

# Technical Bulletin

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## Nutrient Absorption and Utilization

In the last few years the nutrition industry has become more aware of the vital importance of absorption and utilization of nutrients in foods and supplements. If a nutrient isn't absorbed, the body can't use it. Industry awareness of this concept has created new marketing campaigns for dietary supplements that focus on absorption of nutrients. Unfortunately, these marketing campaigns have created a nutrition industry that is riddled with misinformation about supplements and how nutrients get absorbed and used by the body. One of the most outrageous claims is that nutrients in liquid form are 98% absorbed. Such statements are not only false, but it is physiologically impossible for some nutrients to be absorbed at this rate.

Long before popular marketing focused on absorption, Infinity2 was researching and promoting the importance of absorption and utilization of nutrients. Our world-renowned formulation team spent years researching the way Nature designed nutrients to be delivered. For over 10 years, Infinity2 has focused on maximizing the absorption and utilization of nutrients from foods and supplements. Research conducted by scientists around the world has demonstrated that absorption of nutrients varies depending on the following factors:

- 1- The nutrient in question: Some nutrients are absorbed at close to 100%, while others have less than 50% absorption rate - regardless of the form or method of delivery. Vitamin C has an average absorption rate of 90% at the usual dietary intake, but calcium has only an average of 30% absorption rate at the usual dietary intake. Each nutrient has its own unique absorption pathways, which means absorption rates will be different for each nutrient.
- 2- The amount of the nutrient provided in a single dose: The higher the dose, the lower the absorption rate for most nutrients. For example, vitamin C has an average absorption rate of 90% at the usual dietary intake of 30 to 180 mg per day, regardless of whether it is in a capsule, tablet or liquid. However, absorption falls to 50% when provided at a dose of 1500 mg in a single dose and drops to 16% with a 12-gram dose. This is because the body knows how much is required and will only take in what is needed. This holds true regardless of whether the vitamin C is provided as a tablet, liquid or capsule.
- 3- The form of the nutrient: Natural, whole food vitamins are absorbed and utilized more effectively than synthetic vitamins and chelated minerals have greater absorption and utilization than mineral salts. Research studies show that vitamin C is absorbed more effectively when the natural bioflavonoids are present. The same is true of vitamin E. Countless research studies have shown that the patented amino acid chelated minerals used by Infinity2 have 2 to 6 times greater absorption (depending on the mineral) than minerals provided as mineral salts. For example, calcium as calcium amino acid chelate has double the absorption rate of calcium in any other form (including calcium from milk) and iron as iron amino acid chelate (Ferrochel™) has 6 times greater absorption rate than the common form of iron, ferrous sulfate.
- 4- The nutrient status of the individual: Those who are deficient will naturally absorb more. Research has shown that individuals who are iron deficient will have a greatly increased rate of iron absorption than those who have normal iron status. Those who are deficient will absorb more iron regardless of the form of iron provided. The same is true of healthy individuals who have an increased need for specific nutrients, such as pregnant women who absorb more iron, calcium and other nutrients needed for a healthy baby.
- 5- The health of the individual's digestive system: Those who have problems with digestion will often have problems with absorption. Individuals with digestive disorders have been found to have much lower absorption rates for various nutrients because their digestive system doesn't work prop-



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## **A Discussion on Enzymes**

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erly and does not allow for the normal and proper absorption of nutrients.

- 6- The delivery method of the nutrient: Tablets generally have lower absorption than capsules or liquid, particularly poorly formulated tablets that do not dissolve well. If the tablet does not dissolve the nutrients will not be absorbed. Absorption of nutrients is often lower in tablet form because many tablets don't dissolve and never release their nutrient content. Absorption of nutrients from tablets may also be lower because the high heat and pressures of the tableting process often destroy the nutrients. This is not the case with capsules or powders, where the nutrients are easily released and there is no heat or pressure used in manufacturing to destroy the contents.

- 7- The presence of other nutrients: High intakes of some nutrients can decrease absorption of others. Nutrients can interact with each other and either enhance or interfere with absorption. For example, vitamin C enhances the absorption of iron and vitamin D improves calcium absorption, but zinc can interfere with copper absorption and iron can interfere with zinc absorption.

It is also important to understand that absorption is not the same as utilization. Of course, absorption must occur first, but just because a nutrient is absorbed does not mean that the body will utilize it. The nutrient must be in a form that is recognizable and useable by the body with all of its cofactors present. For example, chromium picolinate is absorbed well, but is not utilized very well by the body. The body cannot use the picolinic acid attached to the chromium and the body must do extra work to break off the picolinic acid and get rid of it before it can use the chromium. The patented amino acid chelated form chromium (known as chromium chelavite®), however, is absorbed better than chromium picolinate and it has the added benefit of being the active form of chromium that can be easily used by the body. As a result, less of it is excreted or

lost by the body than chromium in other forms.

Infinity2 does everything possible to ensure that the nutrients are not only absorbed, but are also in a form that can be utilized by the body. For this reason, we choose to use whole food vitamins and amino acid chelated minerals. These have the highest absorption rates and are in a form the body can easily recognize and use. In addition, we go one step further and include a unique CAeDS® system for each product to ensure maximum absorption and utilization of the nutrients in the product. CAeDS® is designed to enhance the body's natural absorption mechanisms and provide all the necessary enzymes, minerals and cofactors for absorption and utilization. CAeDS® can double the absorption of nutrients.