



Nutrient excess causes reactions

Last week's "Health Options" column explored how much is too much for some key vitamins and minerals. This week, we describe some of the potential negative effects that can occur from intake that exceeds the "Tolerable Upper Intake Levels" (ULs) established by the Institute of Medicine.

Question: Will consuming a nutrient at the UL level always lead to side effects?

Answer: No. UL values are typically set below the lowest amount of a nutrient that is known to cause side effects. Most people will not experience any obvious effects at those levels.

Q: If a person exceeds the Upper Limit for a nutrient, how soon do the negative effects appear?

A: Depending on the nutrient, negative effects can occur within minutes or take years. For example, excessive niacin can create flushing and tingling sensations within minutes of a high dose.

A quite noticeable and likely embarrassing reaction occurs within a few hours of consuming excess supplemental magnesium. The upper limit is set at 350 mg of non-dietary magnesium per day, because much more than this causes very loose stools and in some people, explosive diarrhea.

Other micronutrients that can cause

gastrointestinal problems in excess amounts are vitamin C, niacin, calcium, copper and iron.

Q: For micronutrients that do not have immediate negative effects, will a person know if they are accumulating dangerous levels?

A: Not usually. For example, niacin, even at doses that do not cause flushing, may bring about liver damage that is not initially noticeable. For this reason, when physicians prescribe niacin to reduce high blood-cholesterol levels, they periodically run blood tests to make sure that the liver is not being damaged.

Exceeding the UL for vitamin A during pregnancy greatly increases the risk of serious birth defects in the developing infant. However, because vitamin A is essential for normal development, the Food and Drug Administration recommends that during childbearing years, women consume vitamin A at the RDA level. Eating those fruits and vegetables becomes more important than ever during pregnancy.

But excess vitamin A, taken over a length of time, can be harmful to children and non-pregnant individuals, causing liver damage and a host of other problems.

Vitamin B6 taken in excess (greater than 100 mg per day) can damage nerves that serve the arms, legs, hands

and feet. The effects can be permanent.

Prescription drugs are known to have many side effects. And excesses of many nutrients have very similar side effects. Therefore, it is especially important to know the side effects of the upper-limit nutrients you may be taking.

Nutrient damage

These are examples of the negative side effects possible from excess intake of various nutrients:

Nutrient	Side effects
Vitamin A	Birth defects, liver damage
Vitamin C	Intestinal distress, kidney stones
Vitamin D	Kidney damage
Vitamin E	Poor blood clotting
Niacin	Flushing, liver damage
Vitamin B6	Nerve damage
Calcium	Kidney problems
Magnesium	Diarrhea
Iron	Intestinal distress
Selenium	Hair loss, brittle nails
Copper	Intestinal distress, liver damage
Manganese	Nerve toxicity

Alan Titchenal, Ph.D, CNS and Joannie Dobbs, Ph.D, CNS
are nutritionists in the Department of Human Nutrition, Food and Animal Sciences,
College of Tropical Agriculture and Human Resources, UH-Manoa.
Dr. Dobbs also works with the University Health Service.
