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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.

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