

Lower birth weight, less breastfeeding linked to adult inflammation and disease

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Image: Wikipedia.

Individuals born at lower birth weights as well as those breastfed less than three months or not at all are more likely as young adults to have higher levels of chronic inflammation that contributes to cardiovascular disease, according to a new Northwestern University study.

Based on data from the National Longitudinal Study of Adolescent Health, Northwestern researchers evaluated how levels of C-reactive protein (CRP), a key biomarker of inflammation, linked back to [birth weight](#) and breastfeeding duration for nearly 7,000 24- to 32-year-olds.

The research not only showed both lower birth weights and shorter duration of breastfeeding predicted higher CRP levels in young adults, and thus higher disease risk. The research also found dramatic racial, ethnic and education disparities. More educated mothers were more likely to breastfeed and to give birth to larger babies, as were whites and Hispanics.

The data points to the importance of promoting better birth outcomes and increased duration of breastfeeding to affect public health among adults. Such awareness could make a difference in eroding the intractable [social disparities](#) in adult health outcomes associated with inflammation, according to the study.

"The findings about breastfeeding and birth weight are particularly illuminating," said Thomas McDade, professor of anthropology in the Weinberg College of Arts and Sciences and faculty fellow, Institute for Policy Research, at Northwestern and lead author of the study.

"The rates for many adult diseases completely mirror rates of [low birth weight](#) and low breastfeeding uptake and duration," he said.

McDade also is the director of the Laboratory for Human Biology Research and of Cells to Society (C2S): The Center on Social Disparities and Health, which is part of Northwestern's Institute for Policy Research.

Breastfeeding is known to provide nutritional and immunological support to infants following delivery and affects immune development and metabolic processes related to obesity—two potential avenues of influence on adult CRP production.

"This research helps us understand and appreciate the importance of [breast feeding](#), especially for low-weight infants," said Alan Guttmacher,

M.D., director of the Eunice Kennedy Shriver National Institute of Child Health and Human Development. "The results suggest that breast feeding may reduce a major risk factor for heart disease, well into adulthood."

An innovation of the study is the use of sibling comparison models, which control for many of the factors that may bias previous estimates of the impact of birth weight and breastfeeding on adult health outcomes. In these models, sibling differences in birth weight and sibling differences in breastfeeding duration are used to predict differences in adult CRP across siblings.

Each pound of additional birth weight predicted a CRP concentration that was 5 percent lower. Three to 12 months of breastfeeding predicted CRP levels that were 20 to 30 percent lower compared with individuals who were not breastfed.

In fact, [breastfeeding](#) had the same or greater effect as drug therapies that reduce CRP in [young adults](#), as measured in previous clinical studies.

"The research makes a strong case about the need to invest in interventions early in life to reverse the relatively intractable social disparities we see in adult health in the United States," McDade said.

More information: The study, "Long-term effects of birth weight and breastfeeding duration on inflammation in early adulthood," will be published online April 23 in the *Proceedings of the Royal Society B: Biological Sciences*. rspb.royalsocietypublishing.org/.../1098/rspb.2013.3116

Provided by Northwestern University

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