

Low birth weight may increase risk for cardiovascular disease, kidney disease and diabetes

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Being underweight at birth may have consequences above and beyond the known short-term effects says a research report published in the October 2012 issue of *The FASEB Journal*. The report shows that rats with a low birth weight have an increased long-term risk for developing cardiovascular disease, kidney disease, and diabetes. What's more, older females are at higher risk of developing high blood pressure before and during pregnancy, which in turn, may restrict growth in the womb, putting offspring at risk for being born at a low birth weight.

"Ensuring adequate growth of the baby in the womb will help to minimize the risk of cardiovascular diseases for babies when they become adults," said Mary E. Wlodek, Ph.D., a researcher involved in the work from the Department of Physiology at the University of Melbourne in Victoria, Australia. "Greater considerations regarding the effects of delayed child-bearing may also help to provide an optimal start to life."

To make this discovery, Wlodek and colleagues used [female rats](#) that were born small and compared them to rats of normal birth weight. These rats were aged to 12 months (middle to old age in rats) at which time they become pregnant. A number of measurements regarding health were performed on these female rats before and during pregnancy including blood pressure, [kidney function](#) and tests for diabetes. Researchers also compared these pregnant rats to a group of younger (4

month-old) pregnant rats to determine whether older rats have more difficult pregnancies that impact on the growth and development of their babies. Results showed that regardless of the mothers own birth weight, older mothers demonstrated a reduced ability to become pregnant. When they did become pregnant, they had altered [blood sugar levels](#), poor pregnancy success and carried babies that were smaller or lighter in weight.

"This report offers more evidence that there's a Goldilocks zone for optimal human weight starting at birth," said Gerald Weissmann, M.D., Editor-in-Chief of *The FASEB Journal*. "If you're too big, there are numerous studies suggesting an increased risk for long-term health problems. Now, we're seeing that if you're born too small, long-term health risks may also exist as well."

More information: Linda A. Gallo, Melanie Tran, Karen M. Moritz, Andrew J. Jefferies, and Mary E. Wlodek. Pregnancy in aged rats that were born small: cardiorenal and metabolic adaptations and second-generation fetal growth. *FASEB J* October 2012, 26:4337-4347; [doi:10.1096/fj.12-210401](https://doi.org/10.1096/fj.12-210401)

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