



## MICRONUTRIENTS SUPPORT NORMAL UTERINE CONTRACTIONS



The uterus, commonly referred to as the “womb,” is a hollow and highly expandable organ responsible for accommodating the growing fetus during the nine months of pregnancy. The uterus is made up of strong, involuntary muscles that contract during menstruation and childbirth. Abnormal contractions of the uterine muscles may cause severe cramps during menstruation. During pregnancy, the abnormal and untimely uterine contractions could lead to premature labor and delivery. A normal healthy pregnancy usually lasts up to 40 weeks. If the infant is born before the 37th week of pregnancy, it is termed a “preterm birth.” According to the Centers of Disease Control and Prevention (CDC), 11.4% of the pregnancies in the US ended in preterm delivery in 2013. Preterm delivery is also the cause of approximately 35% of all infant deaths.

Since the development of the vital organs such as the brain, lungs, and liver occur in the final weeks of pregnancy, delivery of the infant prior to complete organ development can have devastating effects on the baby and the family. Short-term complications such as jaundice, breathing problems, extremely low immunity, and infections extend the infant’s hospital stay. However, long-term disabilities such as blindness, deafness, cerebral palsy, and other neurological issues in children due to preterm delivery add more than \$26 billion to the national healthcare costs. Certain factors such as tobacco, alcohol and drug use, carrying multiple babies, and high blood pressure and diabetes during pregnancy increase a woman’s risk of pre-term delivery. Most of the time preterm labor and delivery cannot be predicted. Preterm labor is difficult to stop and there are very few pharmaceutical drugs that can be administered to prolong the pregnancy, however, there are also associated side effects.

The uterus is relatively calm throughout most of a pregnancy. At near term, the uterine muscles become extremely sensitive to the hormone oxytocin, which is the strongest stimulus to

induce contractions. Oxytocin-induced uterine muscle contractions are inhibited during pregnancy by various substances, including the hormones estrogen and progesterone, prostacyclin, nitric oxide, and relaxin. It is thought that infection and inflammation are also involved in the initiation and progression of preterm labor and delivery. Inflammatory markers such as tumor necrosis factor (TNF-alpha), interleukin (IL-1B), and the levels of matrix metalloproteinases (MMP-9) enzymes are increased during the preterm labor.

We studied the effects of natural micronutrients on contraction of the uterine smooth muscles induced by hormones and inflammatory agents\*. We observed that the inflammatory mediators, TNF-alpha and prostaglandins, increased the smooth muscle contractions, while the micronutrient mixture significantly inhibited the activity of these mediators and induced uterine muscle relaxation up to 300%. The combination of micronutrients also reduced MMP secretion. The combination of micronutrients such as lysine, proline, vitamin C, and green tea extract was more effective in relaxing uterine smooth muscles than any of its individual components.

Knowing that any pharmaceutical drug taken during pregnancy can have damaging effects on the development of the infant, the combination of these safe micronutrients may be a better and more effective way in maintaining a healthy pregnancy.

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

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The ground-breaking nature of this research poses a threat to the multi-billion dollar pharmaceutical “business with disease”. It is no surprise that over the years the drug lobby has attacked Dr. Rath and his research team in an attempt to silence this message. To no avail. During this battle, Dr. Rath has become an internationally renowned advocate for natural health. Says he: “Never in the history of medicine have researchers been so ferociously attacked for their discoveries. It reminds us that health is not given to us voluntarily, but we need to fight for it.”

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