Reviewer’s report

Title: Effects of breastfeeding on rat and human development: A translational life-history perspective

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Reviewer: Peter Ellison

Reviewer’s report:

This is an excellent report of an experimental study of the effect of weaning age on the subsequent development of rats, combined with an analysis of weaning age and pubertal development in a longitudinal human data set. The results are clearly reported, suggesting that early weaning is associated with significant differences in developmental tempo, body composition, and subsequent reproduction. The authors anchor their findings in the literature on life history theory and also draw important connections to the literature on developmental origins of health and disease.

The methods and analyses are all appropriate and well described. My only concern is with a matter of interpretation and inference. The authors interpret weaning age as a signal of the adequacy of social support, parental investment, and environmental quality, assuming that early weaning is associated with lower values of these variables relative to later weaning. This interpretation is consistent with much of the literature on humans associating poor or unstable conditions in childhood as predictors of the quality of future environments for the child. In the experimental protocol of this study, weaning was imposed by cross-fostering to non-lactating dams. But it seems quite possible to me that, under natural conditions, early weaning might well be associated with more robust nutritional conditions that lead to more rapid pup growth and an earlier attainment of an appropriate size for independence. Similarly, in humans living in subsistence ecological contexts, early weaning is associated with better nutritional conditions, not poorer. I think the authors should explicitly entertain and discuss this possibility and the different interpretation of their results that would flow from it. It would not diminish the value of their study in any way, but rather would enhance the value of the discussion and avoid premature conclusions.

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:

I declare that I have no competing interests.