

# How much creatine is needed for optimal baby growth?

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Credit: Amina Filkins from Pexels

The role of creatine in healthy pregnancies is well established, but how much is enough? A study at Hudson Institute of Medical Research has shown what's needed to ensure healthy growth of your baby.

Creatine is a naturally occurring compound primarily found in meat and fish; it is recognized for its role in sports and fitness, but research has increasingly also highlighted its potential benefits in pregnancy, specifically fetal growth.

Lead researcher, Dr. Stacey Ellery says creatine is intrinsic to maintaining cellular energy homeostasis throughout pregnancy, and there is evidence that higher levels of creatine are required to support expanding uterine and placental tissue beds and the [developing fetus](#).

## **Establishing normal creatine ranges**

"Thousands of people around the world starting their pregnancy journey pay close attention to their creatine levels to aid with exercise performance and general well-being. However, until this research, we had no idea what should be considered the 'normal range' of creatine in a healthy pregnancy, nor how the body might rely on dietary creatine to maintain optimal levels," Dr. Ellery said.

"The good news is that the body appears to be very good at maintaining appropriate available levels of creatine in the bloodstream," she said. "Despite the demand for creatine likely going up as the fetus grows, the pregnant bodies we studied were very good at keeping creatine levels stable."

The research, [published](#) in *The American Journal of Clinical Nutrition* is the first study to comprehensively measure creatine, associated [amino acids](#) and metabolites throughout pregnancy in a prospective cohort, providing physiological ranges from 10 weeks' gestation until birth.

The study included 284 women who provided blood and urine samples five times during their pregnancies (from 10 to 36 weeks), plus at birth, with cord blood and placental samples taken.

## Impact of maternal diet: Meat

An interesting finding emerged regarding maternal diet. "This study didn't look specifically at vegetarian women but found a clear relationship between how much meat women were eating and the levels of creatine in their bloodstream up to 32 weeks," Dr. Ellery said.

"This finding begs the question, can vegetarian and vegan women maintain creatine levels throughout pregnancy without gaining creatine from their diet (i.e., placing sole reliance on the body to make creatine), and if not, are there any implications for maternal or fetal well-being?"

"The most obvious question is what happens when there is no dietary source of creatine," Dr. Ellery said.

Further research is currently under way to look more closely at the creatine levels of the vegetarians/vegans in the study cohort.

### Key points

- Energy metabolism: As a key player in [energy metabolism](#), creatine helps maintain cellular energy balance in both the mother and fetus, supporting muscle function and physical resilience during [pregnancy](#)
- Supporting fetal growth: There is evidence that higher levels of creatine are required to support expanding uterine and placental tissue beds and the developing fetus
- Maintaining creatine levels: Despite the increased demand for creatine as the fetus grows, the body appears to be very good at maintaining appropriate available levels of [creatine](#) in the bloodstream to support fetal growth

**More information:** Deborah L. de Guingand et al, Creatine and pregnancy outcomes: a prospective cohort study of creatine metabolism in low-risk pregnant females, *The American Journal of Clinical Nutrition* (2024). [DOI: 10.1016/j.ajcnut.2023.11.006](https://doi.org/10.1016/j.ajcnut.2023.11.006)

Provided by Hudson Institute of Medical Research

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