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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, abnormal and untimely uterine contractions can lead to premature labor and delivery. A normal healthy pregnancy usually lasts up to 40 weeks. An infant born before the 37<sup>th</sup> week of pregnancy is described as having a “preterm birth.”

# Micronutrients Support Normal Uterine Contractions

According to the United States Centers of Disease Control and Prevention (CDC), 11.4% of pregnancies in the U.S. ended in preterm delivery in 2013. Preterm delivery is also the cause of approximately 35% of all infant deaths in the U.S.

Since the development of 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 both the baby and the family. Short-term complications such as jaundice, breathing problems, extremely low immunity and infections extend the infant’s hospital stay. 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 U.S. national healthcare costs. Factors such as tobacco, alcohol and drug use, carrying multiple babies, 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



**An optimal supply of micronutrients during pregnancy is important for ensuring the well-being of mother and child. A study by the Dr. Rath Research Institute shows that specific micronutrients can prevent premature uterine contractions.**

## Micronutrients Support Normal Uterine Contractions

can be administered to prolong the pregnancy. Moreover, in those that are used 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 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. Combining micronutrients such as lysine, proline, vitamin C and green tea extract was more effective in relaxing uterine smooth muscles than the use of any individual nutrient alone.

**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 to maintain a healthy pregnancy.**

Ref:

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

## Important Health Information for All

This information is provided to you courtesy of the Dr. Rath Research Institute. Led by two former colleagues of two-time Nobel Laureate Linus Pauling († 1994) this Institute has become a leader in the breakthrough of natural health research in the field of cancer, cardiovascular disease and other common diseases. The Institute is a 100% subsidiary of the non-profit Dr. Rath Foundation.

The groundbreaking 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 saying, "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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