

Title: Breastfeeding versus Formula-Feeding and the Girls' Pubertal Timing.

Category: Recent Scientific Data

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Acknowledgement: Funding was provided by the National Cancer Institute and National Institute of Environmental Health Services through grant U01 ES012801.

Background: Previous studies document associations between breastfeeding and physical development (Martin *et al.*, 2002). Others have found correlations between peri-natal nutrition, infant weight gain and age at menarche (Ong *et al.*, 2009). Ethnicity also influences age at menarche (Anderson *et al.*, 2003). This research focuses on the effect of breastfeeding on pubertal timing, and the influences of ethnicity and BMI on this relation. As early menarche indicates an increased risk of breast cancer (Macmahon *et al.*, 1982), this study is particularly important due to the apparent decline in female pubertal age in United States.

Objective: To examine the effect of breastfeeding/formula-feeding on girls' pubertal timing and BMI.

Method: The proposed study is based on a sample of 444 socio-economically and ethnically diverse young girls, ages 6-8 years, who are participants in the CYGNET study (PI- Lawrence Kushi¹). Correlations will be examined between early post-natal nutrition (breastfeeding/formula-feeding), infants' duration of exposure to breastfeeding/formula-feeding and girls' pubertal timing, indicated by breast and pubic hair development (Tanner staging), at several time points in the study (baseline: 6-8y; follow-up #1: 7-9y; follow-up #2: 8-10y). Covariates such as race/ethnicity and peripubertal BMI will also be considered in terms of potential mediating, confounding and/or moderating relationships.

Preliminary Observations: In the cohort, 94% mothers had breastfed their daughters, out of which, 36% had breastfed till first six months, and 64% beyond six months. Remaining 6% girls were exclusively formula fed. At follow-up #2, pubertal onset has occurred in 37% (Tanner breast staging) and 29% (Tanner pubic staging) girls. Data will be further examined to find correlations.

Implications: Post-natal nutrition is a potential modifiable risk factor for early puberty, and specific interventions can be targeted in this domain to promote health in the short-term, and potentially ameliorate risk for breast cancer later in life. As these data are further examined, the findings have potential to provide more insight into causal pathways and thereby help identify appropriate targets for preventive interventions of breast cancer.