According to a new published review of vitamin E, researchers reporting adverse consequences of high dose vitamin E supplementation likely have misinterpreted the data. The body has efficient mechanisms to excrete and utilize excess vitamin E, rendering it essentially non-toxic. On the other hand, the majority of adults in the U.S. do not get enough vitamin E in their diet.

A review of the safety of vitamin E supplementation

Over the past several years, a few studies have alleged that there are adverse consequences from vitamin E supplementation. Dr. Maret Traber, a vitamin E expert and a Professor at Oregon State University College of Public Health and Human Sciences, believes that these studies may have misinterpreted the data.

In a review published online on March 15, 2013 in the Journal of Lipid Research, it is noted that unlike vitamins A and D, alpha-tocopherol (vitamin E) does not accumulate to toxic levels in the liver or other tissues. The body has an innate ability to excrete excessive amounts, so consuming too much should not be a real concern.

There are two systems in the liver that control the level of vitamin E in the body, both of which remove excessive amounts. The vitamin is then secreted into the plasma for uptake by the body's tissues, where it is harmless. In fact, in searching for evidence of adverse effects of excessive vitamin E, the only consistent finding by toxicologists is that at high levels it tends to cause increased bleeding tendencies.

Unlike most vitamins and minerals, vitamin E is not known to play a role as a cofactor, or nuclear receptor ligand, or as an essential component of any enzymatic system. Out of the likely hundreds of antioxidants present in a typical diet, only vitamin E is a vitamin. Vitamin E plays a unique role in preventing peroxidation of long-chain polyunsaturated fatty acids (PUFAs). It is thought that vitamin E specifically protects very important fats such as DHA (docosahexaenoic acid) that may be essential to life. Alpha-tocopherol is the most efficient and safest of the vitamin E forms, since even the alpha-tocopheroxyl radical can be simply reduced back to alpha-tocopherol by water soluble antioxidants such as ascorbic acid (Vitamin C).

Based on the unique nature of vitamin E metabolism and function, excessive intake should be of little concern, whereas more than 90% of the U.S. population obtains inadequate levels from their diet.

Maret G. Traber, Ph.D. Mechanisms for the Prevention of Vitamin E Excess. First Published on March 15, 2013, doi: 10.1194/jlr.R032946. The Journal of Lipid Research.