

FINALLY, A MULTI VITAMIN THAT TOWERS ABOVE THE REST. INTRODUCING...

# Complete Multi

*How many times have we seen big name brand multi vitamins on TV with young, vibrant actors running on the beach or active seniors playing baseball with their grandkids, suggesting that "this" is the life you could, "should" be living if you take "our" multi vitamin? This is the power of marketing. Marketing science and real science are two completely different realities. The truth is, the vast majority of supplement manufacturers who tout these magical results we see advertised do not spend the time, money, resources, or do their homework to manufacture a multi vitamin the way one "should" be made. Viva Vitamins would now like to open your eyes to a reality that may never have been explored before... the REAL truth about vitamins*

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## **The unfortunate truths about multi vitamins**

Ever wonder what happens to a multi vitamin after you put it into your mouth and swallow it? Do you assume it just "knows where to go"? Unfortunately, far too many vitamin manufacturers know way too much about pounding together a poorly formulated tablet, compiling a pathetic combination of vitamins and minerals from ridiculous sources, and calling it a multi vitamin. Sure it saves money for the manufacturer to do this, but is it fair to the consumer? What if the already weak potencies of the multi we're taking turns out to be 10% bioavailable? It turns out that in real life, considering *real science*, not *marketing science*, a tablet first must completely disintegrate (in the appropriate areas of the gastrointestinal tract), and then release its nutrients to the correct location of absorption, utilizing suitable chaperones, and having the nutrients in the correct concentrations! This is a lot for one tablet to worry about. The *vast* majority of supplement manufacturers do *not* do this. Rest assured however, Viva Vitamins has taken a stand against this.

## **What makes Viva Vitamins' Complete Multi different?**

Viva Vitamins' Complete Multi has decided to take the road less traveled, spending the extra time, money, and scientific research into making the *crème de la crème* of multi vitamins. Since the best interest of the consumer is in mind and

their health as well, the researchers at Viva Vitamins have taken it upon themselves to construct a multi vitamin that actually delivers what a multiple vitamin should. Complete Multi contains vitamin A, usually derived from beta carotene or an alkyl ester, as is in this formula, and is involved in the photoreception mechanism of sight in our eyes. To put it plainly, if we didn't have any vitamin A in the retina of our eyes, we'd be blind. Vitamin A also plays critical roles in antioxidation and our immune systems (Semba RD, 1998).

Vitamin D is directly involved in the alimentary uptake and transport of calcium by being the only vitamin that acts as a steroid hormone (DeLuca HF et al., 1998). In this same manner, this vitamin-hormone is also responsible for skeletal growth and bone remodeling via osteocyte activation (Cranney C et al., 2007). In fact, recent studies suggest vitamin D's involvement in our immune system and inflammatory regulation (Hayes CE et al., 2003). To put it plainly, this vitamin-hormone is our best friend if we don't want brittle bones, aches and pains and getting sick. Vitamin D is also a "must" if we don't get adequate amounts of sunlight each day for our bodies to produce its own vitamin D (DeLuca HF et al., 2004).

The family of tocopherol isomers known as vitamin E plays the part of the antioxidant dynamo in Mother Nature's pharmacy. The alpha isoform of the tocopherols has demonstrated to be the most biologically active (Farrell P et al., 1994) and has proven itself to be the antioxidant powerhouse of the fat-soluble vitamins. Recent findings are also pointing to this vitamin's awesome display of anti-inflammation (Traber

MG et al., 1999). But watch out for phony vitamin E (L- $\alpha$ -tocopherol) which only has about half of the biological activity of natural (D- $\alpha$ -tocopherol) vitamin E (U.S. Department of Agriculture, 2004) as some manufacturers like to use as their source of vitamin E to save some money.

The water-soluble vitamins included in Complete Multi include: the entire b-complex (thiamine, riboflavin, niacin, folic acid, pantothenic acid, pyridoxine, cobalamin, biotin, PABA, choline and inositol) and vitamin C. Beside the fact that these b vitamins are cofactors to hundreds of biologically crucial enzymes, they are the main players involved in the process of converting food into energy. Biochemical reactions are catalyzed by enzymes. Think of the b vitamins as the on-off switch to these enzymes. Without b vitamins, these reactions in our bodies would not ensue. Vitamin C (ascorbic acid) can be touted as the water-soluble antioxidant we all know and love. It is one of the rare antioxidants that “re activates” itself upon oxidation with the help of its friends vitamin E, iron, and other fellow antioxidants. To make matters even better for ascorbic acid’s reputation, studies suggest that vitamin C, when taken in hyper-supplemental amounts, also reduces inflammation (University of California – Berkeley, 2008).

No less important than vitamins are minerals when considering daily supplementation. Just like the vitamins (with the exception of vitamins D and E) minerals act as cofactors to literally thousands of enzymes carrying out vital biological reaction in our bodies every day. Needless to say, when there is a deficiency or lack of these minerals in our diet, certain reactions can’t ensue and major problems begin to occur. In some cases, these problems can be life threatening. Viva Vitamins’ Complete Multi contains isolated amounts of these crucial minerals in proportions that correspond to the latest scientific research for maximizing each mineral’s physiological and bioavailable potential. In other words, Viva Vitamins did their homework to include the right amount of each mineral to yield its maximum effectiveness in our bodies.

### **Bioavailability**

Bioavailability is the degree at which a drug, nutrient, or other substance is absorbed or becomes available at the site of physiological activity after administration. So, the question to

ask now is; “How does a vitamin or mineral get to where it’s supposed to go?” Fortunately, researchers at Viva Vitamins have unlocked that mystery and incorporated the science behind it into the designing of their minerals.

### **Chelation- the *Chaperoning* of minerals**

Chelation is when one or more metallic ions form a non-covalent ligand with an anionic molecule or coordination system. What this means is when one or more negatively charged molecules loosely holds hand with a positively charged element on the periodic table. How this is beneficial to the bioavailability of a mineral is to think of the chelating agent as acting as a chaperone. The best way to get a child to school is to have the child escorted by a chaperone. Otherwise, the child will most likely get lost or get distracted by something else along the way. In like manner, a naked ion will get lost along the gastrointestinal tract by binding to something else that will either cause it to pass up its site of absorption or drop it off at some random site in the gut depending on pH or in the presence of other binding competitors. Although the exact mechanism of ion-chaperone transport is unclear, the most accepted postulation is that it is done via passive transport mechanisms (Wapnir and Stiel, 1986). Whereas the charged mineral has to undergo more rigorous bio regulation for absorption in the alimentary canal via coupled uptake mechanisms (Ferraris and Diamond, 1989), most likely by Na<sup>+</sup> or Ca<sup>2+</sup> gradient-driven ionophores.

### **Choosing the best Chelating Agent**

The question now is what would be the best chaperone to use to take these minerals to where they’re supposed to go? Intuition would tell us that the best chaperone would be a species that our bodies recognize as beneficial. One such group of chelating agents are various intermediates of the Krebs Cycle (aka. TCA cycle). One turn of the Krebs Cycle converts one mole of Acetyl Coenzyme A into three moles of a powerhouse energy duo (NADH and FADH) and one mole of ATP. This fascinating biochemical process that our bodies use to convert food into energy yields certain intermediates along the way. These intermediates include oxaloacetate, citrate, isocitrate, succinate, malate, fumarate, and  $\alpha$ -keto glutarate. Interestingly, these intermediates can ferry off

and do some neat things on their own. In this manner, they too are of some biological importance. It is for this reason, that the body recognizes these intermediates and initiates a warm welcome for them when they're introduced into the body from food. The same goes for certain amino acids. It is suggested that the human alimentary canal is surprisingly set up for the transport of not only mineral-bound Krebs Cycle intermediates, but also mineral-chelated amino acids – namely Histidine within the brush border epithelium of the gut (Glover and Wood, 2008). This may explain why more and more research is demonstrating a marked increase in the luminal transversion of chelated minerals than their naked ionic counterparts.

## Purpose

Viva Vitamins' Complete Multi is designed for those of us who take supplementing seriously. There are those who take a multi vitamin just to take one, and there are those who are concerned about getting the maximum benefits from a single tablet that actually delivers what it claims on the package. Complete Multi has been formulated to give the supplementor the maximum potency of the right combination of vitamins bound to the best chaperoning agents in one of the most scientifically constructed tablets to yield the maximum bioavailability.

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