

7. de Moreno de LeBlanc A, Matar C, LeBlanc N, Perdigon G. Effects of milk fermented by *Lactobacillus helveticus* R389 on a murine breast cancer model. *Breast Cancer Res* 2005;7:R477–86.
8. Tehrani FR, Moslehi N, Asghari G, Gholami R, Mirmiran P, Azizi F. Intake of dairy products, calcium, magnesium, and phosphorus in childhood and age at menarche in the Tehran Lipid and Glucose Study. *PLoS One* 2013;8:e57696.

doi: <https://doi.org/10.3945/ajcn.117.158501>.

Reply to AT Wijayabahu

Dear Editor:

We appreciate Wijayabahu's interest in our study (1) and agree with many of the points raised in her letter. We are similarly enthusiastic to explore the role of the microbiome in this cohort of Chilean girls. Indeed, we are currently collecting fecal samples, and we plan to relate the fecal microbiome to several health endpoints in the coming years. As Wijayabahu suggests, there are a number of studies that support the role of the gut microbiome in various non-gut-related diseases, including cancer (2). The gut microbiome has been suggested to contribute to estrogen receptor-positive breast cancer, because of the ability of bacteria to affect estrogen concentrations (3). The ingestion of probiotic foods such as yogurt can potentially modulate the gut microbial community during puberty. This may significantly alter hormone secretion during this critical developmental period, which may have implications for breast development (4).

Per Wijayabahu's suggestion, we have conducted additional analyses with the use of average dietary intakes of calcium, magnesium, and phosphorus as exposures of interest in relation to breast density and age at menarche. Overall, we found no associations between these micronutrients and fibro-glandular volume percentage, fibro-glandular volume, and age at menarche in our cohort. We also re-conducted our multivariable models with further adjustment for calcium, magnesium, phosphorus, and total protein intakes, and the associations previously reported were not appreciably changed

(and, if anything, were slightly strengthened). Taken together, these additional analyses suggest that higher dietary protein, calcium, magnesium, and phosphorus intakes were not driving the observed inverse associations between yogurt intake and fibro-glandular volume and delayed age at menarche.

This work was supported by Public Health Service grant R01 CA158313 from the National Cancer Institute, NIH, US Department of Health and Human Services (to KBM), and by the World Cancer Research Fund (2010/245). None of the authors declared a conflict of interest.

Audrey J Gaskins
Camila Corvalán
Karin B Michels
(on behalf of the authors)

From the Department of Nutrition, Harvard T.H. Chan School of Public Health, Boston, MA (AJG); the Institute of Nutrition and Food Technology, University of Chile, Santiago, Chile (CC); and the Department of Epidemiology, Fielding School of Public Health, University of California, Los Angeles, CA (KBM, e-mail: k.michels@ucla.edu).

REFERENCES

1. Gaskins AJ, Pereira A, Quintiliano D, Shepherd JA, Uauy R, Corvalán C, Michels KB. Dairy intake in relation to breast and pubertal development in Chilean girls. *Am J Clin Nutr* 2017;105:1166–75.
2. Garrett WS. Cancer and the microbiota. *Science* 2015;348:80–6.
3. Kwa M, Plottel CS, Blaser MJ, Adams S. The intestinal microbiome and estrogen receptor-positive female breast cancer. *J Natl Cancer Inst* 2016;108:djw029.
4. Paul B, Barnes S, Demark-Wahnefried W, Morrow C, Salvador C, Skibola C, Tollefsbol TO. Influences of diet and the gut microbiome on epigenetic modulation in cancer and other diseases. *Clin Epigenetics* 2015;7:112.

doi: <https://doi.org/10.3945/ajcn.117.160176>.

