



As Always, There Are at Least Two in There

By Eugene L. Heyden, RN

It's quite obvious. You're having a baby. We're glad. And we all want what you want—a healthy, happy baby. However, with all the focus on baby—meeting his or her needs for proper development—we often overlook the needs of someone else. You're also having a placenta. Yes, placentas are people, too. And just like babies, placentas are part mom as well as part dad.

Or course, the goal of this pregnancy is not to welcome a healthy, happy placenta into your loving arms. The goal is to welcome a healthy, happy baby into your loving arms and take it from there. However, a placenta that is abnormal may stand directly in the way. Worst case, an abnormal placenta may take the life of the baby. It may even take the life of the mother. I'm fairly confident, this kind of placenta—one that has gone over to the dark side—is not what you have in mind. You probably want a good one. Luckily, what is good for baby is also good for placenta, so creating a healthy placenta may be easier than you think.

The scientists who intently study these issues want you to have a good placenta, too. Their work is paying off. They are making remarkable discoveries that you should pay close attention to. Your doctor should also pay close attention to what is being discovered. But unfortunately, because you and your girlfriends as having babies so fast, our doctors seem to be having trouble keeping up with all that is new. They finally got around to paying attention to folic acid to prevent birth defects—but it took about 25 years of delay and neglect before folic acid supplementation before and at the beginning of pregnancy went from being a great idea to a universal practice. So, Mom, it's up to you to become cutting edge. Pay close attention to what follows:

Adequate vitamin D intake is essential for maternal and fetal health during pregnancy, and epidemiological data indicate that many pregnant women have sub-optimal vitamin D levels. Notably, vitamin D deficiency correlates with preeclampsia, gestational diabetes mellitus, and bacterial vaginosis, and an increased risk for C-section delivery. Recent work emphasizes the importance of nonclassical roles of vitamin D in pregnancy and the placenta. The placenta produces and responds to vitamin D where vitamin D functions as a modulator of implantation, cytokine production and the immune response to infection. (Shin et al., 2010, emphasis added)

Relevant to the issues at hand, what the scientists have discovered is that vitamin D deficiency has a negative impact on the health of the placenta. Vitamin D is not this little nutrient you sort of need. It is actually a steroid hormone, one we cannot do without, one that the placenta heavily relies upon so you can have the baby of your dreams. Normal placental development depends on vitamin D being in adequate supply. This hormone is what the body uses to allow normal growth to occur (for both baby and placenta), and it is critical for the life-and-death struggle against those who are evil. Surprisingly, a life-and-death struggle occurs even in the placenta! There are bacteria living there—even in a healthy placenta—so keeping bacteria in check is most important. There is a baby at stake.

The placenta is one of the most poorly understood human organs, particularly with regard the presence of microbes within it. (Nuriel-Ohayon et al., 2016)

No longer should we consider the placenta to be a sterile environment. Quite the contrary, the placenta is home to many bacteria. Bacteria can also be found living in the amniotic fluid and in the vascular network that connects baby to placenta, the umbilical cord. (see Nuriel-Ohayon et al., 2016) So—and this is important—bacteria need to be controlled or there will be no baby. Enter the power of vitamin D.

Vitamin D triggers or supports many of the physiological actions required to mount a lethal immune response directed toward bacteria, yet it does so in a

controlled manner that does not harm the little one the placenta is trying to nourish and protect. Even in a healthy pregnancy there are enemies lurking in the shadows. They want to destroy Baby. Vitamin D sufficiency defends against this. So why are so many mothers-to-be allowed to remain vitamin D deficient? Are we looking for another 25-year period to pass before the following happens?

The routine monitoring of vitamin D levels in antenatal period [period before or during pregnancy] is mandatory. Early preventative measures should be taken at the slightest suspicion of vitamin D deficiency in pregnant women, to reduce morbidity during pregnancy and lactation, as well as its subsequent impact on the fetus, the newborn and the child. (Urrutia-Pereira and Solé, 2015)

I am fairly certain of this: The placenta you want is one that is properly constructed, one that functions normally and adequately supports fetal growth. And to achieve this, you will need vitamin D on your side. You really have no choice in the matter.

Vitamin D is considered as having a major role in the synthesis and regulation of genes that are effective in the early development phase of the placenta. (Bakacak et al., 2015)

The placenta plays a crucial role in fetal health, and it is well known that placental pathologies, specifically vascular lesions, affect fetal growth.

Inadequate growth in utero is not only linked to immediate morbidity and mortality risk of offspring but also lifelong risk of chronic disease. (Gernand et al., 2013, emphasis added)

The science is clear; vitamin D aids in the proper development of the placenta, particularly with respect to its vasculature (blood vessels). The science is equally clear about the fact that vitamin D deficiency impairs placental vascular development (Gernand et al., 2013). Little scrawny infants, with their pathetic, immature little organs—ill prepared for life on the outside—are produced by placentas that are developmentally impaired. In the face of vitamin D deficiency, the blood vessels of the placenta can become insufficient in the task of supplying all the nutrition the baby needs. And after birth, often a premature birth, these infants are off to a poor start in life. Some are damaged for life. Some have their lives taken away. We have a name for this: fetal growth restriction. Fetal growth restriction should be avoided at all costs. You don't want any part of this! Vitamin D deficiency can lead to this, which is why you will be reading the following:

*Maternal vitamin D deficiency has been associated with many poor birth outcomes, including fetal growth restriction. A recent Cochrane Review showed that **vitamin D supplementation reduces the incidence of low birth weight . . . by 52%**. (Gernand et al., 2013, emphasis added)*

And let me remind you: Vitamin D deficiency is very common in ladies who make babies. And it may be that there are more vitamin D deficient pregnant moms and women in their child-bearing years than there are those who have a healthy vitamin D level—you should read the statistics I read! Vitamin D deficiency is so common during pregnancy, and a lot of problems follow in its wake. Fortunately, some of this may be corrected when this vitamin, this hormone, is provided in adequate supply. *“Vitamin D deficiency is implicated in reduced fetal growth, which may be rescued by supplementation of vitamin D.”* (Murthi et al., 2016) However, some of the damage may never be corrected, making prevention and early intervention extremely important actions to take.

Besides fetal growth restriction, an abnormal placenta can lead to preeclampsia, *“a disorder involving dysregulated placental vascularization that affects up to 10% of pregnancies.”* (Liu et al., 2011) Vitamin D deficiency is implicated here, too, as one might expect. One study found, *“patients with 25(OH)D levels 15 ng/mL [quite low, but common] had a **5-fold increase** in the risk of preeclampsia, despite receiving prenatal vitamins.”* (Mulligan et al., 2010, emphasis added) Other studies have found pretty much the same thing. For example:

In a recent study, the odds of severe preeclampsia decreased by 38% for every 10 nmol/L increase in 25(OH)D [vitamin D]. **(Christensen et al., 2012)**

Almost all cross-sectional studies have reported a significant association between vitamin D deficiency and risk of pre-eclampsia. **(Tabesh et al., 2013)**

Women with vitamin D deficiency (<20 ng/ml) were more likely to have low levels of placental growth factor, which is associated with an increased risk of preeclampsia. **(Fanos et al., 2013)**

I won't go into the details of preeclampsia at this time. I need to bring this presentation to a close. However, I will take the time to tell you that you don't want anything to do with preeclampsia. There is danger there. Yet sadly, even though it is known that vitamin D deficiency threatens the pregnancy and harms and kills babies (and placentas), we pay such little attention to vitamin D during this important period in life.

Vitamin D deficiency is often clinically unrecognized, however laboratory measurements are easy to perform, and treatment of vitamin D deficiency is inexpensive. **(Grundermann and von Versen-Höyneck, 2011)**

Vitamin D is important to maternal health, fetal development, and postnatal life. Current prenatal care does not include the monitoring of vitamin D levels, which is an unfortunate oversight because deficiency is easily treated. **(Mulligan et al., 2010)**

Before I let you go, I should probably tie up a few loose ends. Earlier, in this article I wrote “what is good for the baby is also good for the placenta.” Obviously, smoking is totally out of the question—very harmful to the vascular health of the placenta (Zdravkovic et al., 2005). A healthy diet, one that includes adequate amounts of “*calcium, magnesium, selenium and vitamin A and C,*” along with vitamin D in generous supply, will help you construct a healthy placenta (Bakacak et al., 2015). Your prenatal supplement will help deliver some of the things you need, but clearly it will not provide you with enough vitamin D to make you or keep you vitamin D sufficient (McCullough, 2007). And if you are taking a prenatal supplement without iodine, I will have to track you down and make you read my birth defect book. (During gestation, a baby can be damaged, sometimes severely damaged, when his or her mother is low in iodine.)

Also earlier, I wrote this: “Mom, it’s up to you to become cutting edge.” By this, I mean that I invite you become aware of the issues surrounding vitamin D and pregnancy, and not remain part of the problem. Year after year I read paper after paper detailing the discoveries and conclusions of the experts, yet little change can be detected in how we address a clearly-defined problem that harms and destroys, namely vitamin D deficiency. Year after year, the belief that only a little vitamin D is required during pregnancy is tightly held. No sense of urgency is detectable. No change is in sight. This needs to end. It can start with you. You can request a vitamin D level to see where you stand. You can insist on effective treatment, as indicated.

I will conclude with this:

Finally, let us discuss a scenario that occurs thousands of times daily in the United States. A pregnant woman visits her obstetrician, who prescribes prenatal vitamins containing 400 IU (10µg) vitamin D. The patient and physician both assume that this supplement will fulfill all the nutritional requirements for the duration of the pregnancy. However, in the case of vitamin D, it will not even come close unless the pregnant woman has adequate sun exposure. The woman, especially if African American, and her developing fetus are at high risk of remaining vitamin D deficient during the entire pregnancy. Even if the physician were to prescribe a vitamin D supplement of 1,000 IU/d (25 µg), the mother would likely remain vitamin D deficient. As scientists and health care providers, we simply cannot accept this any longer. (Hollis and Wagner, 2004)

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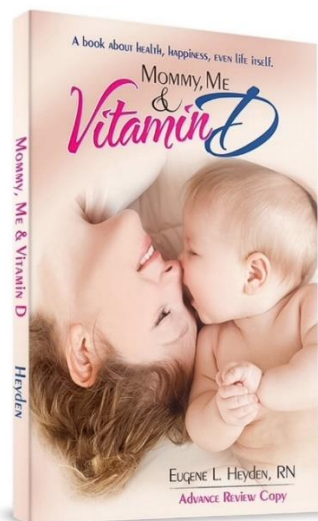
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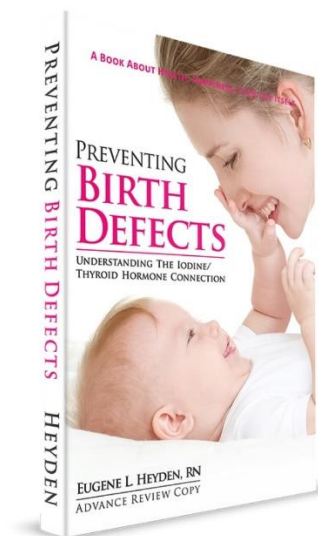
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