:

1. Order of authors is different in the manuscript file and in the system - please clarify correct author list.

Thank you for the observations. Authors’ order has been corrected both in the manuscript and within the submission system.

2. Please change ‘Introduction’ heading to ‘Background’ in the manuscript body

The word “Introduction” has been changed to “Background” in the manuscript body (line 34).

REVIEWER 1: ELISABET FORSUM

This manuscript needs extensive revision. I recommend additional statistical review. Needs some language corrections before being published

1. The description of how the subjects were recruited should be improved. How was the number of participants decided? Describe inclusion and exclusion criteria.

A more detailed description of how subjects were recruited has been added to the manuscript in the Methods section, line 60-69.

The number of participants of the prospective cohort (n=385 healthy singleton pregnant women) was calculated based on previous studies regarding the correlation found between maternal weight and neonatal adiposity.

Inclusion and exclusion criteria have been described with more detail in line 70-76.
2. What model was used by the Pea Pod to calculate body composition?

The Fomon model was used to calculate body composition in our population. We added this information as part of the discussion, within our limitations (line 237-238).

3. The description of the subjects is incomplete. Weight and height/length of mothers and infants should be given. Give z score of boys and girls at birth using an appropriate reference to show to what extent these infants represent healthy and normal infants.

A more detailed description of the subjects has been added to the manuscript (line 144-146; 150-151). Weight and height/length of mothers and infants, as well as the z-scores for BMI/A and W/L, has been added in Table 1. The appropriate reference for z-scores was already stated in line 91-95.

4. The authors could use their results to predict body fat using the variables shown in table 3. Such a prediction can be evaluated using "the leave one out method" (Assah FK et al. Obesity 17: 1588-95, 2009). This is needed to demonstrate to what extent the presented correlations can be of any practical use.

Thank you for your suggestion. We run new models and performed the “leave one out” method. The effect size (B) observed in both cases were within 95%CI. Likewise, the statistical significances for SFS, TSF and WC remained significant after the “leave-one-out method” both in FM% and FMI. For FM%, length did not show statistical significance, even after using the “leave-one-out method”.

We are not including this information on the manuscript because the objective of this first study was to evaluate how anthropometric variables associate with fat mass in children, without making a prediction. We are increasing our sample size in order to develop a new prediction equation.

5. Tables 2 and 3 are not satisfactory. Apparently only 82 infants were used to assess FM. Why? Table 3 does not indicate the number of infants used. This needs clarification.
We apologize for the inconvenience, there was a mistake in the transcription of the information in the tables. The total number of infants with complete available data was 102. All the infants that met the inclusion criteria and had fat mass information (PEAPOD) at 6 months were included in the analyses. This total was previously described in the Results section, line 140-141. We also corrected the information regarding the elimination of subjects (line 139-140).

Regarding Table 3, we added the total number of infants in the footnotes.

6. In table 2 the authors have apparently not considered the influence of confounding variables such as sex and size of infants and possible maternal factors (obesity, socioeconomic status).

We did the statistical analysis adding confounding variables such as: BMI/A at birth, pregestational BMI and sex. None of the variables analyzed were affected by these confounding variables, except for fat-free mass (kg) which was affected by sex (p= 0.0001) and BMI/A at birth (p=0.048). This information was added to the Results section (line 152-156), as well as in Table 2.

7. The authors do not report any data on fat-free mass (FFM). This is needed since FM% is influenced by FM (kg) as well as by FFM (kg). Using FMI (fat mass index, i.e. FM/length2 may be an alternative. The data need more analysis to clarify to what extent variations in FFM are responsible for the observed results. It is unclear why sex is not included as a variable in Table 3.

Thank you for the observations. Information regarding fat-free mass (kg and %) and FMI was added to Table 1 and 2.

Regarding the variations in body composition due to FM/FFM, we decided to include new general linear models with Fat mass index (FMI) as an outcome. We changed the manuscript accordingly (results and discussion).

In fact, sex was included in our analysis. However, it was labeled as “gender” and was a variable in the 4 models. We changed the word “gender” to “sex” along the manuscript and in Tables 2-4.
8. The last sentence of the conclusion in the abstract is unclear.

This sentence was corrected as follows (line 30-31): “Type of feeding and sex should be taken into account when assessing FM in this age group.”


The following reference was added to support the written information in line 40.


10. Lines 46-47:

We rewrote the sentence as follows (line 44-46): “Because body composition in early infancy could play a central role in the programming of metabolic diseases [9–11], accurate measurement of FM should be part of an infant’s nutrition assessment since birth and throughout life [12–14].”

11. Line 64: How about twins?

Twins were not taken into consideration since one of the inclusion criteria for the prospective cohort was singleton pregnancies. We described with more detail the recruitment of the subjects (Q.1).

12. Line 70: What is a "standardized nutritionist"?

We meant to refer to a healthcare practitioner (nutritionist) trained and experienced in anthropometric measurement following a standardized technique (Lohman). We rewrote the sentence to clarify this information in line 78-80.
13. Line 78: Why is it important to place the infants head in the Frankfort plane? It is important to attach the head to the appropriate part of the infantometer but this is not stated by the authors.

Thank you for the observation. The Frankfort plane is important since it is considered the best anatomical indicator of a physiological position for a population without facial deformities. We omitted to describe with more detail this information in the manuscript although the correct technique was performed. We clarified this in the Methods section □ Anthropometry, line 87-91.

14. Line 122 “For these models, outlier values of FM% were eliminated (n=3).”: Why were these values eliminated?

Since we repeated the statistical analysis, regarding comment #7, we decided to include the 3 outlier values.

REVIERWER 2:

This is an excellent work performed with a small number of subjects that are part of a cohort group.

1. Nevertheless, the cohort is not explained or cited, and it is impossible to know the criteria for selection of the convenience group of study.

Thank you for the observation. A more detailed description of how subjects were recruited has been added to the manuscript in the Methods section, line 60-69. Inclusion and exclusion criteria have been described with more detail in line 70-76.

2. Anthropometrics at birth was not correlated with fat mass.

Unfortunately, we were not able to measure fat mass at birth. The PEAPOD was not available in the hospital area, only in the research facility, where we followed-up the infants. Therefore, we have no data to correlate in this stage.
3. It is interesting that the skinfold sum was not described as the best method for the evaluation of FM, as the model shows exactly the same values than TS itself.

We decided to include new general linear models with Fat mass index (FMI) as the outcome, in order to account for variations in body size. In line with this, we considered length as a variable in the FM% models. The new results showed Skinfold sum (together with waist circumference) as the strongest models for FM% and FMI. We changed the manuscript accordingly (results and discussion).

4. ADDITIONAL REQUESTS/SUGGESTIONS: The authors should consider the remarks above on the technical approach of plethysmography and the reliable data from skinfold sum.