

**HEALTH FOOD INDUSTRY MYTHOLOGY:
Magnesium Stearate is NOT Evil; It is the Other Devils
in Ordinary Supplements You Need to Worry About**

It all began in October of 2005 with one seemingly innocuous question. A NUTRI-SPEC practitioner reported hearing that magnesium stearate, one of the excipients NUTRI-SPEC uses in its products, was toxic. My response was as follows:

“Think of the essential fat that comprises much of the brain; think of the essential fat in the membrane of every human cell; think of the essential fat used to produce hormones. All these essential fats are largely stearic acid.

“I cannot conceive of any way that magnesium stearate could be unsafe. It is used as an excipient in many Nutri-Spec tablets because it is so effective as a tablet lubricant. Magnesium stearate is essentially nothing more than two stearic acid molecules hooked together with a magnesium. (In addition to its common use as a tablet excipient, its other commercial use is in baby powder.)

“I do not know what specifically you heard about magnesium stearate that concerns you, so I will just give you some general background information. First of all, consider stearic acid. It is a saturated fatty acid (18 carbons), which, along with palmitic acid (16 carbons), makes up more than a third of the fats in a natural human diet. In fact, about a third of the fat naturally occurring in the human body is stearic and palmitic acid. Clearly, there is nothing unnatural or unsafe about stearic acid.

“It seems you heard that stearic acid is a hydrogenated fat. It is not; stearic acid is a saturated fatty acid, and thus has no double bond that can be subjected to hydrogenation. (Hydrogenation is the addition of hydrogen to the double bonds of an unsaturated fatty acid, changing that double bond to a single (saturated) bond.)

“I suspect your information source was led astray when he saw the word “hydrogenation” used in association with stearic acid. Let me explain. Anyone who has spent more than 2 minutes in a health food store knows that hydrogenation is a nasty, nasty word. Hydrogenated vegetable oils such as margarine and vegetable shortening are among the deadliest of foods. What most health-conscious people do not realize, however, is that there is absolutely nothing inherently toxic or damaging about hydrogenation per se. After all, all the process does is take polyunsaturated fatty acids (which we Nutri-Spec practitioners know are

the major cause of oxidative free radical damage and premature tissue aging), and makes them less unsaturated. It could actually seem to those of us in the know about the catabolic effects of PUFAs that hydrogenation is a healthful process. The problem is not the hydrogenation (saturation) of fatty acids, but the commercial process by which hydrogenation of PUFAs is achieved. That process takes already damaging PUFAs and transforms them in two ways that make them even more damaging:

1. The hydrogenation process changes the naturally occurring cis isomer of the PUFA into a completely unnatural trans isomer of that PUFA. The end-products of cis-trans isomerism are far more deadly than the already damaging PUFA with which the process began.
2. The hydrogenation process causes the double bonds in PUFA to migrate along the carbon chain, thus creating entirely unnatural PUFAs --- again, more pathological than the PUFA from which they were derived.

“Hydrogenation converts a large portion of the PUFAs in vegetable oils to trans isomers and other PUFAs that do not exist in nature, and are unrecognizable by the human body. These unnatural fatty acids have been shown to be extremely pathogenic. It is actually the partial hydrogenation of vegetable oils that creates all the problems. If hydrogenation were taken to completion, the end result would be an entirely saturated fatty acid (such as stearic acid), and there would be no unnatural or trans isomer unsaturated fatty acids. For many years I have thought of explaining the problems of hydrogenation in a Nutri-Spec Letter, but decided that as long as doctors understand that hydrogenated vegetable oils are to be avoided, that is all that counts. --- Trying to explain to them that there is nothing wrong with the saturation of PUFAs, but only with the commercial process involved, would complicate the issue for many.

“Returning now to the specific subject of stearic acid, I can tell you exactly how your information source got confused. While stearic acid is ubiquitous in natural foods, it is easier and less expensive to produce commercially by the hydrogenation of vegetable oils. Your hydrogenation-phobic information source read this, and naturally assumed that anything that was hydrogenated had to be harmful. As explained above, stearic acid, whether it is consumed when eating an egg, when eating a chicken breast, or when swallowing a tablet that contains magnesium stearate, is still 100% pure, safe, and natural stearic acid.

“So --- continue to recommend to all your patients that they strictly avoid all hydrogenated (which actually means partially hydrogenated) vegetable oil products such as shortening, mayonnaise, margarine, salad dressing etc., etc. But in the case of commercially prepared stearic acid, even though prepared by a hydrogenation process, you are safely consuming a completely saturated and all natural fatty acid.”

A year and a half passed. I had long since forgotten about my reply to that doctor's question when another NUTRI-SPEC practitioner called with the comment that one of his patients expressed concern about the magnesium stearate in our products. The patient said that the company whose supplements he was taking before starting NUTRI-SPEC would not use magnesium stearate in its products because it was toxic. I gave that doctor essentially the same reply you just read above, explaining that anyone who says that magnesium stearate is a poison is showing his ignorance. Stearic acid is, next to oleic acid, the most common fatty acid in our foods (meat, eggs, and cheese), and, the most common fatty acid in our own bodies.

Another year passed without a word about magnesium stearate. Then, this Spring, we saw the unmistakable smoke of a health food industry firestorm --- a blaze of irrational emotionalism. Perhaps you are one of the NUTRI-SPEC practitioners who has been challenged by a patient concerned about the magnesium stearate in your products. So, to quell the storm before it rages out of control, we thought we had better find the source of the emotionally charged misinformation about magnesium stearate. A thorough internet search uncovered two sparks that are igniting the magnesium stearate fire. One of the sources is a quite reputable supplement supplier and the other is a probably well-meaning but hopelessly ignorant naturopathic doctor. Following are the claims made by the confused naturopath, and the NUTRI-SPEC responses to those claims:

Claim: Magnesium stearate is added to supplements so that production machinery will run at maximum speeds. This ensures that production schedules will meet profit targets.

Response: “This ensures that production schedules will meet profit targets” ---- Ah yes, the EVIL PROFIT MOTIVE of greedy capitalists. --- The truly honest way to report the benefits of lubricants is that they increase the quality and decrease the cost of the product to you and your patients.

Claim: The cottonseed oil from which magnesium stearate is derived has the highest content of pesticide residues of all commercial oils.

Response: If that claim is true, then we have one more reason to avoid eating the polyunsaturated cottonseed oil. However, the pesticide residues in the source oil are irrelevant as far as the magnesium stearate is concerned.

Claim: Hydrogenated vegetable fats contain altered molecules derived from fatty acids that may be toxic.

Response: Absolutely true! Nowhere will you find a stronger stand against ingestion of toxic PUFAs (whether hydrogenated or not) than from NUTRI-SPEC. But, as explained to the first doctor who inquired about magnesium stearate 2½ years ago, the dangers to health from consuming hydrogenated vegetable oils --- migration of the double bonds along the carbon chain, and the formation of trans isomers --- are no longer a factor when hydrogenation is taken to completion, i.e., when the fatty acid is made completely saturated, having no double bonds, as is the case with stearic acid.

Claim: The metal catalyst used in the hydrogenation process may also contaminate the stearates.

Response: The metal catalyst that “may” contaminate the stearic acid (but no evidence is provided that it does) is generally either copper or nickel --- essential nutrients.

Claim: In a study published in the journal, Pharmaceutical Technology, the percent dissolution for capsules after 20 minutes in solution went from 90% without stearates to 25% with stearates, which will decrease absorption of the nutrients.

Response: Yes, the dissolution of capsules decreases with magnesium stearate, but the decrease is not clinically significant. The excipients used by other supplement suppliers have a far greater effect. NUTRI-SPEC products exceed the industry standard for dissolution by far. Even more so when mixed in the stomach with food as NUTRI-SPEC supplements are intended to be, the effect of magnesium stearate becomes insignificant. Furthermore, the slight decrease in dissolution does not necessarily decrease absorption, and can actually increase it. (More on the relationship between dissolution and absorption, and the study from Pharmaceutical Technology below.)

Claim: Concentrated doses of stearic acid suppress the action of T-cells, a key component of the immune system.

Response: Wow! --- talk about quoting a study out of context. Suppression of T-cell lymphocytes is not a problem with stearic acid.

The study cited in the Journal of Immunology was a study of cell cultures in vitro that were flooded with stearic acid. The study has nothing to do with the stearic acid contained in our food --- including the stearic acid contained in NUTRI-SPEC supplements. Again, stearic acid is the second most common fat in a natural diet.

Claim: Up to 5% of the average 1000 milligram capsule or tablet is magnesium stearate. That's 50 milligrams!

Response: Up to 50 milligrams of stearic acid in a capsule? Ha!! A natural, healthy diet supplies 100,000 milligrams of stearic acid daily!!!

Claim: Individuals with impaired digestion may have particular difficulty absorbing nutrients coated with stearates.

Response: Again --- a natural, healthy diet supplies 100,000 milligrams of stearic acid every day --- and --- "individuals with impaired digestion" have no trouble digesting and absorbing it.

So --- if you have any patients being whipped into an emotional frenzy by this nutty naturopath, you can now put them at ease. What about the very fine nutrition supplement supplier that makes a point of not using magnesium stearate as an excipient? I have absolutely no quarrel with this quite reputable company. They, like NUTRI-SPEC, rightly make a big deal about the extraordinary effort taken to guarantee good dissolution and absorption qualities of their products, and to eliminate any potentially toxic substances. Magnesium stearate is one of the excipients that company has chosen not to use. However, I could make a strong case against several of the ingredients they do include in their products. But again, I have no desire to quarrel with this company --- they are probably one of the more conscientious suppliers out there. The problem we face regarding this company's decision not to use magnesium stearate is that magnesium stearate is the one excipient of all those they make a point of not using for which they include a nice little schematic drawing in their ads.

So --- magnesium stearate is the one excipient that everyone remembers as being "bad" per this company's advertising. This company also quotes the same study from Pharmaceutical Technology as did the nutty naturopath, purporting to show that magnesium stearate dramatically decreases dissolution. Actually, that study showed just the opposite. The drug being tested used magnesium stearate in combination with a starch based excipient, plus lactose, and indeed, dissolution was decreased. However, the study also demonstrated that in the absence of lactose and starch, "interaction between drug and excipients were essentially absent." So, since magnesium stearate is

used in NUTRI-SPEC products but without the accompanying starch and lactose, the magnesium stearate is absent any negative effect on dissolution.

In summary, there are very few nutrients with the physical properties to run through the encapsulation process without excipients. While NUTRI-SPEC uses the absolute minimum number of excipients, those excipients are essential to assist nutrient flow such that nutrients do not clump together, and that each capsule or tablet contains exactly the number of milligrams of every nutrient listed on the label. The judicious use of excipients increases the quality of your products while decreasing the costs. There are many excipients used in the nutrition industry that are toxic, and there are many others that inhibit nutrient absorption. NUTRI-SPEC carefully avoids all of those.

Those who campaign against magnesium stearate as a marketing technique are taking a stance that is somewhat irresponsible and definitely unsupportable by scientific data. Their stand may represent either ignorance or dishonesty --- neither of which is excusable. Honesty and objectivity are qualities that distinguish NUTRI-SPEC products and procedures. Add in the biological activity of our products and an objective testing system by which that biological activity can be quantified, and you have the unique essence of your NUTRI-SPEC system. --- Deliver that objectivity and biological activity to all the patients you can --- they will find such quality of service nowhere else.

ADDENDUM REGARDING MAGNESIUM STEARATE: Now, I am told that a very, very popular nutrition guru has added his voice to the anti-magnesium stearate hysteria. --- Oh my! --- People by the zillions actually believe in this guy. All his stand against magnesium stearate shows is that he is a) scientifically illiterate, b) incapable of thinking critically, and c) incapable of thinking quantitatively. Clearly, this celebrity has learned that the key to becoming popular (and gaining the power to separate people from their money) is to tell people exactly what they want to hear.

The article on his website blasting magnesium stearate is merely an example of jumping on what has become a very popular anti-magnesium stearate bandwagon, all the while exclaiming, "Me too! Me too!" His presentation is an illogical fear-mongering assassination piece.

Most of the nonsense in his article is virtually word-for-word the same as the comments made by the ignorant naturopath who blasted magnesium stearate several years ago. Our popular guru begins with the implication that magnesium stearate is only added as an excipient by greedy businessmen who happily poison their customers to cut costs and

increase profits. He claims that in regard to flow agents like magnesium stearate, “Their only purpose is to keep ingredients from sticking to equipment during mixing and compression ...” Actually, the more important reason why such excipients are needed is to give uniform distribution of nutrients into all tablets. Without magnesium stearate, the various vitamins, minerals, amino acids, and so forth would tend to clump together, giving some tablets with disproportionately high quantities of one nutrient and low quantities of another. Excipients such as magnesium stearate are the only way you can be assured of getting exactly what is on the product label.

Our world-famous guru goes on to claim that magnesium stearate has, “subtle ability to cause possible harm to your intestine, possibly even preventing the proper absorption of nutrients.” --- How can he make such a ridiculous claim? He offers no references from the scientific literature supporting it --- so --- I did my own search, and there is absolutely zero in the scientific literature supporting any claim that magnesium stearate adversely affects intestinal health, structure, or function.

On the topic of scientific references --- our guru offers only one reference from the scientific literature purported to support his stance against magnesium stearate. That study is exactly the same one (done in 1999) offered by the equally scientifically illiterate naturopath several years ago. --- Okay --- maybe we should take a detailed look at this study. What exactly does this piece of literature say about magnesium stearate? --- Absolutely nothing! The word magnesium stearate is not even mentioned in the study, and magnesium stearate was not even a part of the research done. The study was actually done on stearic acid (--- Remember? --- The natural fat found in meat, fish, poultry, eggs, and cheese that constitutes more than $\frac{1}{4}$ of the natural human diet, and approximately $\frac{1}{4}$ of the fats in the structure of our cellular membranes and in our body fat stores).

Not only did this research not use magnesium stearate, but had nothing to do with ingesting stearic acid, had nothing to do with human beings, and had nothing to do with nutrition, and had nothing to do with excipients in nutrition supplements. This research study extracted cell cultures of lymphocytes from among the white blood cells of mice, concentrated them into cell cultures, then centrifuged those cell cultures with stearic acid bound to albumin. It was thus found that blasting lymphocytes with stearic acid alters the membrane integrity of the T cell fraction of lymphocytes more than it affects the membranes of the B cell fraction of lymphocytes. Again, this study had nothing to do with nutritional quantities of the dietary fat stearic acid, but involved a completely unnatural injection of stearic acid into cell membranes.

The purpose of this study was actually to determine if there are immunosuppressive benefits of the saturated fat stearic acid. The researchers were motivated by their knowledge that it is excessive activity of T cells that causes many diseases. All the autoimmune diseases involve excess T cell activity. For example, if you know anyone on thyroid medication you can be certain that person has excessive activity of certain T cells, and in particular, those T cells producing excesses of an inflammatory cytokine called Interleukin-2.

Guess what our stearic acid researchers found? They found that stearic acid is actually beneficial by inhibiting the excess T cell production of the pro-inflammatory Interleukin-2. This study and others similar to it have also shown that stearic acid is potentially beneficial not only in inhibiting the development of autoimmune diseases, but also inhibits the rejection of skin grafts and organ transplants. The financial motivation behind the research was looking for a way to produce a drug that would have activity that parallels the calming effect on a hyper-activated immune system, but to achieve those effects by administering a drug tablet, since the quantities of the natural stearic acid fat to have that effect are far beyond anything that could be ingested.

Getting back to our guru --- in citing this particular reference (which he obviously did not understand, and probably did not even read), our popular nutrition “expert” referred to this research as showing that “stearic acid suppresses T cells --- your natural killer cells.” --- Again, he is showing that he is scientifically illiterate. T cells and natural killer cells are not at all the same thing --- they are entirely different types of white blood cells, with entirely different functions.

Our guru goes on to claim that magnesium stearate, “...also stimulates your gut to form a biofilm.” --- It does? I have never heard such a thing, and our guru offers no reference from the scientific literature --- so --- I took it upon myself to do a thorough literature search --- and --- guess how many studies there are showing that either magnesium stearate or natural dietary stearic acid cause biofilms in the intestine or anywhere else? --- Zero. Our guru either made it up, or heard it from some other non-reputable source, and just passed it along with all the rest of the misinformation that can be found aboard the anti-magnesium stearate bandwagon.

Again, you must understand --- you consume 100,000 mg or more of stearic acid every day in your natural healthful diet, and all your tableted supplements together include less than 50 mg of stearic acid hooked up to a magnesium molecule. --- Quantitatively insignificant, and qualitatively not only non-toxic but completely compatible with a long, healthy life.

You can also be at ease regarding titanium dioxide as an excipient. Titanium Dioxide is not toxic. It is used universally in supplements and in medications – not that such common use assures its safety. So, we thoroughly researched the toxicity of any excipients we use, and titanium dioxide is completely safe. We would not use it for a lifetime for ourselves, our families, and our patients if it were a problem – we would use something else.

You have good reason to be concerned about the titanium in titanium implants. There are certainly references in the literature indicating that people have had reactions to surgical implants containing titanium.

You have no reason to be concerned about ingested titanium. As doctors have said to NUTRI-SPEC, “I do not want titanium residue accumulating in my body, it is definitely not an essential mineral.” You have nothing to fear, since titanium dioxide is not absorbed from the GI tract. Studies going all the way back to 1969 and conducted by the World Health Organization as well as the Food and Agricultural Organization of the United Nations, showed that in humans as well as every other species tested, large quantities of ingested titanium over long periods of time caused no absorption of the mineral. Titanium was not detected in the blood, nor in the liver, nor in the kidney, nor even in the urine of people ingesting large quantities of titanium over a long period of time, and, there were absolutely no adverse effects noted from its ingestion. Again, the allergic reactions to titanium are entirely among patients who have titanium implants.

There is also an irrational fear of titanium because of reports claiming it to be a carcinogen. It certainly may be a cause of lung cancer, but that is by inhaling titanium dust. When laboratory mice are exposed to air with high concentrations of titanium dust over a very long period of time a certain percentage of them develop lung cancer. Absolutely no connection between working in titanium industrial plants and human lung cancer has ever been established, yet as a precautionary measure, because of the response in mice, titanium dust has been labeled a carcinogen. Again, there is no connection between ingesting titanium and lung cancer or any other form of cancer, or any other adverse effect -- since --- as indicated above, it is not absorbed when ingested.

Why does Nutri-Spec use titanium at all? We use titanium as an excipient in only a few of our products. We do so for uniformity of color. All of our products are from natural sources, and natural sources vary in color from production run to production run. The various natural ingredients in our products show up as different colored “speckles” throughout the products. Variations in the color of speckles from one tablet to another cause patients to fear that something is wrong with the

supplement. Including some titanium gives us uniformity of color, thus obviating the concerns of fearful patients.

**LET'S TALK ABOUT YOU,
AND THE PHENOMENAL SUPPLEMENTS YOU OFFER.**

In your last issue of this Letter we explained the value of magnesium stearate as an excipient in many of your NUTRI-SPEC products. In that discussion it was made clear to you that NUTRI-SPEC places the highest priority on using the absolute minimum quantity of excipients, as well as assuring that qualitatively the few excipients used are non-toxic, and in no way interfere with nutrient absorption. Truly, the judicious use of excipients is one of the most critical distinctions between your NUTRI-SPEC tablets and capsules and those routinely available throughout the natural food industry.

In any discussion of product quality, the most fundamental point of consideration must be the dissolution characteristics of the product. Obviously, it makes absolutely no difference what nutrients are in a product if that product does not dissolve in the GI tract in time for those nutrients to be absorbed. Most vitamins and minerals have a very narrow window of opportunity for absorption, consisting of a few feet in the upper jejunum. Clearly, if a tablet reaches that point of the intestine without completely disintegrating, the vitamins and minerals it contains will pass right on through, unabsorbed, and totally wasted. The tragically comical truth about most supplements is that they are totally worthless, regardless of what beneficial nutrients they may contain, simply because the tablets have such a substantial coating that the product does not dissolve nearly in time for nutrient absorption. When patients bring their favorite health food store supplements to me for evaluation, the first thing I look at is the list of excipients. Quite often I tell the patient, "To read the list of nutrients in these tablets is to waste as much of my time as you have wasted each time you have swallowed them. **You might as well pour this bottle down the toilet ---** since that is where it all ends up anyway."

At NUTRI-SPEC our only consideration is nutrient availability to your patients. That is why we use the thinnest vegetable protein glaze or gelatin that will hold our products together. You are thus assured ...

**THE BEST DISSOLUTION CHARACTERISTICS
IN THE INDUSTRY ---**

a promise we made to you 23 years ago and have stuck with ever since.

For most companies the primary consideration is shelf life. They want their product to look exactly the same after sitting on the health food store shelves or a doctor's office shelves for 3 years as it did the day it was made. To achieve that, of course, they have to encase the capsule or tablet in extremely stable excipients. The problem is that such a heavy coating precludes the dissolution of the product in time for its nutrients to do any good. Are pill makers and nutrition distributors really so ignorant as to not know the essentials of product dissolution and nutrient absorption? Sadly, as we have revealed to you many times in many ways, the natural food industry is perhaps the dirtiest in the world; the manufacturers and distributors don't give a hoot about the efficacy of their products --- \$\$\$\$ is all that matters to them.

In contrast, you, as a NUTRI-SPEC practitioner, are offering your patients quality; you are offering your patients truth in clinical nutrition. Do understand, however, that to achieve maximum absorption of nutrients, we have to take a calculated risk in the manufacture of our tablets and capsules. In minimizing the coating for maximum absorption, we know that there is a chance of some discoloration of the products, especially when exposed to high temperatures (as, for instance, in a UPS truck, or in your patient's kitchen). The risk of discoloration in our products is compounded by our use of the most biologically active form of all the nutrients we provide. The problem here is that many of these nutrients attract moisture from the air, and of course, that "sponging" of moisture from the air is accelerated any time the temperature is elevated. So --- to assure that your patients are getting the full benefit of your amazing products always insist that they put their NUTRI-SPEC supplements in the refrigerator as soon as they get home.

There are excipients that NUTRI-SPEC refuses to use, even though they might give our products longer shelf life, or make them cheaper to supply. One is di-calcium phosphate, which inhibits absorption of mineral nutrients. Another example is microcrystalline cellulose, widely used in the nutrition and pharmaceutical industries. Ingested over a period of years, it can cause micro infarcts and thus tissue death throughout the body. Cellulose is indigestible, but in microcrystalline form the cellulose particles are so small they are passively absorbed into the blood. There is no way to metabolize or to eliminate the cellulose, so it accumulates in the body to the point it can block small blood vessels. Carrageenan is another common excipient that will cause tissue damage over time.

As you can see, when comparing other companies' supplements to NUTRI-SPEC, many of those products can be eliminated from

consideration based on poor nutrient availability or toxic excipients --- before you even look at what nutrients might be offered. Now, let us take the next step and discuss what nutrients to be commonly found on labels are a sure tip-off that the product is cheap trash. We need to make you really understand the difference between NUTRI-SPEC products and some of the garbage that masquerades as professional supplementation.

In a qualitative comparison of your NUTRI-SPEC products with other “professional” supplements sold to doctors, there is more to consider beyond excipients and dissolution characteristics. Not only commonly used excipients, but even some nutrients, are widely used that interfere with the absorption of nutrients. One extremely common example is magnesium in oxide form. Magnesium oxide is without a doubt the most common form of magnesium used in supplements. Is there a problem with magnesium oxide? --- Yes, a problem so huge that any product containing magnesium oxide should be immediately discarded.

You see, magnesium oxide causes an extremely alkaline condition in the upper GI tract. Why is that a problem? Many minerals and trace minerals, including magnesium, calcium, copper, manganese, and iron, need an extremely acid environment in which to be absorbed. Absorption of these minerals and trace minerals occurs very high in the jejunum for obvious reasons --- that is immediately below the acid stomach and before the alkalizing secretions of the bile duct take full effect. There is literally only a few feet of the upper jejunum where absorption of these minerals and trace minerals must occur --- now or never. When a product contains a substantial quantity of magnesium oxide, the acidification necessary for absorption of these mineral nutrients never occurs, and they are wasted. Why, then, do supplement suppliers use magnesium oxide? Simply --- it is cheap and stable. Do these nutrition companies not know the problems GI alkalization by magnesium oxide? Ask them. All I can tell you is that if you see magnesium oxide on a product, the peddler of that product is either ignorant or dishonest. In either case, you do not want to be dealing with that kind of company.

If you think you understand all the advantages and benefits of NUTRI-SPEC supplements as explained in the Activator brochure, then test yourself with this short quiz:

Question #1:

Thiamin pyrophosphate differs from common thiamine hydrochloride (vitamin B1) in that:

- a. It is the biologically active coenzyme form of vitamin B1.
- b. It demonstrates potent vitamin activity at much smaller doses.
- c. It is much more expensive.
- d. It is found in Activator and not in other “professional” vitamin-mineral-trace mineral products.
- e. All of the above.

Question #2:

Pyridoxal-5-phosphate differs from common pyridoxine hydrochloride (Vitamin B6) in that:

Question #3:

Zinc Methionate differs from zinc as amino acid chelate (or worse, as the toxic zinc picolinate) in that:

Question #4:

Chromium as polynicotinate differs from chromium as amino acid chelate in that:

Question #5:

Do you see that we could go through nearly the entire list of ingredients in Activator paraphrasing choices a,b,c,d and e in question #1, and, that the correct answer would always be “e, All of the above?”

Have you actually read the label of Activator? Have you ever challenged it in an ingredient-by-ingredient confrontation with other products that claim to offer a broad base of nutritional support?

NO CONTEST.

The big, big, big idea here is that the biological activity of the nutrients in your NUTRI-SPEC products is absolutely unmatched. So, when you see magnesium oxide, and you see B vitamin precursors instead of the active coenzyme form of B vitamins, and when you see minerals and trace minerals in forms that are either poorly absorbed or have limited biological activity, then why even look further at the junk you hold in your hand?

There is another problem with common trash supplements that is probably just as significant as the low bio-activity of the nutrients provided, and that has to do with the proportions between the various nutrients supplied. Suppose you see a label listing 6000% of the recommended daily allowance of this nutrient, and 1500% of the recommended daily allowance of that nutrient --- ultra mega doses of cheap vitamins, in no particular proportion to one another, and completely out of proportion with the amount of minerals and trace minerals supplied? That product is an absolute disaster as a multiple supplement. But remember, your patients have no way of knowing that more is not better. They look at a label in a health food store that features 50-100 milligrams of all the B vitamin precursors, while Activator offers just a few milligrams of the true B vitamins. Unless you educate your patients (with your Activator brochure) they will likely believe they can get more for their money at the health food store than from you.

To help your patients grasp this concept of quality over quantity, you can also inform them of the poor absorption of those mega doses of B vitamins. Every vitamin has an absorption curve, which is a graph of the percent of different size doses that the GI tract can absorb. As an example, consider Vitamin B1. The absolute maximum quantity of Vitamin B1 that a human being is capable of absorbing is 4 milligrams. Up to a little less than 2 milligrams almost 100% of the dose is absorbed. After 2 mg the absorption percentage drops off dramatically to the point where anything above 4 milligrams is not absorbed at all. So, ask your patient what she thinks of a company that would put more than 4 milligrams of Vitamin B1 in each dose of its product. Is that company ignorant of vitamin absorption basics? Or, is the company simply using cheap B vitamins as a lure to increase sales from an uninformed public? Either way, the company is as trashy as its product.

I ask questions like those above with my patients every day, and so should you. I have had patients come to me after reading the Activator brochure and say something like, "Boy, you sure don't think much of vitamin C do you?" Actually, I am just as much in favor of supplementing with vitamin C as I am with any other nutrient. What seems like a tirade against vitamin C made by the Activator brochure is simply a case of using vitamin C as an example to illustrate the problems with over-supplementing with any nutrient. We could have written just as many paragraphs about any of the B vitamins or any of the minerals or trace minerals illustrating the damaging effects of supplementing with too much of one nutrient in proportion to all the others.

So --- the point of this Letter, the point of your Activator brochure, the point of your Mighty Mins brochure, and the point you must make to your patients, is that no multiple anywhere delivers the quality of nutrition found in Activator and in Mighty Mins, and, that all NUTRI-SPEC tablets and capsules are just that thoughtfully created.

- **Absorption over shelf life ...**
- **Quality over quantity ...**
- **Ideal proportions over unbalance ...**

... that is what you guarantee your patients.