

Folic acid late in pregnancy may increase childhood allergy risk

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Research from the University of Adelaide suggests that taking folic acid in late pregnancy may increase the risk of allergies in children affected by growth restriction during pregnancy.

Folic acid, a type of B vitamin, is widely used to prevent [neural tube](#)

[defects](#) in the fetus, and to aid in the development of the central nervous system. The neural tube develops in the first month of pregnancy, and Australian guidelines recommend that women take a daily [folic acid](#) supplement at least one month before, and three months after conception.

"Taking a [folic acid supplement](#) during the first trimester of pregnancy is important to reduce the risk of neural tube defects," says Dr. Kathy Gatford from the University of Adelaide's Robinson Research Institute.

"However, continued supplementation with folic acid into the later stage of pregnancy doesn't reduce that risk, and there's growing evidence that this may increase the risk of allergies in offspring," Dr. Gatford says.

Allergies are one of the main causes of non-communicable diseases in the world and are estimated to affect 30-40% of the world's population. Susceptibility to these diseases after birth is partly determined by an individual's early life environment.

Previous research has also shown that a complication of pregnancy known as [intrauterine growth restriction](#) (IUGR) – a form of growth restriction in the womb often resulting in lower birth weight – may in fact have a protective effect against childhood allergies.

In studies of sheep born from normal or growth-restricted pregnancies, Dr. Gatford and colleagues measured skin reactions to two common allergens: dust mites and egg whites.

"Sheep from growth-restricted pregnancies were less likely to have allergic reactions to egg white protein than those born to normal pregnancies. Importantly, if the sheep with growth restricted pregnancies were fed supplements containing folic acid in [late pregnancy](#), their offspring had similar rates of [allergic reactions](#) as control progeny," Dr.

Gatford says.

"Our findings suggest that folic [acid](#) supplementation partially reduced the protection that has previously been seen in pregnancies with restricted growth.

"Studies in animal models like this allow us to directly investigate these effects of the environment before birth on later allergy. While the results help us to better understand the potential allergy risk in humans, more research is needed before any recommendations about the right timing of supplementation should or could be made in humans," she says.

"We are now in the process of analysing how a growth-restricted [pregnancy](#) and the dietary supplement affect the nutrient status of offspring at birth, and how this might switch on or off genes that regulate the immune system."

More information: Amy L Wooldridge et al. Late gestation maternal dietary methyl donor and cofactor supplementation in sheep partially reverses protection against allergic sensitization by IUGR., *American Journal of Physiology - Regulatory, Integrative and Comparative Physiology* (2017). [DOI: 10.1152/ajpregu.00549.2016](https://doi.org/10.1152/ajpregu.00549.2016)

Provided by University of Adelaide

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