



## THE IMPORTANCE OF MICRONUTRIENTS DURING PREGNANCY

PART 2

In our last Health Science News Page, we discussed some of the general aspects of the role of micronutrients in pregnancy. The placental development begins in the first weeks when the woman is not even aware she is pregnant. The health of the placenta determines the overall growth and development of the baby throughout the entire course of pregnancy.

In addition to the caloric demands, pregnancy also increases the demand for specific nutrients, which may not be met through diet alone. The nutritional requirements change constantly during different stages of pregnancy, delivery, and while breastfeeding. The process of giving birth puts tremendous stress on a woman's body and a large amount of blood and nutrients are lost, which depletes the energy reserves in her body. Therefore, proper nourishment during and after pregnancy and while nursing is critical for the health of both the mother and the child. Micronutrients such as vitamin C, lysine, proline, folic acid, and the B group of vitamins, among others, are essential for a healthy baby and delivery, and preventing complications during pregnancy.

Vitamin C is involved in a variety of cellular functions such as antioxidant protection, hormone production, immune system support, bone formation, and maintaining the integrity of the blood vessels. It enhances the absorption of iron and helps in prevention of anemia in the mother. Additionally, vitamin C and other micronutrients such as lysine, proline, and green tea extract, help reduce the risk of premature delivery. In one of our studies, we proved that this micronutrient combination was more effective than any of its individual components in optimizing contraction of the smooth muscle cells in the uterus\*. Vitamin C helps this process by facilitating production of strong collagen and strengthening the smooth muscles of the uterus and blood vessel walls. Some pregnant women are susceptible to pregnancy-induced hypertension (PIH), which is sometimes difficult to control and can result in a serious condition called eclampsia. Vitamin C in combination with arginine, magnesium and other micronutrients, helps increase the elasticity of the blood vessels and maintain normal blood pressure. Micronutrients are also essential as natural inhibitors of tissue destruction and reduce the risk of premature



rupture of fetal membranes, which initiates the process of delivery.

It is well known that folic acid deficiency in a pregnant woman leads to serious neural tube defects in the fetus which may lead to miscarriage. A neural tube defect can occur even before a woman is aware that she is pregnant; therefore, any woman of childbearing age should take at least 400 mg of folic acid daily whether she is pregnant or not. Moreover, folic acid helps to reduce anemia, cardiovascular birth defects, and prevents intra uterine growth retardation of the baby.

A deficiency of the B group of vitamins is common in women who follow a vegetarian diet. Vitamins B1, B2, and B6 are required for the optimal growth and health of the baby as well as the mother. And a deficiency of vitamin B12 can lead to irreparable damage to the nervous system.

Minerals such as iron and zinc are important for prevention of anemia and they improve the immune system of the mother and the baby. Calcium, magnesium, and phosphorus, in synergy with vitamins C and D, aid the development of the baby's bones and teeth, support normal blood pressure in the mother, and prevent muscle cramps and preterm delivery. The requirements of these minerals increase more than 50% during pregnancy.

Our research has shown that all the micronutrients are interdependent and work in synergy to maintain optimal health at the cellular level. All women who want to become pregnant, or those with multiple or closely spaced pregnancies are prone to develop severe deficiencies in the absence of adequate micronutrients. For maximum health effects, all micronutrients should be synergistically combined to promote a healthy and normal pregnancy.

*Ref: V. Ivanov et al., Journal of Obstetrics and Gynaecology Research 2006, 32(1): 23-31*

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