The Journal of Clinical Endocrinology & Metabolism, 2022, Vol. 107, No. 2, e894–e895
https://doi.org/10.1210/clinem/dgab718
Letter to the Editor Response

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Response to Letter to the Editor From Pierre Bougnères: "Reproductive Hormone Concentrations and Associated Anatomical Responses: Does Soy Formula Affect Minipuberty in Boys?"

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Received: 20 September 2021; Editorial Decision: 27 September 2021; First Published Online: 6 October 2021; Corrected and Typeset: 15 October 2021.

We thank Dr. Bougnères for his letter (1) and his interest in our recent publication (2). He raises several noteworthy issues; we respond to each in turn:

First, Bougnères highlights the potential for confounding by race to influence our result that soy-fed boys had slower penile growth compared with breastfed boys because 78% (not 80%) of the soy-fed infants were black in comparison to only 37% (not 17%) of the breastfed infants. In our study, penile length was similar at birth in white (mean 3.5 cm, SD 0.4) and black infants (mean 3.6 cm, SD 0.5). Growth differences by race may emerge, but we likely do not have the sample size to stratify analyses by race within feeding group. Also, we had no stated prior hypothesis about the breastfed infants; consequently, we regarded this difference as a description, not a conclusion.

Second, we do not present correlations between penile growth and circulating testosterone in our study. Boas et al examined penile growth from birth to age 3 years, a wider age range than our study, and while the Boas et. al study had a larger sample size, testosterone was measured once at age 3 months (3). A future analysis in our cohort will focus on examining the association between testosterone trajectories and penile growth, using

ISSN Print 0021-972X ISSN Online 1945-7197
Printed in USA

≥3 testosterone measurements between 2 weeks and 28 weeks and up to 10 measures of penile length from birth to 28 weeks.

Third, Bougnères raises an important point regarding the differences in demographic characteristics between the feeding groups in our study. Larger studies or pooling data across multiple studies of male minipuberty would help to address this concern. However, we believe demographic differences to be a problem mainly with comparisons involving breastfed infants.

Finally, we restricted the study population to term birth defined as 37 to 42 weeks gestation and birthweight between 2500 and 4500 grams. To address the possibility that the anatomical outcomes (penile length, testis volume, and anogenital distance) were related to age and, within age, to body size, we used the z-score of weight-for-length as an adjustment for possible confounding. Residual confounding remains a possibility.

Main et al reports interesting results regarding testis development (4), but interpreting these differences is difficult given the absence of information on the prenatal environment and fetal growth trajectories of the infants included.

We appreciate the attention Dr. Bougnères gave to our paper and echo his call for additional research focused on minipubertal development.

Acknowledgments

Financial Support: This research was supported in part by the Intramural Research Program of the NIH, National Institute of Environmental Health Sciences.

Additional Information

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Disclosures: The authors have nothing to disclose.

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