

Studies examine how living conditions impact reproductive health

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Virginia J. Vitzthum is a senior scientist at Indiana University's Kinsey Institute for Research in Sex, Gender, and Reproduction. Credit: Indiana University

When costs outweigh benefits, successful pregnancies are less likely to occur.

Life is all about tradeoffs and recently published research by Virginia J. Vitzthum, a senior scientist at Indiana University's Kinsey Institute for Research in Sex, Gender, and Reproduction, and professor in the IU College of Arts and Sciences' Department of Anthropology, has shown that during periods of intense labor and low food intake, rates of early [pregnancy](#) loss can more than double.

The findings, reported recently in the *American Journal of Human Biology*, are the first to show seasonality of early pregnancy loss in a non-

industrialized population -- in this case rural Bolivian women -- and the first to demonstrate a relationship between economic activities and early pregnancy loss.

Vitzthum's research challenges the past belief that nearly all early pregnancy losses are caused by genetic defects in the embryo. Genetic defects wouldn't change with the seasons, so Vitzthum's findings show that environmental factors must also play a major role in early pregnancy losses.

"This finding applies to U.S. moms just as much as Bolivians, and it applies to psychosocial resources just as much as food supply," Vitzthum said. "As well as [healthy food](#), pregnant women also need good working conditions and adequate social support from family, friends and workplace to keep their risks of early pregnancy losses low."

Men are affected, too. In a second research paper, also published in the "American Journal of Human Biology," Vitzthum reports a similar relationship between reproductive fitness and external influences.

"This paper also concerns the effects of limited resources, this time on male physiology," she said. "In the worst part of the year, late winter, testosterone levels are suppressed. This is particularly interesting because it had been thought that males were much less sensitive, if at all, to [environmental conditions](#) because they don't need a lot of energy for a pregnancy. The effects of poor resources on males appear to be more subtle but can still be important for their own health and well being."

Vitzthum's work has long been at the crossroads of biology and culture, focusing on how human reproductive functioning has evolved in response to different environmental conditions.

"Until recently, it was assumed that women everywhere had similar

reproductive biology," she said. "We now know that women vary tremendously, and these differences affect women's health."

One example is how high hormone levels increase the risk of breast cancer and other diseases. By studying the international patterns of hormone levels and how they relate to different environmental conditions, Vitzthum hopes to learn more about which women are at the greatest risks for these diseases. Doctors could then recommend extra monitoring or screening tests for those women.

More information: "Seasonal Modulation of Reproductive Effort During Early Pregnancy in Humans," *American Journal of Human Biology*, 2009 Jul-Aug;21(4):548-58; "Seasonal and Circadian Variation in Salivary Testosterone in Rural Bolivian Men," *American Journal of Human Biology*, published online in April, 2009.

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