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Remaining kidneys of overweight donors less able to adapt to pregnancy

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Female kidney donors who are overweight may be at a higher risk for preeclampsia during pregnancy, according to a new study. The increased risk is due to a reduction in a type of kidney function called renal functional reserve (RFR). The article is published ahead of print in the *American Journal of Physiology—Renal Physiology*.

Living kidney donation—the transplantation of a healthy kidney from a living person—is the most effective treatment for patients with end-stage kidney disease. After one kidney is removed from a donor, the blood vessels in the remaining kidney widen substantially, allowing it to filter more blood and essentially perform the work of two kidneys. However, this widening also causes a reduction in RFR, which is a measure of the kidney's ability to adapt to changes in physiological demands.

Researchers from the Netherlands studied more than 100 female kidney donors of childbearing age. They found that compared with kidney donors with a body mass index (BMI) in the normal range (less than 25), kidney donors who were overweight had lower RFR. During pregnancy, this diminished ability to adapt to the body's changing needs places women at increased risk for preeclampsia—a serious condition marked by high blood pressure and excess protein in the urine that, if left untreated can be fatal to women and infants.

In the early stages of pregnancy, blood flow and filtration rate in the kidneys normally increase to accommodate the needs of a developing

fetus. As such, the combination of a lower-than-normal RFR and an above-normal BMI—itself a known risk factor for preeclampsia—increases the risk of preeclampsia significantly, the researchers explained. "Prospective studies should explore whether BMI reduction prior to conception is of benefit to overweight female kidney donors during and after pregnancy," the researchers wrote.

More information: Marco van Londen et al. Overweight young female kidney donors have low renal functional reserve post-donation, *American Journal of Physiology-Renal Physiology* (2018). DOI: 10.1152/ajprenal.00492.2017

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