



# HEALTH QUEST PODCAST.COM



## 104 - The Benefits of SerinAid Phosphatidyl Serine

Interview with Scott Hagerman  
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Steve Lankford  
PO Box 372  
Suamico, WI 54173  
920-662-0444  
stevellankford@gmail.com

Steve Lankford: Hello, and welcome once again to Health Quest Podcast. I'm your host, Steve Lankford. Thanks for joining me. I'm glad you're here.

We have another interesting podcast for you today. We're going to explore one of the very innovative raw materials that you've heard about here on our podcast. You may recall Dr. Parris Kidd talking about phosphatidylserine, or PS. He was very actively involved in introducing PS to the U.S. and world markets.

Today, we're going to talk to Scott Hagerman. Scott is the president and CEO of Chemi Nutra. Chemi Nutra makes a proprietary phosphatidylserine called SerinAid. It's in that context I've invited Scott Hagerman from Chemi Nutra to be with us today to discuss phosphatidylserine. Scott, welcome to our podcast.

Scott Hagerman: Thank you, Steve. It's nice to be here.

Steve Lankford: It is my pleasure to talk to you, because I have been intrigued with this nutrient for a long time. It is a nutrient that has a very good pedigree. By that, I mean there is a lot of credible science, so much so that it's recognized by the FDA. Before we get into that discussion, though, please tell our listeners a little bit about your background and how you became involved with Chemi Nutra and phosphatidylserine.

Scott Hagerman: Thank you. My educational background is in nutrition and food science. I have an MBA in marketing that I acquired quite a while ago, while I was employed by Pfizer. I began my career after I came out of the University of Minnesota with a food science and nutrition degree. With Pfizer, I was involved at that time in their food science group and was fortunate to be exposed to a pretty broad area, including marketing and regulatory affairs.

I left after those ten years and began working an industry with a company called Lucas Meyer, which at that time was a 75-year-old lecithin company, and the largest one in the world, based in Hamburg, Germany. At the time, I was vice president of their operation in the U.S. We had, actually, a joint venture with Chemi, the same Chemi that we are a business unit of. That began in 1992.

At that time, we started talking about phosphatidylserine and the commercial development. We looked at all of the research that was out there on phosphatidylserine,

which at that time, came from bovine cortex ... that's cow-brain-derived sources. Because of bovine spongiform encephalopathy, called BSE, at that time, there were some problems with it. That is why Chemi developed an entirely new and natural process to derive it from different sources, primarily soy phospholipid.

Starting in 1992, we got involved in this joint venture, and we began on the commercialization side as Chemi then developed unique proprietary, now patented, methods to make it. I remember when we were there, we got involved with Parris Kidd. That's how he came on board. We launched the product under the trade name LeciPS, which I was involved in making up the name and creating the marketing. After a number of years, we launched it then in 1994. It did quite well for both Chemi and for Lucas Meyer. In this joint venture, we shared in the expenses and also on the revenue side.

It took off, and it became one of the preeminent ingredients and set a new category in the industry for brain or cognitive enhancement, a number of areas involving concentration, learning, memory, focus, age-related cognitive decline, and so on. After that, then, in 1999, Lucas Meyer, who was the grandson of the founder of the company, decided to sell the company. It was sold then to another German company, ended up later in the hands of an international company who has since divested from that business.

In 2000, Chemi, based in Milan, Italy, contacted me and said, "Things are changing. Would you be interested in taking over the reins of this thing?" I incorporated two businesses here. One is Chemi Pharma, the other is Chemi Nutra. That's the one of interest here. We launched our own product called SerinAid, which is essentially identical in every respect to the product that we had launched, actually, before the passage of DSHEA that was in 1994.

Our brand name, as you stated, is SerinAid PhosphatidylSerine. We have since become, in the last, almost, 14 years, the leader by a major, significant market share for phosphatidylserine. We're also involved in a number of other proprietary phospholipid compounds and some that are not phospholipid.

What makes us unique in the marketplace is that we are from a pharmaceutical pedigree. Our parent company is actually called Italfarmaco. They were formed in 1938. They acquired Chemi S.p.A. in 1978. We are a vertically integrated company with discovery, manufacturing, intellectual property capabilities. Therefore, our role here at Chemi Nutra is to be involved in the discovery chain and to work hand-in-hand with our R&D group.

We have since, in the last more than dozen years, introduced some other interesting compounds to the marketplace that we are commercializing and are commercializing in the future. Again, we produce these in our own FDA-inspected plants located in Italy and in Brazil. These are inspected frequently by the FDA, so we operate our plants above the existing GMPs (Good Manufacturing Practices) for the dietary supplement and food industry. We're above that, in fact. We have had a number of people from our industry, customers, auditing our facilities.

We continue in the realm of discovery, process development, human and animal research, and a lot of marketing efforts in getting our brands known, something that will have a long product life cycle. That's where we are with SerinAid PhosphatidylSerine.

Steve Lankford: That's an interesting pedigree, because certainly it puts you at the forefront. Your market share would suggest that's with good reason. Some of the materials that you sent me listing some of the studies that were done, significant amounts of studies have been done on this product.

Before I get into that product, I want to set the stage for our listeners, because often we don't understand, really, what's behind the products that we take. You've talked about it being produced in an FDA-monitored facility. That's very important. That talks about the standards of cleanliness, and quality control, and all the things that go into making good and pure products. You also have a strong pedigree in the science.

Let me ask you about phospholipids. You mentioned those as being a critical component of that. Could you elucidate just a little bit on, what are phospholipids, and why are they important in this context?

Scott Hagerman: Phospholipids are an interesting bioactive compound. They're natural. They're found in all cell membrane, plant and animal. They are responsible for the regulation and transport of compounds throughout the body into and out of the cell. They're interesting because they are essentially emulsifiers. Unlike a traditional triglyceride, which is three fatty acids on a glycerol backbone, phospholipids, by their very name, contain phosphorus and an active head group.

The reason that phospholipids are significant and important in both food use and in our bodies' chemistry is that the uniqueness of the compound with an active head group ... in the case here being choline, serine, inositol, or ethanolamine, and these are the classical four species found in all phospholipids and all cell membranes, again, plant and animal ... what happens is, because of the charge characteristic, phospholipids act as emulsifiers.

That means they are technically called amphoteric. That means they have a polarity and a non-polarity component to them. They attract oil, and they attract water. If you can picture an emulsion like mayonnaise or margarine, the reason that oil and water come together is there's an interface caused by the emulsifier. Phospholipids basically are emulsifiers. They have an interesting characteristic. They are unlike fats and triglycerides that are considered non-polar ... that means they have no electrical charge characteristics, so they can only attract oils and fats.

That would be a problem in the body if we did not have these emulsifiers, these phospholipids, because you would not allow proteins and carbohydrates to mingle with fats, and transport them through the blood system and throughout the liver, and into muscle tissue, and into the brain matter. Phospholipids play a critical role in metabolism and basically supporting life. Brain cells, for example, contain phosphatidylserine, along with the other phospholipids.

It's been found that phosphatidylserine itself plays a critical role in apoptosis, which is pre-programmed cell death. The very nature of our being has to do with reproducing new cells all the time. We take in substrates ... meaning food ... and we go through a metabolic process that is ongoing. We've all known that our skin turns over, our muscles turn over, every cell turns over. It has a pre-determined lifespan.

Part of that pre-determined lifespan is determined by the movement of phosphatidylserine from the inner sheath to the outer sheath of the cell membrane. This is one thing that is involved in the initiation of pre-programmed cell death. That's good, because we don't want old cells in our body. We want them to have a pre-determined lifespan so that they regenerate new ones and keep us young and vibrant. That's the way our life works. To that end, then, it's crucial to have proper nutrients, and a proper amount of rest, and avoiding toxins and things of that nature, in the environment and from our food sources.

Phosphatidylserine is a very crucial phospholipid. Quite frankly, phosphatidylserine can come from a lot of different sources. Essentially, any oil seed contains all these phospholipids, including these various families. Certain seeds have very, very insignificant amount of phosphatidylserine. We have to go through a proprietary method to boost the very small amount of phosphatidylserine to a more meaningful amount.

That has resulted in Chemi's patent portfolio. We have three patents that are in effect for the manufacture of phosphatidylserine from soy phospholipids and from other phospholipids, as well. We do have some other patents involving the use of phosphatidylserine, as well, that we can expand on later if you wish.

Steve Lankford: It has such an interesting scientific profile in terms of the amount of studies. There aren't a lot of nutrients that I'm aware of that have this extensive amount of clinical work behind it, so much so that it's led to what's called an FDA-qualified claim. Let's discuss some of the science and then the allowed claims that have actually been recognized.

Scott Hagerman: As you say, there are, at this point, many hundreds, and hundreds maybe approaching a thousand, of studies on phosphatidylserine. There have been some recent ones even in the last years. I'm looking at a paper ... this was published in 2013 ... titled, "The effect of phosphatidylserine administration on memory and symptoms of attention deficit hyperactivity disorder, a randomized double-blind placebo control clinical trial." The point of this is this was published just last year.

These studies go back to, essentially, the 1970s. There were quite a few in the late '80s. There were a flurry of studies that went on in the '90s and well into the 2000s. The research on phosphatidylserine has been vast. I think you are correct in saying there is far more research, published papers, on phosphatidylserine than there is for almost any other nutrient. We're very proud of that. We have invested in a number of studies ourselves. What we've tried to do over the years is to look at it from different perspectives.

What we really talk about is improving human performance. That would involve both physical performance and mental performance. We have been careful not to just talk

about cognition, and learning, and memory, and age-related cognitive effects, and so on. We're looking at improving things like running performance, a golfer's ability to accurately drive a golf ball. We've looked at hormone balancing, meaning reducing the catabolic cortisol hormone and elevating testosterone, and improving the testosterone-to-cortisol ratio.

We've tried to look at this in terms of both sides of the coin on physical human performance markers as well as intellectual and cognitive markers, because phosphatidylserine is so crucial in its role in the body, as we stated before.

Steve Lankford: Have you found that, in these diverse areas of exploration, that you have had similar success? You mentioned stress management, hormone management, exercise performance, in addition to the mental and cognitive benefits of it. Are they similar, what you've seen so far in terms of their significance?

Scott Hagerman: Yes, we've seen robust results from all of these. In fact, in most of the exercise performance studies, we try to also look at reaction time and cognitive artifacts, as well. That's something that we're aware of. We try to always look at the cognitive effects, because as we all know, phosphatidylserine has a major role in cognition because of its effect on the brain cells in particular.

There it is involved in maintaining the fluidity of the brain matrix. It's involved in the transport of other compounds in and out of the cell membrane. It plays a role in affecting nerve growth factor, which is crucial for repair of fractured and broken dendrites, the brain cells themselves. It plays a crucial role in maintaining brain plasticity, which is crucial as we age. The brain is a very interesting organ. It wants to maintain an optimal environment of a lot of moisture, a lot of plasticity. In so doing, it maintains its youth and vitality. It's crucial to give it the substrate that it needs.

Phospholipids make up about 25 percent of our brain on a dry weight basis, so you can see how crucial that is. There have been studies looking at changes in brain by decade of age, and looking at phospholipid content and brain cell content. Scientists now understand that as we get older, by decade of age, there's a loss of the number of brain cells, and there's a oftentimes dramatic change in the amount of phospholipids in the brain matrix.

Therefore, we know that phospholipids are very bio-available. We have research to support that. There are numbers of studies looking at the ingestion of phosphatidylserine and how it makes its way to the brain cells, how it affects the function of the brain cells, how it is involved in the communication from cell to cell through the synaptic cleft. We understand that cognition, learning, focus, memory, recall, all of those associated cognitive skills, are crucial. The idea is to maintain the health of all of those functions as we age.

There's a significant amount of knowledge now on aging and the loss of cognitive ability. There are a number of measures of this. The American Psychiatric Association and others have come out with their own definitions. Of course, this gets into other concerns, being

dementias of various sorts as well as advances in other diseases, for example, Parkinson's disease, perhaps, but for sure Alzheimer's disease or pre-Alzheimer's disease conditions.

There are all kinds of things now that are still under exploration, trying to understand exactly what physiological and maybe chemical inputs are involved in the advancement of these conditions or diseases that are related to cognition.

Steve Lankford: It would certainly seem that with the vast amount of studies that you have showing benefit in these areas, that would just give one an excitement about the future of the research and what we might actually discover, what might be revealed through this science, because certainly it has a very strong foundation already. I'd like to explore this point of the FDA claims for our listeners a little bit, because this is important in terms of, there aren't a lot of products that the FDA has given any kind of approval for. Could you tell us what those approved claims are, and what the significance is?

Scott Hagerman: Yes. There was a petition submitted to the FDA ... I believe it was in 2003, if I recall correctly ... for qualified health claims for phosphatidylserine. The FDA reviewed all of the information, the data that was submitted. By the way, the petitioner was a doctor by the name of Dr. Kyle Smith. In fact, I just spoke with Kyle just a few days ago, so he is still involved in the business. He still has a very serious interest in phospholipids and phosphatidylserine, and has done very well in the last 15 years or more talking about the benefits of phosphatidylserine.

Dr. Kyle Smith, along with a very high-profile attorney in Washington, D.C. by the name of Jonathan Emord, submitted their petition to the FDA. The FDA reviewed it and did, in fact, grant two qualified health claims for phosphatidylserine. One of them is as follows: "Consumption of phosphatidylserine may reduce the risk of dementia in the elderly." The second claim is, "Consumption of phosphatidylserine may reduce the risk of cognitive dysfunction in the elderly." Again, in order, they are addressing dementia and cognitive dysfunction.

In this case, the FDA felt compelled to include the tagline "in the elderly." The reason for that, quite frankly ... as this has been demonstrated in many of the studies ... older populations do, in fact, most often develop some loss in their cognitive ability. It is considered a part of the normal aging process. FDA is very, very comfortable with that. They understand aging and the differences that come about as one ages. They felt that they would stand behind these claims when made in reference to the elderly.

I really don't have a problem with that, because I think we would all acknowledge that younger people probably have a pretty good sense of memory, and recall, and learning, and those associated cognitive skills. The real issue becomes, then, at what point does this become compromised?

The studies have shown that yes, there are subsets of populations who would be younger ... let's say, even in their 20s, even college-age, or 30, or 40 years of age ... who do have some compromise in their cognitive abilities. These can be brought on by things like high stress, by nutritional reasons, meaning lacking certain nutrients in the diet. Perhaps one of

the better examples would be omega-3 fatty acids, fish oil, and things of that nature. Maybe magnesium, and maybe B vitamins, and perhaps antioxidants all play a role in this.

There are cases where younger individuals do exhibit problems with their cognition. Now we bring in a whole area of stress, and learning challenges, and attention deficit disorder, attention deficit hyperactivity disorders, and things of that nature, that can reach down to even the lower ages of children.

Again, back to the qualified health claims, the FDA felt, overall, they were very comfortable with these claims addressing the cognitive diminishment in elderly, and that's why they settled on this. We're quite pleased with that, because there are only, as I recall, maybe 12 or 14, or 15 at the most, nutrients that have been granted the special qualified health claim status to.

Steve Lankford: It's about as generous as the FDA gets, when it comes to nutrients. It is significant. We don't want to minimize, because as you say, very few nutrients have achieved this level of recognition with the FDA. One might suggest that this is an opening that can lead us into, perhaps, further claims as the science is revealed to us. You had mentioned reference to a recent study. What kinds of results are observed in the studies that give us this confidence with dementia and cognitive ability?

Scott Hagerman: There have been a number of studies in these two subsets that I said. One is aging individuals, and one would be the other side of the spectrum. That would be younger children with learning disorders of various types.

Addressing the one side, most often, the dosage is somewhere between 100 and 300 milligrams of phosphatidylserine. That is a typical dose that you see in most of the commercial products in the marketplace. Number one, it's of interest and refreshing to see that the doses used by most companies do reflect what the doses have been in the published studies. That's an important thing to note. In other words, the studies weren't done with a 1,000 milligrams, and the dosage of the commercial products are 100 to 300 milligrams. The two go hand in hand.

Much of the work has been done looking at improving various cognitive markers. Some of the things we've seen ... I've reading down a list of some references that we have here, a synopsis of a lot of the studies ... significant improvement after 12 weeks. Significant improvement, 20 percent quicker, 39 percent less mistakes in mathematical problem-solving. Low-dose 100 milligram and high-dose 300 milligram improve memory function in the elderly.

Significant improvement in memory and dementia scores that drop back to starting values after the washout ... that means after the subjects have been free for a number of weeks from consuming the phosphatidylserine, they go back to their normal levels of cognitive ability, which is lower. Looking at memory and learning improvement after 6 weeks and 12 weeks, significant improvement in 100 milligram shown to be as effective as 300 milligrams after 12 weeks. Significant improvement of memory in winter depression.

There are all kinds of things in the stress area. Improving time to exhaustion. Improving sprint and exercise performance. Lowering cortisol levels. Enhanced mood. Lowering creatine kinase levels ... that's a marker of muscle overuse. Reduced muscle soreness. Increased well-being in weight training individuals.

Then of course, on the children's side of things, we're looking at improvements in test scores. Improvements in agility, and ability to sit, and ability to not be distracted, and all kinds of markers related to that. Looking at various attention deficit hyperactivity disorder models, compared in some cases to other drugs that are used for those children.

Again, there are a number of areas here that are still under exploration. An interesting area of focus now is for the use in younger people and children, and learning situations in schools, and so on. That seems to be a pretty active area, because so many studies have been done in the elderly now that we're now looking to expand that scientific spectrum to start to look at other areas. Again, what I said earlier, looking at human performance, which would involve cognitive as well as physical attributes.

We're trying as a company to continue to explore these other areas. As I said, we funded one study with our product that looked at improving a golfer's ability to accurately drive a golf ball. That's interesting, because golfers, and runners, and children, and older individuals, can all benefit in some manner by orally ingesting more phosphatidylserine. We're trying to look down other areas of interest to us that have obviously some potential for our marketing efforts. We're trying to broaden the application, if you will, from the consumer standpoint to every area and every age that could benefit from this.

Steve Lankford: It's revealing itself to be a critical, essential nutrient. And you would suggest that this would benefit us throughout a lifetime. What you've said suggests that it's also safe for children, then, as well.

Scott Hagerman: Oh, absolutely. Again, the key to that is that there are sources of phospholipids ... very small amounts of phosphatidylserine, I might add, but other phospholipids: phosphatidylcholine, and phosphatidylinositol, phosphatidylethanolamine ... that are found in foods. Again, if one would eat margarine, or mayonnaise, or eggs, or a host of foods ... these are the classical examples. Milk and dairy products contain a lot of phospholipids on a wet weight basis ... people ingest, customarily, a lot of these phospholipids in their normal food intake.

Then the body has this ability to take and change the chemistry. By that, what happens is the body will take phospholipids or a fat and combine them, or alter the phospholipid by hydrolyzing some of the carbons on the two fatty acid chains as they're needed to route through the body to different tissues and organs. The body is a little machine of itself that then would take these compounds that you ingest and modify them to meet the special tissue requirements of the body.

The phosphatidylserine is a very interesting and considered, quite frankly, one of the more important phospholipids. I think probably phosphatidylcholine would be also in that crowd. Phosphatidylserine explicitly plays a role in the neuron, in the nerve and brain category of the body's physiological states.

Steve Lankford: You had mentioned the dosage ranges of 100 to 300. Would that be the same for children, then?

Scott Hagerman: Yes, it's found in these studies that, in fact, the dosages have been about the same. I'm reading the study that was published in 2013 by a Japanese author by the name of Hirayama. The protocol involved 17 active individuals versus 19 active individuals who took 200 milligrams of phosphatidylserine a day, versus 17 subjects who represented the placebo group.

With that, there was a very good significance. The statistics came out highly supporting phosphatidylserine. The conclusion of the study, I might add, I can read to you: "PS significantly improved ADHD symptoms and short-term auditory memory in children. PS supplementation might be a safe and natural nutritional strategy for improving mental performance in young children suffering from ADHD."

That's an example of one of the more recent studies. As I said, we're starting to look at younger populations who would benefit from phosphatidylserine. That is a very nice conclusion of what PS was found to do in a young population of school-age children. That's very gratifying when the results show a benefit, and really gratifying from the scientific standpoint that the statistical significance was met.

Steve Lankford: It is exciting, because this covers the whole spectrum of one's life. The importance of this nutrient as a foundational compound, an ortho nutrient, perhaps, is very significant. You've talked about it being very safe. Are there any warnings or contraindications for anyone who may have a health condition or may be on a particular medication?

Scott Hagerman: No, there are no issues. Again, that is why the FDA felt compelled to grant the qualified health claims for phosphatidylserine. If there would have been any concerns of any sort, they would have never allowed the qualified health claims, for one.

In all of the body of science, all of the papers published, the only thing that may appear on occasion ... and this would be the same for those taking placebo ... was that some people thought they had slight stomach discomfort. For sure, anything a person could eat could result in the same thing. Quite frankly, that would be seen in any study or any substance, that a small population, maybe one percent of the people, would say, "I have a stomachache," for no other reason than having ingested something. Again, that would apply across the board to essentially every kind of study. The placebo group often has the equal amount of very small contraindications like that.

Again, this is a natural compound. It's found in food. It's been eaten for thousands of years. It's in the food supply. It's safe. There have been no concerns of taking this with medications of any sort. It's fully compatible. It can be taken on an empty stomach, a full stomach. It doesn't matter. As nutrients go, probably the best advice would be, like most vitamins and supplements, to take at mealtime so that you have some other food substrate in your stomach to carry this along. There are no reports of any kinds of problems whatsoever, never have been. They would never be expected.

- Steve Lankford: Terrific. That's what we all want to hear. Do you, by any chance, have a website that people can go to where if they are interested in exploring this further, that they might be able to look at some of the science?
- Scott Hagerman: Sure. They can go to our website. It is [www.cheminutra.com](http://www.cheminutra.com). In fact, there are many, many, many other websites, and most often, companies do describe in good detail their phosphatidylserine products. There is just an unending variety of different sites on the internet, not to mention Wikipedia, as well. There are numerous, so many that a person would have at his or her fingertips a day's worth of reading just bouncing around on the first three pages under phosphatidylserine.
- Steve Lankford: Yes, so there's no reason not to be informed. We have set the stage for them to understand what this nutrient is, why it's important, what some of the studies say. There's plenty more information out there, because it has been extensively studied, widely reported, and widely accepted, as well. How do you know you've got the right product? Look for the logo, the SerinAid name on the product. Most companies that use it are going to want you to know that they've chosen this particular form of phosphatidylserine.
- Scott, we're very near the end of our time. I'd like to give you the last word. Is there anything that we didn't cover today that you would like to make sure the listeners hear?
- Scott Hagerman: No, I think we've covered all aspects of the phosphatidylserine nutrient. I'm, again, very thankful I had this time to spend with you. I hope our listeners are able to then go on their own, if they have a desire to find out a little bit more. We are more than available at any time to send out references. We have a very extensive reference list for the phosphatidylserine studies that have been done in the last 30 or 40 years. Again, I think most of that information can be found quite readily on the internet. I thank you for your time, and thank you for the opportunity to talk a little bit more about our keynote ingredient here, SerinAid PhosphatidylSerine.
- Steve Lankford: You're very welcome. Thank you, as well, for the interest over the many years that has led to this product being available to the rest of us, and for taking the time to be my guest today. I appreciate it. Thank you very much.
- Scott Hagerman: You're welcome.
- Steve Lankford: I wish you the best. Bye bye.
- Scott Hagerman: Thank you. Bye.
- Steve Lankford: If you would like more information on phosphatidylserine, there are plenty of resources for you. Certainly, you should check out the manufacturer's website, [cheminutra.com](http://cheminutra.com), C-H-E-M-I-N-U-T-R-A, [cheminutra.com](http://cheminutra.com). You should also listen to my interview with Dr. Parris Kidd on natural brain enhancers, where he discusses the value of both phosphatidylserine and alpha-GPC. These are both important brain nutrients. You can also search our tag index under brain health, and you'll find other interviews relative to nutrients that are important for brain health, such as omega-3 and magnesium.

You also heard Scott mention that there are plenty of resources on the internet. That's a good place to look. There certainly is a lot. There's a good Wikipedia article on phosphatidylserine. Just remember, when you go to buy a product that has phosphatidylserine in it, make sure you're using a trademark branded raw material, like the SerinAid.

How do you have confidence in a nutrient? You look at the science. This is a nutrient that has been studied extensively and has a long pedigree. That's how we know it works. That's why we know we can have confidence in it. That's why we look to those branded trademarked raw materials, because they give us the confidence that these products are likely to provide the benefits that we've discussed here in our interview.

We're here to look at the science so that you can have confidence in the products that you buy. Just remember, not all products are the same. Not all manufacturers are the same. The best companies use the best ingredients. That's what we're all about here, is making the distinctions between the great products, the okay products, and the not-so-good products. It's the science that tells us that.

That's it for me. I'm all out of time. I've got to go. I'll be back with another interesting Health Quest Podcast. I hope you'll join me. Until then, make it a good week. I'm your host, Steve Lankford. Thanks for being here. Bye bye.