Reviewer’s report

Title: Normal/high-fat milk consumption is associated with higher lean body and muscle mass in Japanese women aged between 40 and 60 years: a cross-sectional study

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Reviewer: Amy Hector

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The study conducted by Sukenobe et al. investigated the association between low and normal/high fat milk consumption and body composition in Japanese women aged 40 to 60 years. The authors reported that compared with non-consumers, women who consumed normal/high fat milk had significantly higher lean body and muscle mass, which was associated with vitamin D intake from milk.

Comments:

Introduction Line 17: The effect between milk intake and body composition? Or the association?

Definitions Line 11: Please define consumers vs non-consumers further. How much milk per serving was consumed before the participants were considered to drink milk two or more times per week? This could have significant effects on the dose of protein and vit D consumed. On average, how many times per week did the "consumers" in the low and normal/high fat milk group actually consume milk?

Were multivitamin or calcium/vitamin D supplements taken into account?

Body Composition: what is the measurement error of this machine? Are the differences in body composition in this study outside of the range of measurement error?

It would be helpful to explain the difference between LBM and muscle mass

Dietary Habits:
A major concern in this study is the lack of information regarding dietary intakes of the participants. E.g. protein/fat/carbohydrate intake per day. Without this information, it is difficult to attribute the difference in body composition only to milk intake when differences in total protein intake may also affect these results.

Statistical Analyses: Could you please further explain the ad hoc computer algorithm. What were these "98 different nutritional factors" and where is the data? It seems there are three comparisons you are trying to make: non-consumers vs low fat consumers vs normal/high fat consumers. Is a t-test appropriate in this case?
Results: Please clarify how these numbers were calculated: "28 versus 57 women were classified as low fat milk consumers versus non-consumers, respectively, and 40 versus 45 women were classified as normal/high fat milk consumers versus non-consumers, respectively." Why does the number of non-consumers change? It might be worth reporting the number of low fat consumers, normal/high fat, and non-consumers separately and provide the data in this manner. This is particularly confusing given your definition "participants were considered consumers if they drank milk at least twice a week and non-consumers if they drank milk at most once a week". Should the milk consumers not then be split further into low and normal/high consumers?

What was the average MHR-QOL of each subset of consumers?

"absorbed more vitamin D from milk": No blood tests were conducted to monitor vitamin D absorption or status in these women.

Tables 1 and 2: Ages 40-60 is a wide age range. Is it possible to report the numbers of participants in their 40's, 50's and 60's or the length of time spent in menopause? These factors may also affect the results of the study. For example, how do you know the normal/high fat consumers on average have less time spent in menopause than the non-consumers, therefore the LBM is higher due to this instead of milk intake?

Discussion: Is milk not fortified with vitamin D? Without directly measuring, how can you be sure participants in the low fat consumer category are consuming lower vitamin D overall or their vitamin D status is lower? How do you know the fat intake of the participants from other dietary sources was not sufficient for vit D absorption?

Tables 1 and 2: Considering resistance exercise is an important stimulus for muscle growth, it would be important to stratify the physical activity by resistive and aerobic-type work.

Table 2: There is a big difference in the proportion of participants who are premenopausal in consumers and non-consumers. Also, why does the proportion of menopausal status of the non-consumers not add up to 100%? There is a big difference in the proportion of individuals who exercise regularly in table 2 which may affect body composition results.

Fig 1: How exactly was the vitamin D intake from milk (ug) calculated?

**Are the methods appropriate and well described?**
If not, please specify what is required in your comments to the authors.

No

**Does the work include the necessary controls?**
If not, please specify which controls are required in your comments to the authors.

No
Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

No

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