

## **VITAMIN A Does Not Cause Birth Defects**

It is well known that the fat soluble vitamins, vitamin A and vitamin D can be toxic at extremely high doses. The emphasis is on the word “extremely.” The intake of vitamin A required to have a toxic effect is in the order of 50 to 100 thousand I.U. per day for months at a time. The toxic level of vitamin D has yet to be determined because it is difficult to consistently produce any toxic effects even with thousands of international units daily.

By far the most significant concern over the toxic effects of these vitamins relates to their safe intakes during pregnancy. There has been a lot of negative press given to vitamin A in particular as a potential cause of birth defects. The purpose of this letter is to allay those fears for you and your pregnant patients.

What is the source of all the concern about vitamin A causing birth defects? The first source of concern about teratogenicity of vitamin A came from the discovery that many of the synthetic derivatives of vitamin A (such as are used in the pharmacological treatment of certain skin conditions) were powerfully teratogenic. Since these were derivatives of vitamin A, that naturally created a question of whether vitamin A itself was teratogenic. Many, many studies were done in an attempt to determine if there is any reasonable level of vitamin A intake that is unsafe for pregnant women.

Fortunately, no cause and effect relationship was established between vitamin A and birth defects. One of the best studies showing the safety of vitamin A supplementation for pregnant women was published in 1998 as a summary of all the recent studies to check the teratogenicity of vitamin A. This summary of studies on vitamin A in pregnancy showed that vitamin A intake during early pregnancy as high as 30,000 I.U. per day was totally safe. (1)

With so many studies showing the safety of vitamin A during pregnancy you would think that the issue would be closed. But that brings us to the second and most important source of everyone’s fear about vitamin A. Of all the studies done on vitamin A there was only one that showed a possible link between vitamin A and birth defects. Regrettably, this study was published in the New England Journal of Medicine, which made it very high profile. It got a huge amount of press coverage and this is the one that created the unjustified fear among pregnant women and their doctors. (2)

The problem with this study (besides the fact that it is the only study showing any remotely possible link between vitamin A and birth defects, while there are dozens of others showing no connection at all) is that the study was so weak because it was simply an epidemiological study. In other words, the study was based on nothing more than a questionnaire of women who recently gave birth. It was found among this particular (rather small) sample of women that among those women who had babies with birth defects there was a higher intake of vitamin A on average than among the women whose babies had no birth defects. There was absolutely no cause and effect relationship established. It might just as well have been found that the women whose babies had birth defects more often drove Chevies while the rest of the women more often drove Fords. There is no cause and effect connection established or even implied. Nevertheless, since this study was published in such a high profile journal it created a real stir -- and we have been living with a dark cloud hanging over vitamin A ever since.

The study cited above regarding the summary of many sources showing no connection between vitamin A and birth defects really tells the whole story, and should be enough to reassure you and your patients. However, if you want more evidence here are a couple more studies. One in particular was published in Reproductive Toxicology which showed conclusively not only that vitamin A itself had no teratogenicity but showed the exact mechanism by which the retinoids -- the synthetic derivatives of vitamin A -- cause birth defects. In other words, it showed that there is no chemical mechanism by which vitamin A could possibly do what the retinoids do. (3)

An even more reassuring study was published in 1999. It showed that there was no increase in birth defects among women taking supplemental vitamin A at any dose. Even in a sub-group of the sample population it was shown that there were absolutely no birth defects in babies born to women who supplemented with more than 50,000 I.U. daily throughout pregnancy. Got it? Zero birth defects -- absolutely -- even with supplementation of 50,000 I.U. daily throughout pregnancy.(4)

You (and your patients) should now clearly see that the quantities of vitamin A that a pregnant woman would get on a Nutri-Spec regimen are entirely safe. The highest vitamin A intake a woman could have on a Nutri-Spec regimen would be if she tested both anaerobic and glucogenic. In that case she would have from her Activator, her Oxy A and her Oxy G a total of 15,000 I.U.'s of vitamin A daily. This level of vitamin A is not only safe but is actually a level that will help prevent many of the common complications of pregnancy. This is because vitamin A reverses many of the toxic effects of the excess estrogen that many women experience during pregnancy.

To wrap things up, we will say a word about vitamin D. Many studies have shown that vitamin D during pregnancy is not only not toxic but it is absolutely an essential supplement. One particularly good study recommends a minimum of 1000 I.U. daily of vitamin D during pregnancy. (5)

1. Wiegand, et al. Safety of vitamin A: recent results. Int J Vitam Nutr Res. 1998;68(6):411-6.
2. Rothman, et al. Teratogenicity of high vitamin A intake. NEJM. 1995 Nov 23;333(21)1369-73.
3. Miller, et al. Preconceptional vitamin A use. Reprod Toxicol. 1998 Jan-Feb; 12(1)75-88.
4. Mastroiacovo, et al. High vitamin A intake in early pregnancy and major mal-formations. Teratology. 1999 Jun;59(1)7-11.
5. Vitamin D supplementation in pregnancy: A necessity. Arch Pediatr. 1995 Apr;2(4):373-6.