Reviewer's report

Title: A pilot study to determine the short term effect of milk with differing glycaemic property on sleep among toddlers: A randomized controlled trial

Version: 2 Date: 11 March 2015

Reviewer: Eirini Manthou

Reviewer's report:

The question posed by the authors of this study is quite interesting, since it seems that there is a gap in the current literature concerning sleep patterns, energy balance and the kind of macronutrient intake. Research data up to date are conflicting as the causative relationship between obesity and sleep is difficult to elucidate.

I find that there are some issues that need to be adequately answered before publication is advised.

Furthermore, the text lacks scientific writing and several sections need to be rewritten. English editing is necessary.

Major Compulsory Revisions

Abstract
Should be rewritten according to the following comments

Introduction
Lines 69-73: The use of references is needed
Lines 78-87: Revision is needed. The mechanism should be described in a clear manner in one paragraph.
Line 88 and elsewhere: Sometimes capital letters are used and sometimes not. This should be uniform throughout the text.
Line 91 and elsewhere: Terms should be abbreviated the first time they appear in text (eg GI, CHO). Also there is no need to use so many abbreviations throughout the text.

Issues that need to be considered: The point that the authors want to make is not clearly addressed through the introduction. The hypothesis is not backed in the introduction.

Methods
Main methodological issues are:
• The milk formulas are not isocaloric and it seems that apart from differing GI, the two formulas are also low and high in carbohydrate. This has to be discussed.
• There is no information for daily diet from dietary analysis or standardization of
meals.  
- As it is mentioned in introduction food timing is another important factor in sleeping patterns. However, timing of feedings is not mentioned and maybe not controlled.  
- Polysomnography could have produced more quality data.  
Line 147: Why breastfeeding toddlers were allowed in the study since babies and toddlers who breastfeed have totally different feeding and sleeping patterns from formula fed? This has to be discussed.  
Line 157: This is mentioned above.  
Line 159: This paragraph should be titled “Test products” giving more information on the milk formulas tested (eg composition/ ingredients of the two products).  
Which ingredient increased GI of the HGI formula?  
Line 169: How many ml consumed in total?  
Line 170: Questionnaires etc used in the study should be added to the study design  
Line 174: Were there children above 2 y? This is not mentioned elsewhere.  
Line 185: Analysis of the method “Actigraphy” is too extended, while information on the actual outcomes is not given.

Results  
Line 228: Mentioned above  
Line 232: Mentioned above  
Line 239: There is no need for such an extensive overview of socio-demographic data since they appear in Table. Use either text or table.  
Line 247: Use units. Also, what does it mean “there was an increasing trend in the mean WASO and SE”? As seen in table p values are not close to significance.  

Issues that need to be considered: Was there any power calculation done?  

Tables and figures  
Table 1: Per scoop information is not necessary. Is there a mistake in Iron and Zinc values for LGI formula?  
Table 2: Too extended. In most indices only Mean ± SD would be enough for all tables.  
Table 3: Again too extended. It seems that there were some malnourished/undernourished children. This should be discussed. Additionally, it would be interesting if BMI categories were associated with sleeping duration and the other sleep related indices.  
Table 4: Not needed  
Table 5: Units are missing so it is impossible for someone to interpret the data! However, if total sleep is in hours it seems that 7 hours is too little for toddlers. Is
it only nocturnal sleep time? This has to be clear.

Figure 1: Check for editing mistakes

Discussion
This section needs to be rewritten in a clear and scientific manner addressing:
- Main findings, secondary findings
- Generalizability of the trial findings
- Interpretation of the results considering other relevant evidence and mechanisms that may relate to the results. For example in line 167 you present a study on children (ref 20) as backing up your results but this study concludes that “a high quantity consumption of carbohydrates close to bedtime is accompanied by frequent arousals and may affect sleep quality”.
- Trial limitations, potential bias, imprecision including points referred above
- A precise conclusion

Minor Essential Revisions
Line 70: Erase “the”
Line 75: Erase “the”
Line 136: Erase “one”
Line 166: 7gr?
Line 222: Erase “the”
Line 223: Do you mean SPSS?

Discretionary Revisions
Table 2: Too extended. In most indices only Mean ± SD would be enough for all tables.
Table 3: Again too extended. Additionally, it would be interesting if BMI categories were associated with sleeping duration and the other sleep related indices.
Table 4: Not needed

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Needs some language corrections before being published

Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.

Declaration of competing interests:
I declare that I have no competing interests