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Technische Universität München

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Risky knowledge gaps:

The right food supplements during pregnancy?

Nutrients, vitamins, minerals – during pregnancy a woman's body needs more of them. For most nutrients this increase in demand can be covered with a balanced diet. However, mothers to be should ingest some nutrients in the form of tablets. Research conducted by the Chair of Nutritional Medicine at the Technische Universitaet Muenchen (TUM) indicates there are knowledge gaps: According to this study, pregnant women often start taking sensible dietary supplements too late or not at all. At the same time, other micronutrients are unwittingly overdosed whose effects during pregnancy have not yet been studied.

Pregnant women and nursing mothers often require more nutrients than other women. Current research indicates that a balanced diet is generally sufficient to ensure the healthy development of an unborn child. This is not the case for folic acid, iodine and iron: A deficit during pregnancy cannot be ruled out under current nutritional conditions in Germany. For this reason various professional associations recommend iodine and folic acid food supplements, and in the case of iron deficiency, the additional intake of low-dose, iron-based supplements. But do women looking to have children and those who are already pregnant really follow these recommendations? This is the main question that the Chair of Nutritional Medicine at the TUM tried to answer.

"In spite of existing recommendations, many pregnant women and their doctors are not well-informed about the sensible use of supplements," explains Professor Hans Hauner, expert on nutritional medicine at the TUM. In a survey conducted at three clinics in and around Munich, his team investigated and analyzed the intake of nutritional supplements before and during pregnancy. To this end, 522 women who had just given birth were given structured interviews in the first three days following delivery: Germans and foreigners with different levels of education, both first-time mothers and women who had been pregnant before.

97 percent of the women polled had taken at least one supplement during their pregnancy, and almost two thirds had started before getting pregnant. The doses, though, varied enormously within the group in question: The intake of folic acid ranged between 0.2 and 5 mg per day, and for iron-based products the range was even larger, between 4 and 600 mg

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per day – 150 times the smallest dose recorded. Age, ethnic origin, level of education and the number of pregnancies had only a negligible influence on the general supplementation behavior of the women. However, good consultation did make a difference. Over 40 percent of the women polled named their gynecologist as the most important source of information when it comes to dietary supplements.

“The details give food for thought – for example, regarding the intake of folic acid, which can prevent neural tube defects in newborns,” says professor Hans Hauner. Over 85 percent of the women polled had indeed supplemented their diet with folic acid during the first trimester of their pregnancy. Yet only just over a third had followed the recommendation to begin supplementing their diet with at least 0.4 mg per day at least four weeks before becoming pregnant. This means in many cases the folic acid intake was started too late – but then, very frequently the dose was too high. Around 8 percent of the women took more than 1 mg per day – significantly more than the recommended amount. Professor Hauner: “This can conceal a vitamin B-12 deficiency and should thus be avoided.” The situation is much better with regard to iodine according to the TUM researchers: A quarter of the women polled took the trace element, which is so important for the development of an unborn child’s brain, prior to becoming pregnant, and almost four fifths took it during pregnancy.

On the other hand, iron supplementation – important for the oxygen supply of the fetus – seems to be far too high. “Of the women polled, around two thirds took iron-based supplements even though only about a third had displayed an iron deficit,” explains Hauner. “This careless use of iron-based supplements is not only pointless, it can even harm the unborn child given the very high doses often taken. Unfortunately, there are no conclusive studies on the subject, yet.” Furthermore, it was established that three quarters of the pregnant women in the study supplemented magnesium and that over 40 percent took Omega-3 fatty acids. According to the current state of research, both are either superfluous or have little evidence to show for any benefits – magnesium is recommended by doctors only in very specific cases and Omega-3 fatty acids might contribute to the development of cognitive abilities.

“In light of the lack of research on the side effects of overdosed supplements, the motto for certain dietary supplements during pregnancy should be: less is more,” says Hauner in summing up the results. “However, folic acid and iodine should definitely be supplemented in the recommended dose by women who want to become pregnant.” Based on the results of the survey, the TUM nutritional expert is calling for in-depth studies to be conducted in the future, not only on the benefits but also on the risks of supplements during pregnancy.

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Technische Universitaet Muenchen (TUM) is one of Europe's leading universities. It has roughly 460 professors, 7,500 academic and non-academic staff (including those at the university hospital "Rechts der Isar"), and 26,000 students. It focuses on the engineering sciences, natural sciences, life sciences, medicine, and economic sciences. After winning numerous awards, it was selected as an "Elite University" in 2006 by the Science Council (Wissenschaftsrat) and the German Research Foundation (DFG). The university's global network includes an outpost in Singapore. TUM is dedicated to the ideal of a top-level research based entrepreneurial university. http://www.tum.de

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