In previous emails we carefully explained how to determine the critical differences between “organic-containing” versus “100% organic”; “naturally-derived” versus “100% natural”; and “food-based” versus “100% whole food” (see Innate Choice™ Healthy News volume 9 Sep 13, 2008 and Innate Choice® News Bulletin June 2009). As a quick summary, just remember that if it doesn’t say “100% Certified Organic”, “100% Naturally Occurring”, “100% Synthetic-Free” and “100% Whole food” – IT ISN’T!

In this newsletter we clarify the issue of reported nutrient quantity and how the current standards and research studies completely ignore the issue of quality, bioavailability, biological activity, and actual physiological benefit.

This is really an issue that is based on this very simple but crucial question. Are synthetic, isolated vitamins and non plant sourced minerals really that different from naturally occurring vitamins, plant sourced minerals, and other micronutrients? The answer is a resounding YES and it is for this reason that both the current research and vitamin rating standards are confusing, invalid, misleading, and as new research is indicating, potentially life threatening.

Here is what you and your patients need to know. Synthetic, fractionated chemical vitamins never grew in the ground, were never energized by the sun, and were never alive or part of anything alive. They are chemicals, they are drugs; they are NOT food or nutrients. The tragedy is that under the current standards these chemicals can be marketed and studied as vitamins and they are also what are used to determine daily values and to study potential benefit and harm of vitamin supplementation. Ingesting chemical synthetic vitamins does NOT represent vitamin supplementation; it represents the ingestion of chemicals or drugs.

This confusion regarding the difference between real vitamins and synthetic chemicals is also the basis of all the seemingly contradictory and confusing information regarding the benefits of vitamin supplementation. A very important point that needs to be made is that research is clear that vitamin deficiencies are linked to chronic illnesses like cancer and heart disease. One of the seemingly confusing things about vitamin research is that there is very good evidence that vitamin deficiency is linked to disease, but research on vitamin supplementation is NOT linked to the prevention of these same diseases! One more confusing component of all this is that research on the consumption of fruits and vegetables is clearly shown to prevent cancer, heart disease, and many other chronic diseases. How is this possible? The explanation is actually very obvious once you understand that the vitamin supplementation research that fails to show a benefit does NOT actually study vitamins as they are found in fruits and vegetables. These studies use synthetic vitamins NOT naturally occurring vitamins!
The current quantitative and qualitative standards for vitamins, such as those listed by RDA’s, RDI’s, and DV’s, are based upon synthetic quantities mostly determined from animal research studies conducted over 60 years ago. Currently there is no standard available for understanding non-synthetic, naturally occurring vitamins, minerals, and other micronutrients obtained exclusively and directly from living botanical sources harvested from 100% certified organic farms. Work is underway to create a new standard, called the “Naturally Occurring Standard” (NOS). This new standard will aim to establish a “Naturally Occurring Daily Intake” or “Natural Daily Intake” (NDI) that will define the amounts required on a daily basis when a consumer is ingesting natural, full spectrum vitamins, plant derived minerals, and whole food micronutrients from 100% certified organic whole foods.

This new valid standard is required because there is a real and significant difference between isolates, synthetics, analogues, or spiked vitamin fractions and whole food synergistic complexes of vitamins, minerals, and cofactors. The labeled amount in a synthetic compound does NOT represent the amount of actual vitamin present nor does it provide any information on the biological benefit.

For example there are a number of both forms and sources of Vitamin C that are legally allowed to be labeled as Vitamin C and this is why reading the supplement facts panel becomes critical. It is also why we need a new, more valid, more honest standard for reporting vitamin content. For example, “Sodium ascorbate” comes from petroleum sources, “ascorbic acid” is made in laboratories from fermented cane sugar (ironically this can be labeled “from natural sources” since cane sugar is natural), and “ascorbil palmitate” is a compound formed by combining ascorbic acid and palmitate which is the ester form of the fatty acid palmitic acid. This product is often marketed as “Ester-C” and promoted as being a superior source of Vitamin C. The truth is that it is not Vitamin C at all, it is a manufactured antioxidant which, although safe as a food preservative in small amounts, is not an adequate or safe substitute for the whole food nutrient.

How supplements are manufactured is also critical and this should also be required to be disclosed. Even the products that utilize natural sources often do not ensure that the living enzymes are preserved in the manufacturing process. The less expensive way to dry fruits and vegetables involves heat and this destroys many of the important micronutrients that they are claiming to deliver. Again, this is why it is imperative to know the actual vitamin and mineral content in any supplement. Many “greens” products or “juice” products do not disclose their vitamin and mineral content and those that do almost always spike their products with synthetic vitamins and non plant source minerals! The take home message is that neither all vitamins nor all products containing vitamins are EQUAL. If it doesn’t sound like whole food it is not whole, if it has huge RDI and RDA values for all listed vitamins and minerals it is synthetic, and if it has not been properly extracted it does not contain the benefits of live food.

Just like vitamin C, almost all other vitamins that we know of only offer their FULL health benefits when they are in the presence of a number of enzymes, co-enzymes, and co-factors. For example, Vitamin D may have as many as twelve different active components. The mineral copper is needed for full vitamin C activity, while vitamin E works closely with the mineral selenium to provide its health promoting, anti-oxidant effect. This is known as a synergistic effect and is ignored by those manufacturing and marketing synthetic and/or isolated...
supplements. When they do market their product as having the cofactors what one must realize is that they have added a cofactor to a SYNTHETIC chemical not a real vitamin. Whole food products naturally contain all of the vitamins, minerals and co-factors necessary because the plant itself required and absorbed these nutrients in exactly this way for its own good health.

It used to be said that vitamins were a form of “cheap life insurance” and any excess would simply be excreted in the urine. This is entirely false for fat-soluble vitamins since they can accumulate in the fatty tissues. Even excreting the water soluble vitamins can deplete the body of other essential nutrients and place a harmful load on the kidneys. It is no longer just a question of whether or not you are wasting your money on synthetic vitamins, they may be doing you significant harm.

In a study published in The New England Journal of Medicine, 22,748 pregnant women were given synthetic Vitamin A. The study alarmingly reported a 240% increase in birth defects in babies of women taking 10,000 IU daily, and a 400% increase in birth defects in babies of women taking 20,000 IU a day. **Women eating natural food sources of Vitamin A showed no increase in birth defects.** (Teratogenicity of High Vitamin A Intake. New England Journal of Medicine 1995; 333: 1369 – 1373)

Another study published on April 14, 1994 in The New England Journal of Medicine studied 29,000 male smokers who were given synthetic beta-carotene and synthetic Vitamin E to evaluate the cancer-protective effect of these “vitamins”. After 10 years the men taking the synthetic beta carotene had an 18% higher rate of lung cancer, more heart attacks, and an 8% higher overall death rate. Those taking Synthetic Vitamin E had more strokes. **Food sources of these same nutrients, such as fruits and vegetables, consistently demonstrate protection against cancer, heart attacks and stroke.** (The Alpha-Tocopherol, Beta-Carotene Cancer Prevention Study Group. The effect of vitamin E and beta-carotene on the incidence of lung cancer and other cancers in male smokers. New England Journal of Medicine 1994; 330:1029-1035.)

In a study published in Feb, 2009 in Archives of Internal Medicine, researchers found that synthetic multivitamin use in post-menopausal women did not decrease risk of cardiovascular diseases or common cancers. In fact the study shows that synthetic multivitamin consumption is associated with a decrease in benefit from the consumption of fruits and vegetables and other healthy lifestyle choices! *(Multivitamin Use and Risk of Cancer and Cardiovascular Disease in Women’s Health Initiative Cohorts. Arch Intern Med. 2009; 169 (3): 294-304)*

Dr. Marian L. Neuhouser, the lead author of the multivitamin study and an associate member of the Fred Hutchinson Cancer Research Center in Seattle, was quoted on the Fred Hutchinson Cancer Research Center website (http://www.fhcrc.org/about/pubs/center_news/online/2009/02/multivitamin_study.html) as saying that while fruits and vegetables have been linked to good health and prevention of cancer and cardiovascular disease, that doesn’t mean vitamins extracted from those food groups (or synthetics) will have the same effect.
Dr. Neuhouser hypothesizes that missing cofactors and bioactives, compounds like anti-oxidants and isoflavonoids that are thought to act synergistically with vitamins and minerals, might be the reason why synthetic and isolated vitamins do not show the same benefits as those from whole fruits and vegetables.

Dr. Patsy Brannon, a professor of nutritional sciences at Cornell University, states that consumers should add vitamins and minerals from whole fruits and vegetables and that consumers should familiarize themselves with when a dose of synthetic vitamins or isolated vitamin extracts become toxic. In other words whole fruits and vegetables are the safest, most effective, most beneficial sources of vitamins and minerals. Sounds like common sense! (http://forbes.com/2009/02/17/vitamins-health-effects-lifestyle-health)

This mirrors the study we quoted to you in an earlier newsletter that showed that taking synthetic Vitamin C and synthetic Vitamin E actually blocked the beneficial effects of exercise in terms of insulin sensitivity and antioxidant activity. Here again the subjects in the study that ingested natural Vitamin C and Vitamin E did not experience these adverse effect but rather derived all the benefits one would expect. (Ristow et al. Antioxidants prevent health-promoting effects of physical exercise in humans. PNAS, March 11, 2009).

One final reminder on the studies mentioned previously – the supplements were manufactured by a pharmaceutical company! If this shocks you, consider the huge number of companies currently selling vitamins. Typically, a few of the world’s large pharmaceutical firms mass produce synthetic vitamins for the most of these “vitamin” companies. The only difference is that each vitamin company puts their own label on the generic containers. Hard to believe? Look at this information. World production of synthesized vitamin C is currently estimated at approximately 110,000 metric tonnes annually. The main producers have been BASF/Takeda, DSM, Merck and the China Pharmaceutical Group Ltd. of the People’s Republic of China (all chemical or pharmaceutical companies). China is slowly becoming the major world supplier as its prices undercut those of the US and European manufacturers. By 2008 only the DSM plant in Scotland remained operational outside of China. This means that virtually all of the world’s synthetic vitamin C is now produced by only two companies.

There’s more. If you wanted to you could produce your own private label brand by ordering online (simply search “private label vitamin manufacturing”). In less than 2 minutes on the internet we were able to find a company that would produce the following generic multivitamin for less than $3.25 a bottle and the minimum order was only 288 bottles (see Figure 1).
Does this label look similar to that of the brand name multivitamin you and/or your patients have been taking? Here's what the manufacturer advertises: "(product name) are ready-made, unlabeled products available instantly in some of the most popular formulations on the market. Simply apply your company’s label to these finished products, and you’re in business! Use (product name) to launch your company or to complement your current product line."

It’s the SAME product, usually produced by the SAME manufacturer, yet each company insists that their product is the best! How can that be? Note on the label how most of the Daily Values are at 100%. This is neither difficult nor expensive to do if you use synthetic chemicals and call them vitamins. The key point is that these DV values have absolutely no bearing on bioavailability or actual health benefits.

Now let’s specifically consider Innate Choice® Organic Sufficiency™. Many of you will know that it took Dr. Chestnut over 5 years to find a manufacturer who was both willing and able to create
this product to such exacting specifications. The difficult task was to ensure that EVERY aspect of the manufacturing process satisfied the requirements for 100% whole food, certified organic, 100% natural, and 100% synthetic-free.

Dr. Chestnut also carefully chose the whole food sources to provide the equivalent of a variety of fruits and vegetables – just as is recommended in the Innate Diet™. If you look at the fruit sources they comprise a variety of colors which ensures that you will be getting the full range of phytonutrients. Similarly, the vegetables also range from green, leafy varieties to root vegetables.

Some of our customers have been asking about the content of micronutrients in Organic Sufficiency™. By now you should agree that comparing to the RDA’s or DV’s is invalid when it comes to assessing the quality and beneficial potential of supplements. However it might be useful to compare to real food just to give you some perspective. Here is a comparison between one raw medium sized apple and one daily serving of Organic Sufficiency™.

<table>
<thead>
<tr>
<th>Nutrient</th>
<th>Apple, Raw, medium size</th>
<th>Organic Sufficiency™</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calcium (mg)</td>
<td>11</td>
<td>110</td>
</tr>
<tr>
<td>Iron (mg)</td>
<td>0.22</td>
<td>1.2</td>
</tr>
<tr>
<td>Magnesium (mg)</td>
<td>9</td>
<td>14</td>
</tr>
<tr>
<td>Zinc (mg)</td>
<td>0.07</td>
<td>1.1</td>
</tr>
<tr>
<td>Vitamin C (mg)</td>
<td>8.4</td>
<td>55</td>
</tr>
<tr>
<td>Thiamin (mg)</td>
<td>0.031</td>
<td>3.7</td>
</tr>
<tr>
<td>Riboflavin (mg)</td>
<td>0.047</td>
<td>6.0</td>
</tr>
</tbody>
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Based on the above data we could claim that Organic Sufficiency™ is “equivalent to more than 10 servings of fruit” etc. This is a misleading marketing ploy. In order for any such claim to be valid you would have to know three things. The exact fruits and vegetables that the product is being measured against, the exact list and exact amount of each nutrient in the fruits and vegetables, and the exact list and amount of nutrients in the product. You can see how easily it would be to manipulate this. Of course you could also simply spike your “natural” product with synthetic vitamins and non-plant minerals and make this claim.

We REFUSE to engage in such tactics. We INSIST on full disclosure of our ingredients and the nutrients that are contained in our product. Yes this has created some questions but that was our goal! We can now provide you and your patients with the information and education you need to choose the best products. All we have to do now is produce the best products. Done!