

## Transcript of message

### Vitamin A/beta carotene

Sometimes a person will have heard about possible complications with high doses of vitamin A, especially during pregnancy. When looking at the label of Juice Plus<sup>®</sup>, with the Orchard blend having 110% of Vitamin A, and the Garden blend having 140% of Vitamin A, a person may choose not to take Juice Plus<sup>®</sup> fearing that they will get too much vitamin A.

While I would admire someone for being extra cautious about what they choose to put into their body, it is important to understand the difference between vitamin A and beta carotene. You will notice on the Juice Plus<sup>®</sup> label that next to where it says vitamin A, it *also says that it is 100% in the form of beta-carotene.*

Let's understand what vitamin A is first of all.

Dietary Vitamin A can refer to two forms: one is the precursors to vitamin A known as provitamin carotenoids, such as beta-carotene, which are found in plant sources.

The other form is retinyl esters, also called retinol, or preformed vitamin A because it has been converted to retinyl esters from dietary carotenoids from plant sources eaten by an animal. In other words, humans as well as other animals eat plants, absorb the carotenoids such as beta-carotene and convert it to retinol vitamin A as needed.

Thus, dietary vitamin A is obtained from two sources:

- 1) Preformed vitamin A or retinol from animal food (liver, milk, kidney, and fish oil), as well as fortified foods, and drug supplements
- 2) Or, from provitamin A carotenoids from plant sources, such as carrots and leafy greens.
- 3) Dietary vitamin A is available mainly as preformed vitamin A or retinol in western countries that eat a diet rich in animal foods.
- 4) And in developing countries, dietary vitamin A is available mostly as provitamin A carotenoids because they eat mostly a plant-based diet.

Because the Western diet is rich in animal foods, there is now concern for people getting too much vitamin A in the retinol form, especially during pregnancy. This is because preformed vitamin A as retinol, can build up in the liver and cause complications. It is also known as a teratogen, which refers to any agent that interrupts or alters the normal development of a fetus. On the other hand, you don't have to worry about getting too much vitamin A as provitamin caretonoids from whole food plant sources, because caretonoids such as beta-carotene will be converted in the body to the retinol form of vitamin A as the body needs it. And the conversion rate actually decreases with increasing amounts of carotenes as the body is infinitely intelligent and knows when to stop making excess vitamin A. The bioavailability of retinol is generally more than 80%, whereas the bioavailability and bioconversion of carotenes are lower.

So, you cannot get too much preformed vitamin A, from plants because plants simply don't make preformed vitamin A. Animals do.

Now, since there is no animal tissue in the Juice Plus<sup>®</sup> powders, we know that we are not getting preformed Vitamin A in Juice Plus<sup>®</sup>, but rather the precursor carotenoides from the fruits and veggies.

There is such an organization known as the Teratology Society to look at substances that may be a teratogen, and back in 1987, they concluded that beta-carotene is *not* a human teratogen which could harm a fetus.

Think of it this way, if beta-carotene from whole food sources were a problem during pregnancy then we would advise women to stay away from carrots and salads during pregnancy! I'm certainly glad that I took my Juice Plus<sup>®</sup> during my two healthy pregnancies.

Also, we know that in the last 15 years of people taking Juice Plus<sup>®</sup>, there have been no reported cases of complications due to a vitamin A overdose. Instead, there are 13 clinical studies reporting positive health benefits from taking Juice Plus, so rest easy that you are doing your body good by giving it the nutrition from a rainbow palette of fruits, veggies and berries.