Interview with Dr. Robert Keller, MD

Dr. Robert Keller, MD has been named as one of the world's 2000 outstanding scientists of the 21st century and has served on the scientific review panels for the National Institutes of Health and the Veterans Administration. He has served on the faculties of the Mayo Graduate School of Medicine, the University of Wisconsin and the Medical College of Wisconsin. He has published more than one hundred original articles in various scientific and medical journals and has been awarded several patents. Dr. Keller was elected to the Board of Governors of the American Academy of HIV Medicine and serves on the Scientific Advisory Board of the several biotech companies. The Consumers Research Council has named Dr. Keller one of America's top physicians in 2003, 2004 and 2005 in the fields of internal medicine, immunology and hematology.

Dr. Keller continues his medical practice and research activities at his clinic and laboratory in Florida and is Chairman of the Board and Chief Scientific Officer of Phoenix Biosciences, Inc.

Q: Dr. Keller, thank you for being with us today.

Dr. Keller: I'm very pleased to be here.

Q: Tell me about your desire to practice medicine. Why did you decide to go into medicine?

R. Keller: I went into medicine because I really thought it was the way to help people. I'd seen a number of my relatives ravaged by disease when I was a kid. I was particularly interested in science even literally from the time I was in grade school. I did my initial training in internal medicine and then rather than take a rather lucrative job in internal medicine, I essentially apprenticed myself to a mountain of a person in immunology and spent the next three years basically doing nothing but being in the lab.

Q: Dr. Keller, tell us about your practice, the kind of patients that you see, the kinds of practice that you have.

R. Keller: We're privileged to treat a variety of patients, some of which have HIV, some of which have chronic fatigue immunodeficiency syndrome, some of which have fibromyalgia, a plethora of which have a variety of auto-immune diseases, some of which have been named and some of which haven't. We also treat patients who have already undergone therapy for cancer. We do not do cancer therapy here although I am qualified in oncology, but we do kind of put back the system after the poisons have worked on the cancer so that the body can reconstitute itself and that they can again have some quality of life. We also deal with age management and how to get the body to function maximally using those 3 parts of the circle: the brain chemicals, the immune system and the endocrin or hormone system as a way of kind of recreating what you had when you were 20.

Q: It seems to me the best place to start in order to understand this incredible product is how our cells function. Tell us about that.

R. Keller: On a cellular level, under that a cell goes through metabolism, that is, it takes in glucose and in the presence of oxygen, it utilizes that glucose to get its engines working and you live on oxygen and oxygen's a wonderful thing, but oxygen burns and every time it burns, if you don't counter that burn with an antioxidant, you suffer the consequences. Consequences are cell damage, premature cell death, increased cell death and dysfunction of whatever organ that is involved.

Q: How does that happen to our cells?

R. Keller: As you get older and you're exposed to a number of things, let's just go over them in general. You should get 8 hours of sleep a night. I went to college. I never got 8 hours of sleep. That's called your cumulative sleep deficit. Now, the body regenerates itself during sleep. If you miss the sleep, that regeneration doesn't happen and as a result of that, your hormones begin to fall off. It would be wonderful if we all ate what we should, but we don't. It be wonderful if nobody used alcohol, but we do. It be wonderful if nobody smoked, but they do. It be wonderful if we all lived in an environment that wasn't polluted, but we can't, okay, and if you cumulatively add of that stuff over time, you're putting an unbelievable burden of the body and saying, well, go respond. Do the best you can. Well, the best you can becomes less and less and less and less.

Everybody's experienced the senior moment, okay. Senior moments are very common and they occur in your 40s. Now, there's an interesting paradox. The fact of the matter is your brain improves the ability to create memory circuits until well in your 70s and maybe even into your 80s. Well, if that's true, if you're improving memory, why are you having senior moments in your 40s. The answer is those cells are not firing and one of <u>the</u> major, if not the major reason for that, is a lack of appropriate ATP and that boils down to a lack of appropriate glutathione and one of the things that really irks me is you see a 50-year-old and I see them frequently, who've been to a doctor and their major complaint is I used to run all the time and I don't have the energy to run anymore and take to wherever you want. Tennis, racquetball, volleyball, swimming. I don't have the energy anymore. Why don't you have the energy? It's not because you're 50. It's because these cumulative deficits over time have basically worn down that engine. An untoward percentage or number of cells is being prematurely asked to leave through programmed cell death and the organism just ain't what it used to be. Those cells which are feeling the affects of all the years of neglect and I don't know how else to put it, are, in fact, not functioning with the ATP quotient that they had before.

Now, one question that could be posed is why do I care? I'm in my 20s or in my 30s. Okay? I'm well, I'm healthy. I have energy. There's really nothing going wrong. <u>Wrong!</u> The fact of the matter is that slow downward spiral as a result of cumulative sleep deficit, as a result of wrong foods, as a result of alcohol, smoking, whatever else we do that's immoral or fattening, all of those things contribute to a low level of inflammation. Now, you're in your 50s and you're going to the doctor saying I can't run the way I used to and the doctor says it's because of age. Well, I'm here to tell you it's not because of age. It's because of a lack of antioxidants and too much inflammation caused by all of the things that occur cumulatively in life to rob you of your vitality.

Q: You've mentioned ATP, glutathione, antioxidants. How do those things figure into this cellular process that is robbing us of our vitality?

R. Keller: The body works on the basis of electrochemical circuits and the key circuit for every cell in every part of the body is a substance adenosine triphosphate or ATP. The more ATP a cell makes, the better it will work because in the process of creating ATP, the cell goes through a number of chemical reactions that cause this oxidation or this burning because we are oxygen-based organisms and in order to get the maximum amount of ATP out of that cell, each one of those numerous chemical reactions have to be quenched. The fire has to be put out so the next reaction can be as strong as the first one. You create chemical reactions or you conclude chemical reactions with the producting of electrons that are not neutralized and therefore every subsequent reaction in the chain is going to be less efficient than the one before, so the fact of the matter is that by protection those oxidative reactions in what's called the respiratory chain, you improve the ATP of the cells.

Q: So the more efficient we can make a cell's chemical reactions, the more long-lived it will be?

R. Keller: Right. The more functional it will be and the longer it will be allowed to live. The body has a major programming system called apotheosis where if a cell does not perform up to the level that the body in general believes it should that at a given point it will be sent a signal to die. It's programmed suicide and the older and more decrepit the cell gets, the more quickly it's going to die and the way to protect it from getting old and decrepit is to give it the things that will give it the ATP so that it can function efficiently whatever that may be.

Q: That sounds really complicated.

R. Keller: Well, let me tell you a story. We all start off as pristine iron pipes and just like iron pipes, we're exposed to the elements. In our case, the element is really oxygen which we need to survive. Notice that the astronauts never go outside of the spaceship without oxygen on board. On the other hand, unfortunately oxygen is kind of a two-edged sword. By that I mean, it is necessary for survival but it causes damaged. Take an iron pipe that just came from the smelter, perfectly normal, looks beautiful, just like we do when we're born, but over time if there's no maintenance to that pipe, it starts rushing and then pitting and then decaying. Unfortunately, so do we.

The process may take a lot longer than it would in an iron pipe but the process is exactly the same and the reason for it is exactly the same—oxygen. Now, if the rust is in your arteries, we call it atherosclerosis. If the rust is in your brain, we will eventually call it Alzheimer's Disease. If the rust is in your liver, we'll ultimately call it serious. If the rust is in your kidney, we'll ultimately call it end stage renal disease and lo and behold, if it's in your pancreas, you'll wind up with diabetes, but the central process is rust. Rust on a pipe is equal to inflammation in the body.

Q: Rust then is equal to oxidation. Now, define an oxidant for us.

R. Keller: Your body burns oxygen as fuel. It's a wonderful thing. It allows sugar to be metabolized into ATP, again, depending on how much glutathione is present, but as a result of that, if you think about oxygen just outside of the body and you put a match to it, it ignites. It is a burning substance and in point of fact, the same thing happens in the body. The obligate result of using oxygen as the fuel to essentially create all of these chemical reactions is that you create burning substances every time a reaction occurs and that can damage the membrane of a cell. It can damage the function of a cell. If in point of fact, you oxidize something which you have to do because oxygen is the fuel on which all humans perform, the fact of the matter is you create these oxidants which could eat at the cell and the only way to take care of that is to produce or generate or instill an antioxidant that will stop the rust, will basically stop all these other chemical reactions that are cumulatively deleterious to the function of that cell.

Q: And that's the job of the antioxidant. Tell us about antioxidants.

R. Keller: There are many things that function as antioxidants and they all have specific or peculiar jobs or particular jobs. The fact of the matter is not all antioxidants are created equal and in the hierarchy of antioxidants in the human body, glutathione is the top of the mountain. Many of the things that we think of as antioxidant—Vitamin C, Vitamin E, and a number of other things—actually work by either protecting glutathione from having to be used in other oxidative reactions that are occurring elsewhere in the body not inside of the cell or, in fact, allowing glutathione to be more prevalent inside of the cell where it's primary function of protecting those oxidative reactions or quenching those oxidative reactions during what is called the respiratory chain, the ultimate result of which is the production of ATP and therefore the functionality of that cell— A particular one that has gotten a lot of publicity lately is resveritol and resveritol comes from the skin of red grapes and is supposed to be a very powerful antioxidant and, in fact, it is. It's a powerful antioxidant because it improves the ability of the cells to produce glutathione. Its function is not its own. Its function is feeding in to the paramount antioxidant in the human body and that is simply glutathione. The more glutathione, better off the cells is. More ATP is produced. Better functioning that cells does. Less likely to be looked at by the body and told you're no good anymore. Goodbye.

Q: Now what are some of the negative affects of having all these oxidants running around in my body?

R. Keller: Let me give you a clinical example because I think it may bring home the point very clearly. A situation in which there is a great deal of oxidants going on is one specifically called congestive heart failure where because of the inability of the heart to pump appropriately the amount of blood, the amount of oxygen, the amount of nutrients that get to the cells is reduced, sometimes by a significant amount. As a result of that, the body can't produce the ATP because it's not getting what it needs in order to produce the ATP.

Now, if you've ever seen a person or know a person with congestive heart failure, they have a hard time going from the bed to the table. The reason is they don't have the nutrients or the glutathione required to produce the ATP necessary for that cell, whether it be muscle,

brain, heart, whatever, to function and therefore they're out of energy before they even start. We all suffer from that to a minor or greater degree, depending on what our health status is, but the fact of the matter is you need to have that obligately, in any cellular reaction in order to get the maximum efficiency out of that cell or to put it in the vernacular, more bang for the buck every time you start the engine.

I mean, again, I'll go back to the analogy of the rusting pipe, okay? The fact of the matter is if you protected it from the get-to, it would never rust. If you allow some rust to occur because you don't have appropriate levels of glutathione which is the anti-rust or the rust protectant for your cells, then in fact you're going to get a little bit. If you interdict at any time and get your glutathione levels to where they should be, then you're going to stop that process. You have the power to stop it wherever you want it, but it's up to you.

Q: Tell us about where your interest in glutathione came from.

R. Keller: My interest in glutathione came from problems that I saw in patients for which there were no solutions and the major problem was literally a lack of antioxidants in a variety of patients and that showed up as what is known as a low uric acid. Now, when I was in oncology and when I was in children pediatric oncology, we knew that if your uric acid went too high we needed to treat it because otherwise you would get gout but, in fact, I really was not cognizant of what a low uric meant. I found that uric acid is the last antioxidant that the body uses when it has nothing else to use; whenever everything else is gone, it employs that as a not very good but the only one available mechanism to take care of the oxidation processes that go on in the body.

Q: Now, Dr. Keller, tell me what happened after you discovered this low level of antioxidants.

R. Keller: I asked the question if that's the last, what's the first, and the first turned out to be glutathione and so I started looking through the glutathione literature and I said this is the most prevalent tripetide or 3-amino acid substance in the human body and the human body doesn't make mistakes, so there's got to be a reason that this is as prevalent as it is and as I did more research, it became clear that glutathione is virtually a ubiquitous antioxidant. What do I mean by that? Some antioxidants take care of products of oxygen burning. Some of them take care of products of nitrogen burning. Some of them take care of products of hydroxyl burning. They're all different radicals. This takes care of everything and it's one of the virtually ubiquitous antioxidants, so then the question was since I had a variety of patients who suffered from low energy, lack of mental focus, I can't get out of bed in the morning or if I get out of bed in the morning, by 11:00 o'clock in the morning, I'm ready to go back to bed. This looked like the answer to it and so the question was how to create a product that would in fact deliver the substance to the body.

So we went back to the literature and we looked at all the physiologic processes that are associated with the synthesis of glutathione and all the constituent things that needed to be there in order for it to be synthesized and after I believe it was 18 attempts, we came up with a product that in the laboratory and in the clinic improved glutathione levels significantly. That was very important for us because in the process of this research, we

came across data that said that in HIV which we're privileged to treat a lot of patients with, that glutathione levels are an independent predictor of death in HIV. That is to say, if your glutathione's low, it doesn't matter what drugs you're on, it doesn't matter what your CD4 is, it doesn't matter what your viral load is, you're in trouble. And if your glutathiones are high, then you're going to do well with anything.

So, it became very important for our patients to improve that and as we looked at more and more illness, we found that glutathione depletion was ubiquitous, so we decided to put a product together and, again, after 18 attempts we finally did it and then we ran into a roadblock and the roadblock was the fact that there was no way to measure glutathione so we went back and because I had been in the lab for a long time, we developed our own glutathione test which actually measured glutathione in lymphocytes in fact in real time and found that when we did that, the levels that we thought were low were even lower than they were and with this product which is subsequently been patented and was issued a composition patent which is usually reserved for just drugs that the FDA approves, we were able to markedly improve the glutathione but more importantly, okay, the energy of the patients, the focus of the patients, okay, their quality of life which really is only coming into its own in terms of a parameter that should be measured in studies and which we feel is of ascendant importance, the quality of life really improved and that was really neat, because suddenly these patients were out doing something.

glutathione is the most prevalent antioxidant peptide in the human body and the body doesn't make mistakes. If it's the most prevalent or most common, therefore there's a reason for it and the reason is very simple. In each cell of the body, glutathione allows production of ATP. ATP is the fuel for every cell. ATP is your fuel. If you don't have any gas, you won't work. The more gas you have, the more high octane it is, the better you'll work. glutathione will give you the most highest octane fuel that each cell in your body can possibly have, so if we're dealing with a brain cell and you produce more ATP, that senior moment won't happen. If you're dealing with a heart cell, the fact of the matter is that cell is supposed to contract, to pump. Well, would you rather have it pumping at 50% efficiency or a 100% efficiency. If you're dealing with the liver, the liver's job is a washing machine for the body. It's supposed to detoxify everything that you come in contact with that wasn't intended to get in your body and if you have more ATP, therefore having more glutathione will allow you to have more ATP, that cell will work up to its full potential and you'll get rid of whatever the toxic product is much more quickly and if you're an adrenal cell and you've got 50% efficiency, you're to produce a lot less hormones than you would if you had a 100% efficiency, so by replenishing the glutathione, I allow the production of maximum amounts of ATP and the function, the better function of any cell in the body regardless of what it does in the totality of the organism.

Q: How do we know that glutathione is the most effective antioxidant and how it compares with other antioxidants?

R. Keller: The fact of the matter is that glutathione is what I would choose to call the top of the mountain in antioxidants and most other antioxidants in one way or another actually feed into the production of glutathione, either by quenching other reactions that will allow

the protection of glutathione or actually contributing to the production of glutathione or in some cases, both.

Q: And how does glutathione protection that reaction?

R. Keller: In each of the chemical reactions that go to the production of ATP, that chemical reaction produces an oxidant or a burning substance that will, if not quenched, if not taken out of the equation, actually make the second reaction less efficient and if there's another oxidant that's not quenched, then the third reaction is going to be less efficient than the second, so by the time you get to the end of the respiratory chain, the amount of ATP that can be produced which is really dependent on all of the reactions so you get a 100%, 90%, 80%, 70%, and so on, and at the end of the day, you're left with 10% of the ATP that you would've produced if glutathione had been there to protect each of those reactions and allow the cell to produce the maximum amount of ATP and therefore function the best it possibly can.

When we looked at what we could do for our patients, we kind of hypothesized that if we could create a product that would maximize the glutathione in each cell and more than that, protect glutathione by getting rid of all these ancillary reactions, by turning down the inflammatory switch, that we would in fact maximize the function of those cells and more importantly, of the patients that we were treating.

Q: And that product was MaxGXL. Now, tell me about MaxGXL.

R. Keller: MaxGXL combines a number of things. The first thing that we did was promote the absorption of whatever we put into the body and that becomes important because not everything that goes in your mouth gets into your body and your body can't use it if it's not inside, so we created something that had components in it that would promote the absorption, essentially calm down or heal or partially heal whatever's going on in your GI tract.

The second thing we did was create a relational combination of ingredients that the body would look at and say, hmmm, the easiest thing for me to do with this is make glutathione and that's what the body will do and, oh, we also cut down on all the ancillary things glutathione would have to do to put out the other fires, the other inflammatory conditions in the body by using the cordyceps to cut that down and by using cordyceps to improve the ability of the liver to produce glutathione in the first place.

Q: Dr. Keller, tell us what cordyceps is.

R. Keller: Cordyceps is a mushroom that was originally found only on a form of caterpillar above 17,000 feet in the Himalayan Mountains.

Q: Now, I went and looked this up and I thought I must've spelled this wrong because it's a caterpillar fungus.

R. Keller: It's a caterpillar fungus, okay? Well, after it kills the caterpillar and it does, okay, it grows in the ground and is then harvested. Fortunately for us, okay, there are ways of farming the mushroom, so the farmed product if standardized correctly functions as well and we have had the opportunity to get to know some of the purveyors of cordyceps and picked one that works very very well and have included it in the product because it compliments, it synergizes with glutathione itself or the components that create glutathione in an unbelievably simple way. I take care of the other junk; glutathione takes of the cell function.

Q: Now, what exactly does MaxGXL do?

R. Keller: MaxGXL by reducing the inflammation and improving the function of the cell will not, okay, completely obliterate that slide, but it will certainly make it less pronounced and preserve and protect the cells of your body so that they can function maximally and when you're 50, you may well be able to run the way you did when you were 20. The organisms can be what it used to be.

Q: Let's talk about that right now. I want to be at 100% energy. I'm sure we all do, so what do I do? How do I get the glutathione that I need? Does my body produce it, you know, produce enough by itself?

R. Keller: The rate-limiting factor in the production of glutathione in the human body is cysteine. It's an amino acid that's not found in a lot of foods. Certainly when foods are processes, it's not there and so with the diet that most Americans and most people on the face of the earth each right now, you're not getting appropriate levels of cysteine so your truncating the ability of your body to produce glutathione.

Q: So I can't go out and get glutathione fruit and eat something that's going to really increase my production of glutathione?

R. Keller: No, because glutathione will be destroyed by the acid in your stomach and there's no reason to suspect that once destroyed it will be absorbed appropriately and that it will reconstitute within the cell.

Q: So, Dr. Keller, now I know I need glutathione, but you're telling me that I can't go out and eat foods that give me enough glutathione or to do what it needs to do. My body's not producing enough, so what do I do?

R. Keller: Well, there're 2 things you can do is, one, cut down on the necessity for glutathione and the best way to do that is get 8 hours of good sleep.

Q: Now, that's not going to happen. Sorry.

R. Keller: Absent that, there are foods. I mean, a good food diet, rich in vegetables, rich in fresh fruits, absent the fair amount of meat because that doesn't help. It actually creates inflammation are a very good way to protect the glutathione you've had, but you're right,

you can't get enough to live in this society and get the maximum amount of glutathione that each of your cells need and the answer to that is MaxGXL.

Q: Now, tell us about taking making MaxGXL. Is this an intricate process with lots of containers and things like that? Do I have to mix things? When I get MaxGXL, what am I doing?

R. Keller: Take one of the little packets, open it up, get a glass of water and swallow it because it is encapsulated. Basically, you can take it with food or before food or after food and there doesn't seem to be a difference in terms of glutathione. The absorption is still facilitated. I guess that's the easiest way of saying it. And I'll tell you what I do, because I don't live on a clock and the usual dose of MaxGXL is 3 twice a day, usually in the morning and after lunch. I do that, okay, and then very frequently I have to lecture at night or I've got a late dinner or I've got a late meeting. I get into what I know now and this took me a long time to figure out, as what I euphemistically refer to as a the zone. Don't ask me what the zone is because everybody's zone is different, but it's when everything's working, okay? There's nothing out of sync. All the cylinders are meshing. All the gears are working. As soon as I feel even the slightest thing occurring, not by a clock, but by my body clock, I'll take more Max. The only thing I will not do is take it within about three or four hours of going to bed because then my body keeps working when my mind wants to say bye bye.

Q: Okay. So, if I heard this right, you're telling me in capsules so it's easy to take. I can take it when I need it, not on some strict regimen. Well, that sounds pretty simple. You know, I think I can actually do that.

R. Keller: I hope so, but the concept that I don't need it because I'm normal means that you're living in a bubble, you're not exposed to oxygen, you have no stress, you're eating perfectly and you're getting 8 hours of sleep a night. If that defines you, then maybe you can do without MaxGXL but for me and the rest of the people on this planet, I believe it's absolutely necessary to prevent the rust that will ultimately lead to your demise.

Q: If I start taking MaxGXL how quickly am I going to feel results?

R. Keller: Depends on how empty your barrel is to start with. Those people who are ill, the ones that I'm privileged to treat in the clinic experience a change within a day and sometimes even quicker than that. In fact, one of the distributors for Max was here about a month and a half ago and had gone for two or three nights with very little sleep and was kind of on his last legs and while we were talking, I said, well, just take it and you tell me what happens. He said in a half an hour he stopped the conversation and he said, man, my brain's starting to work. I feel awake and I was essentially almost asleep when I walked in here so it can work that quickly if you're down far enough in the barrel.

On the other hand, if you are only a minimally rusting pipe, okay, you may not experience any real change. However, you will notice that if you stop it, the change that you didn't think you experienced will then occur in a very negative way so there's two ways to look at it. If you're close to the top, it's going to make it ever better and protect you, but go on it for a month and then decide to go off it for a week and you will notice all of the things— As my

mother did, because she told me it didn't work, okay, and then she stopped it for a week and called me and said I'm sorry, I made a mistake, get me back, okay, so it really depends. I can't tell you in any given person who's going to be low on the barrel and experience, boom, all of a sudden or who's going to go like this because they're already close to the top. It will work in everyone. It will stop the rusting of the pipe that is an inexorable process that goes on with being part of humanity and living on this planet.

Q: Is glutathione created and utilized by just certain cells in my body?

R. Keller: Yes. It's used by certain cells. They're called all the cells. There is no cell in your body that doesn't use glutathione. You would say but, you know, wait, that's silly. Let me tell you again a perfect example. I did a chapter for a cosmetic surgery book last year on antioxidants for the skin and I hadn't done a lot of work in skin research in terms of antioxidants. I knew the generals, but I didn't know all the particulars. glutathione is the most important antioxidant in the skin. glutathione protects you against sunburn. glutathione protects you against wrinkling. glutathione protects you against the inflammatory process, the end result of which is cancer.

Q: Wow, we're all concerned about that.

R. Keller: I didn't say it would treat it, but it will protect you. It'll give your skin a much more youthful appearance and as your skin goes, so does the rest of your body, so if you're noticing a change in your skin, understand well that that's also true of your brain, your heart, your blood vessels, your kidney, your liver and your little toe.

Q: Everything.

R. Keller: Everything.

Q: Wow. Now, this sounds like a really incredible product. As you're talking about aging, does that mean that if, for example, a senior citizen or someone who has wrinkly skin and that sort of thing, if they take MaxGXL, if that going to change that skin? Is that going to give them—

R. Keller: It will improve the skin that they have. It will not change the skin that they have. No more than I can take the rusted pipe that is beginning to pit and move it back to the pristine circumstance that it was before it even started to rust can I do anything with any supplement that is going to reverse the aging process? On the other hand, the term typically used now for age-associated medicine is age management. You have the ability. You have the ability to stop the rusting process wherever you are, so if you wait until the rust is already beginning to pit, I'm not telling you that the pitting will go away or that the rust will reverse. I am telling you you're not going to get anymore.

Q: So MaxGXL can assist in age management. Well, what are some of the other quality of life areas that have improved for your patients because of MaxGXL?

R. Keller: The first area that I need to talk about is mental acuity. They can think better.

Yes. One of the things that happens is that they remember where their keys are. They don't have to think about—and this has happened to a number of patients—they've gotten to the store and they can't remember what was on their list which, of course, they left at home because they forgot to bring it. All of a sudden those things become much easier for them to deal with.

A second one that we've seen a lot of is a marked improvement in their ability to do things which I would translate into energy. The fact of the matter is instead of getting up at 9:00 o'clock in the morning and lasting until 10:30 before they have to take their first nap, but you'll see a rather interesting stepwise increase where it goes from 10:30 to 1:00 o'clock and then 3:00 and then they take more and then 5:00 and then 7:00. They're still going to bed earlier. They're still getting their 8 hours of sleep, but during the day they can accomplish more of what they wanted to do and from a patient's perspective, the ability to be able to do things that you want to do and not have to worry as they did before so you just see this wonderful unfurling if you will, of the person's ability to re-enter life.

Q: Right. Quality of life. That is the issue.

R. Keller: And the answer is that there was a very close correlation between the increase in glutathione levels and a measurement of the quality of life which is called SF32 which in essence asks you 32 questions and from that, extrapolates what your quality of life is. If you looked at the beginning, glutathione's low, quality of life low. Looked at the middle, okay, glutathione's higher, quality of life higher. Now, I would never do this because I don't believe that it's appropriate in a clinical setting to take something that's working away from a patient. However, there is this thing in medicine called compliance where people of their own accord decide they don't need it any more.

Q: I feel great. I'm done.

R. Keller: Absolutely. What we found was a month later glutathione's down, SF32 down.

Q: What happened to me?

R. Keller: We have a number of patients who come here somewhat repeatedly and they'll feel great for three months and then they'll come in, I have no energy, I can't do what I want to do, I tried to cook dinner and I crashed in the middle of it. When'd you stop and the answer is invariably, well, I ran out a week and a half ago and I knew I was coming here so I thought I could wait. Guess what? You can't.

Q: I saw a graphic that indicated some lab results from four test groups that you did. Tell us about those test groups and what happened as they had the opportunity to take MaxGXL.

R. Keller: Well, actually, one of the test groups would be what you kind of blanket into the normal group because one was just an acute viral infection, so what we found in people with viral infections is their glutathiones went "pfume", right down the tubes, okay, but if you put them on Max, okay, the glutathiones came right up to where they were before and

there's not enough evidence for me to say this with any degree of surety, but it is very clear that symptomatically they improved much more quickly than they ordinarily would.

In the HIV patients, in the chronic fatigue patients, in the hepatitis patients, in the cancer patients, the glutathiones went up. Their SF32s went up. They felt better. They did more. They participated more in life and when they decided they'd had enough and became non-compliant, every good thing that happened while they were taking it disappeared.

Q: Now, Dr. Keller, I'm sort of at the tail end of the baby boomer generation and as we baby boomers are getting older, we're looking in the mirror and we're saying, wait a minute, that's not what I looked like 20 years ago, so I know I need to do things. I need to take care of myself so I'm taking supplements. I'm using lotions and potions. I'm trying to stop this aging process. Now, the age management market is going to become huge. It's going to continue to grow and to grow. How does MaxGXL fit into that picture of this burgeoning age management model?

R. Keller: It's an indispensable part of it because if you come to me for age management, I'm going to measure your hormones, I'm going to measure your cancer markers to make sure that they aren't there. I'm going to measure your immune system. I'm going to do all of those things but most importantly, I have to give your body the things that it needs to prevent the rust and that predominantly is MaxGXL for all the reasons that we've talked about, so I can do all the other things but if I don't do that, if I don't put glutathione back in the mix, if I don't reduce inflammation, I haven't achieved anything because I'm still allowing that rust to occur and Max is a critically important— I would call it essential component in an age management schema.

Q: You mentioned inflammation. Now, when I think of inflammation I think of swelling like when I twist my ankle or a bruise or something like that, so how does MaxGXL— How does that impact inflammation?

R. Keller: You're looking at inflammation on a gross level, so certainly if I sprain my leg or I break my arm or I have a heart attack, we all will understand that as an inflammatory thing, but the fact of the matter is, inflammation is a process that goes on day to day in your body as an obligate result of not having enough antioxidants around and as a result of that, having these free radicals that incite cells in the body, particularly and peculiarly, monocytes and lymphocytes to produce a substance called nuclear factor kappa beta which starts the entire inflammatory cascade. Now, the question that would come up is do you feel it? Nope.

Q: You say I don't feel it?

R. Keller: You have millions of cells inside of your blood vessels. If you create something there, there's going to be cellular inflammation at that level and you know what that leads to?

Q: Tell me.

R. Keller: That's the way cholesterol gloms onto the inside of your blood vessels.

Q: Through inflammation.

R. Keller: That's right. The end result of that is called atherosclerosis but atherosclerosis doesn't start because cholesterol just decided to light onto the blood vessel. It's being invited in by that inflammatory stimulus.

Q: I have a funny feeling that this list of negative results of inflammation only starts with atherosclerosis. What are some of the other problems?

R. Keller: Name a disease of aging, whether it be osteoporosis—hurts a lot of people—causes little people to be frail or old people to be frail; Alzheimer's, Parkinson's, stroke, heart attack, serosis, end stage renal disease, diabetes, name an illness that's associated with aging and you've named the disease that has as its beginning an inflammatory response that you didn't take care of.

Q: What do I do about this?

R. Keller: Again, in an ideal world, we'd eat grandma's food, we'd get 8 hours of sleep a night and we'd be under no stress and we wouldn't abuse our bodies. It's not an ideal world. I had a gentlemen in here three weeks ago who said, you know, Doc, when I was in my 20s, I was 20 pounds overweight and I could take it off in a minute and now that I'm in 50s and I'm 20 pounds overweight and it's really becoming an ordeal. He said, my metabolism has changed and I said, no, you changed your metabolism.

Q: Uh huh— Well, what happened?

R. Keller: You allowed the rust to continue. When your cells were 20, there was much less rust. There was much less inflammation and inflammation, by the way, at a cellular level is a great way to not be able to lose weight, so because we allow this rust to continue, okay, this unabated oxidation not taken care of by antioxidants, this unabated inflammation that goes on because we live as we live and I'm not going to change that nor do I want to— Well, I'd love to, but I can't.

Q: Let's be real.

R. Keller: Yeah, the fact of the matter is what can we do to at least hold it at bay and the answer is MaxGXL.

Q: What does MaxGXL do to help me deal with inflammation?

R. Keller: It turns down the central figure for inflammation which is called nuclear factor kappa beta. Cordyceps has been shown in experimental situations to actually reduce the level of NKFB. If you can reduce that, you reduce all of the sequelae of that and the sequelae include the production of inflammatory cytokines, the activity of cells, the

production of free radicals which are not taken care of and ultimately rust wherever it happens to occur in the body.

Q: I don't want the rust. I want MaxGXL.

R. Keller: Pretty simple.

Q: What is the most important thing you would like people to remember about MaxGXL?

R. Keller: MaxGXL is an important part of the ability to help people because, again, the pressures of society, the polluted air we live in, all of the factors that are now contributing to the illnesses that we see that are going wild, okay, whether it be diabetes, whether it be heart disease, whether it be strokes, whether it be Alzheimer's, they're growing at an incredible rate and the reason for it is that we're not protecting our cells. This isn't a matter of medicine. This is a matter of good nutrition and that good nutrition involves improving the functionality of the cell and mitigating or reducing the amount of damage that we're exposed to on a daily basis that has been called in medicine inflammation but the real nitus of it damage to the cells and MaxGXL functions to do both. I believe everybody should have it. I believe everybody should use it. I believe if they did, a lot of these diseases of inflammation wouldn't disappear but they certainly would be reduced.

Q: Dr. Keller, what would your final message be to someone listening to this CD.

R. Keller: I can only say this from the bottom of my heart and from everything that I've learned in medicine and science over the last 30 years—we are all subject to aging and one of the key elements that we have the ability to control, we meaning each and every one of us, is the ability to stop this inevitable rusting that goes on in our body and the way to do that, folks, in my estimation is one and only MaxGXL.

Q: Dr. Keller, it has been a pleasure to be with you today. Thanks so much for spending time with us.

R. Keller: Our pleasure to be here.

Q: If you'd like more information about this remarkable product MaxGXL, please speak to the person who gave you this audio program.