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Scott McMahon, M.D. Transcript

Dave Asprey: Dr. Scott McMahon thank you for being on the documentary. You are one of the top mold experts actively treating patients with mold illness. How many patients do you actually deal with on a normal basis, people who are sick with mold?

Scott McMahon, M.D.: We have about 700 patients from all over the country and even from some other countries.

Dave Asprey: You're based in Roswell, New Mexico which is actually where my family is from, but it's also in the middle of nowhere frankly. Why do 700 people travel from all over the country to this remote outpost in order to see you?

Scott McMahon, M.D.: Many of my patients have been to 20, 30 doctors and nobody has been able to tell them what's wrong. They've been to the Mayo Clinic. They've been to other excellent centers of diagnostics but nobody has been able to tell them what's wrong. They come here, they get their diagnosis, they get treatment and they get better.

Dave Asprey: Why are so many doctors unable to treat mold illness?

Scott McMahon, M.D.: It's a relatively new field. Most of the work has been done in the last 20 years. It's not widely advertised. It's not taught yet in medical schools but it will be. The data is in the literature. Unfortunately it's not in the breakthrough journals like the Journal of American Medical Association it's more like in toxicology, things that a lot of doctors don't read but eventually it will be.

Dave Asprey: Do you believe that in 20 years physicians will be trained to treat mold illness as seriously as they treat bacterial illness?

Scott McMahon, M.D.: I absolutely know that in 10, 15, 20 years the mold illness biotoxin paradigm will be taught in medical schools. It has to be. There are so many patients, there are so much data in the published literature unfortunately it's just not in

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the literature that most doctors read. It's in magazines, journals like *Toxicology* as opposed to the Journal of American Medical Association. When I started this I was skeptical like any doctor is. We're taught that $N = 1$ is insignificant and I know you like to do $N = 1$ experiments.

We're taught that that's insignificant when any larger numbers. After I saw my first 15 mold patients who are all going to the same school and I saw they have the same history. They have the same physical exam. They have the same abnormalities on lab work and then when they were treated with the Dr. Shoemaker protocol the ones that took the treatment got better and the ones who didn't, didn't. I am convinced beyond a shadow of the doubt. Now 5 years, 700 patients later I'm even more convinced.

Dave Asprey: There is a complex interplay between mold toxins in the environment and bacterial changes in the body. Can you talk about that a little bit?

Scott McMahon, M.D.: Mold in the body and we had to be specific here. We're not talking about a mold allergy. We're not talking about a model infection. We're not about systemic candidiasis. We're talking about people that genetically do not recognize certain toxins as being foreign to their body. They stay in the body as though they are the host and those cause a problem in the innate immune system, which overlaps and affects every part of the body. You will have problems with bacterial infections just because your immune system has been altered.

Dave Asprey: When I was young I lived in a moldy basement and I'm one of the approximately 28% of people who have genes that make them susceptible or more susceptible to mold toxins than other people. I had nosebleeds all the time. I bruise frequently and I was tired and I gained weight just as a little boy. How did mold toxins cause that?

Scott McMahon, M.D.: Mold toxins can cause bleeding in a number of ways. The most common pathway we find is that can cause a change in your Von Willebrand's profile. Von Willebrand's factor is a carrier molecule. It carries factor 8 and you probably heard of Hemophilia A or classic Hemophilia that's people who have a genetic deficiency in factor 8. Some people have a normal factor 8 it's the Von Willebrand's that carries the factor 8 to the various places that it needs to go so it become active and stop your

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bleeding. Actually Dr. Shoemaker found that the likelihood of having a Von Willebrand's abnormality is 300 times than in a normal population in mold people.

Dave Asprey: What do mold toxins do to people who aren't actually suffering from mold illness?

Scott McMahon, M.D.: Everybody will agree that mold can cause respiratory problems runny nose, sore throat and can exacerbate someone's asthma. Most recent data shows that it can actually cause asthma both on the job and in schools and from home, can cause asthma in children. Two big studies in the last 5 years have documented that. Anybody can have those symptoms. There's a small subset of my practice that does not have the genetic predisposition and they have the exact same disease Chronic Inflammatory Response Syndrome, the biotoxin illness and they get better with the same treatments.

Dave Asprey: What do you do when someone comes in they've seen many doctors, they have symptoms that you would identify as mold related, what do you tell the patient and then what does the protocol look like?

Scott McMahon, M.D.: What I tell patients who come in who have seen 20, 30 doctors before and I had to tell you that that's difficult because these people usually have no hope. They have been told this therapy is going to work. That therapy is going to work and nothing has worked for them. I take a careful history. We do a physical exam. I explain to them in great detail. I try and break down the big words so that they can understand and just tell them this is mold or its not. I tell them that unlike a number of the diseases that they've been treated for that we can actually test for the mold disease. There are a number of different biomarkers that we have and if they don't have the disease they're not going to have any of them positive or abnormal. If they do have the disease, they'll have quite a few. It will be irrefutable proof that they have the disease or they don't and our treatment success rates are amazing hovering close to 90% in adults and close to 100% in children. I have the ultimate amount of hope that we can give these people a much better life.

Dave Asprey: What percentages of people who've been diagnosed with Chronic Fatigue Syndrome or Fibromyalgia actually have mold illness?

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Scott McMahon, M.D.: The question what percentage of people with Fibromyalgia or Chronic Fatigue Syndrome or Inflammatory Bowel Syndrome or Multiple Sclerosis could go on possibly even Lupus, what percentage of those people actually has Chronic Inflammatory Response Syndrome is very high. My guess would be somewhere around 70% maybe higher. I'd also add that people who have chronic pain syndromes probably 60% of them including my experience probably have Chronic Inflammatory Response Syndrome also.

They may have had an anatomical problem from a motor vehicle accident but because of the Chronic Inflammatory Response Syndrome their body is not making sufficient beta-endorphins. Beta-endorphins are the body's pain regulator. If your pain regulation isn't working, then little pains become huge pains. That's the definition of Fibromyalgia is perceived pain that is overwhelming when it really isn't much of a source. Our success rates in treating those people are also phenomenal.

Dave Asprey: What percentage of people with Hashimoto's Thyroiditis do you think got it because of mold toxins instead of gluten?

Scott McMahon, M.D.: I don't know the answer to that question but what I do know is that about 30% of my adult patients have already have either hyperthyroidism because of Hashimoto's or because of other reasons. Unfortunately that doesn't usually come back. Usually the damage has been done to the thyroid but that's fairly treatable with Synthroid or Armour Thyroid or other preparations. It's a smaller problem. The thing about Chronic Inflammatory Response Syndrome is it's a global multisystem illness and we can treat almost all the other systems and symptoms.

Dave Asprey: Are some races more likely to have this than others because of genetic factors?

Scott McMahon, M.D.: I haven't found to this point that any particular racial group is more likely to have this disease than others or more likely to be genetically predisposed. There is a larger preponderance of women than men perhaps that's because men just ignores symptoms or perhaps there's something in the women's physiology that predisposes them in addition to the genetic predisposition.

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Dave Asprey: What do mold toxins do for menstrual cycles in women?

Scott McMahon, M.D.: Menstrual cycles in women at least half of the women that I see have had some significant abnormalities in their menstrual cycles. Typically they're either irregular or they have very severe cramping with their periods so bad that they don't even want to get out of bed or they have this huge amount of flow like I'm going to get technical here like 10 pads a day which is a large amount and it may not be that way with every period but they have them frequently.

Dave Asprey: That's correlated with mold exposure?

Scott McMahon, M.D.: Exactly.

Dave Asprey: What percentage of the population has the genetic markers that make them susceptible for mold illness?

Scott McMahon, M.D.: The percentage of people that have positive biomarkers varies based on the biomarker. If we look at the genetic predisposition about 25% to 28% of the entire population of North America have the genetic predisposition to have problems with water-damaged buildings. That's a pretty huge amount, that's 75 million people in the United States.

Dave Asprey: 1 in 4 people can become almost permanently disabled or at least affected by living or working in a mold-damaged building.

Scott McMahon, M.D.: Exactly. The EPA says that somewhere around 50% of the buildings in the United States have water damage. What we know is that anybody can have problems from a moldy building, a water-damaged building. Anybody can have symptoms but somewhere between 25% and 28% of the people in the United States can go on to develop multisystem multi-symptom illness that can be debilitating. Can lead to wheelchair disability, cognitive issues that cause them to not be able to function at their work, sleep issues, problems with urination whether they urinate so frequently that they can't get anything done or they can't sleep at night and a number of other systems that their body affected.

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Dave Asprey: What's the difference between mold, mold spores and mold toxins?

Scott McMahon, M.D.: There is a difference between mold spores and mold toxins. Spores can have toxins on them even dead molds can have toxin on them. If you're in a water-damaged building and there's no more water intrusion, the molds aren't getting. They aren't growing. They're in a more of a dormant phase. Some of those molds will die. Their cell walls will degrade but the cell walls have mycotoxin on them. They'll fragment and they'll get into the airstream. Every spore that you find in a building on average, you'll find 550 fragments that may or may not have mycotoxin on them. It's not just spores that are dangerous. It's the fragments. It's the mold themselves.

Dave Asprey: When a patient discovers that they're living in a water damaged building, what do you ask them to do about their living situation in their property home?

Scott McMahon, M.D.: When I have patience and we've determined that they have water damage in their home we talk about remediation. Part of our evaluation is a thorough investigation of their home. I'll ask a lot of questions about what kind of roof they have, whether there are any obvious water intrusions or leaks anywhere. Whether they have a basement, crawlspace underneath and the like. If they do have water damage we talk about how to go ahead and remediate. Remediation is important because the crux of therapy is minimizing your exposure to toxin.

Dave Asprey: If a patient came in and was not someone with biomarkers, would you feel comfortable having him live in a water-damaged building?

Scott McMahon, M.D.: No one is safe in a water-damaged building. The World Health Organization, the general accounting offices of the United States had both issued reports that say that all water damage should be taken accounted of whether it's in your home, your school, your place of work. No one should live in water damage it's dangerous for everybody and for the people who have the genetic predisposition nobody knows what a safe level is. It's thought that the only safe level is none.

Dave Asprey: What about mold toxins in food? Approximately a quarter of all agriculture commodities have problems with mold toxins, what does those do to susceptible people and to healthy people?

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Scott McMahon, M.D.: Can mold toxin in food cause problems to people? I think they probably can. We're waiting to do more research. Dr. Shoemaker and I are preparing to do a study right now on mold toxins in food and see if a mycotoxin free diet will actually reduce symptoms, change biomarkers, change genomic markers it'd be very interesting. In the mean time I think that any and all exposures are bad for you and they should be avoided.

Another interesting thought is many of my patients claim to have a gluten sensitivity and they feel better when they haven't eaten gluten. Gluten comes from wheat and all wheat has some degree of mold on it. Are they really gluten sensitive even though their antibodies would suggest that they're not or is it that they're just getting a mycotoxic dose? It would be really interesting to do those studies.

Dave Asprey: I'm actually financially backing some of the research with Dr. Shoemaker the one you just referred to, because I think it's really important and I've noticed an effect in lots of people who talked to me about mold symptoms. What are some of the foods that are highest in mycotoxins?

Scott McMahon, M.D.: Many food have mycotoxins in them. Some of the most common ones would include coffee, grains like wheat, barley, dairy products, corn and those products and a number of other things.

Dave Asprey: What are some of the psychological symptoms that you've seen in patients who have mold illness?

Scott McMahon, M.D.: Psychological symptoms, they abound. Minimal would be just mood swings. People don't feel well. They're cranky. They don't sleep well. They tend to get set off very easily but on top of that mold can exacerbate any mental illness. It can sleep deprive people. It can cause insomnia or frequent waking. Very few of my patients have what we call restorative sleep or when they wake up in the morning they've had a good night sleep and they feel rested. Very, very few less than 10%.

In addition, mold can cause lack of focus and concentration. It can cause you lose words when you're talking, can reduce short-term memory. In time can cause reduction in long-term memory. It can cause you to become disoriented where you forget your

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own name for a few seconds or you'd be driving around in your neighborhood and look like "Where am I?" for a few seconds until you track, it can be devastating. We have patients that have lost their jobs because their cognitive abilities had declined so much that they were unable to perform their duties.

Dave Asprey: If you had a choice between living in a house with asbestos or toxic mold which one would you pick?

Scott McMahon, M.D.: If I had to choose asbestos and toxic mold hands down I would prefer to live in a house that had asbestos over mold.

Dave Asprey: Have you heard of the term mold rage?

Scott McMahon, M.D.: I have heard of the term mold rage.

Dave Asprey: What is mold rage?

Scott McMahon, M.D.: Mold rage has to do with great psychological distress coming after being exposed to mold.

Dave Asprey: Do people living in moldy buildings have all sorts of strange nightmares?

Scott McMahon, M.D.: We have found that people who have the mold illness, Chronic Inflammatory Response Syndrome do have some extreme dreams. It's very common for them to have very violent dreams where they or their family members or friends are being murdered. Being a doctor nearly 25 years, have not seen that in any other disease.

Dave Asprey: What the relationship between toxic mold and birth defects or even autism?

Scott McMahon, M.D.: I believe that we'll find that there is a connection between birth defects, autism and mold in the environment whether it's in the food or in the home or in the workplace. Studies haven't been done yet, but for 20 years people have been saying that autism I mean researchers have been saying that autism is a toxin related

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illness and this is clearly a toxin related illness. Absolutely I believe we'll there to be a connection.

Dave Asprey: The U.S. has some of the weakest protections for mycotoxins in the food supply of any western nation. Do you think has an impact on the health of the country?

Scott McMahon, M.D.: The weakness of the mold protection policies for food in this country definitely could cause serious problems to the health of at least 25% of the population and perhaps the entire population.

Dave Asprey: Why is the environmental toxic mold problem worse now than it was 20 year, 50 year or 100 years ago?

Scott McMahon, M.D.: The mold problem is much worse now than it has been in the past for a variety of reasons. One has to do with our agricultural practices, which encourage more resistant molds. One has to do with our building practices and creating since the 70's and the oil embargo create these tight energy efficient buildings, which don't allow airflow. Airflow brings competition to the molds and makes it less likely that you're going to have actual toxic molds. Also some of the construction techniques that we're using. Some of the white paints for instance that have venimals in them have also encouraged resistance or genetic alterations in some of the molds making them more toxic. There may be other factors too.

Dave Asprey: You're saying that our use of chemicals has changed the genetics of the mold which itself changes our genetics?

Scott McMahon, M.D.: Yes I do believe that some of the chemicals that we've used in our environment have altered some of the mold so that they are more pathogenic. They're more likely to cause damage that they use to. More toxigenic, more harmful.

Dave Asprey: How does mold make you fat?

Scott McMahon, M.D.: The mechanism by which mold toxins make people fat has to do with the hypothalamus and the leptin receptor. Leptin is a chemical that in large amount will increase your appetite, make you hunger even though your body knows that

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it has enough convinces your body it's time to eat. We believe that the cytokines will block the leptin receptor in your hypothalamus and cause your body to make more leptin to try and destroy the blockade and such and make the chemicals that are downstream. As the leptin level rises, you eat more, you get fat.

About 90% of my patients have a low MSH or a melanocyte stimulating hormone level. When your MSH is low, one of the body's mechanisms to bring it up is to make more leptin to try and break the blockade at the leptin receptor. When that happens and the patient has low MSH and high leptin, its almost impossible to lose weight no matter how much exercise you do no matter how you restrict your diet, how many calories or how minimal your calorie intake is its almost impossible.

Dave Asprey: Sounds really familiar because that's exactly what happened to me.

Scott McMahon, M.D.: You were huge.

Dave Asprey: 300 pounds and exercise, diet just didn't work and now years later I understand why. Is there a difference between Lyme disease and toxic mold?

Scott McMahon, M.D.: There is a difference between Lyme disease and toxic mold. Lyme disease is an acute onset illness that's caused by a tick bite and there's a particular germ that gets in your body and you have classic symptoms, which a lot of people don't have. The real question I think you're trying to ask is, is there a difference between chronic Lyme syndrome or post Lyme disease as some people call it and Chronic Inflammatory Response Syndrome, mold illness? The answer is no.

They are the same disease, different toxin. The symptom list is almost identical, the biomarkers come out almost exactly the same with a couple of changes, different pathways and the compliment system are activated so you can detect that, but the diseases are almost indistinguishable and the treatment as far as I'm concerned is identical. You treat somebody with 3 to 4 weeks of their antibiotics and then you treat them as though they have the mold and we have excellent success at reducing their multisystem, multi-symptom illness.

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Dave Asprey: Are people who have been through traumatic experiences people with PTSD, (Post Traumatic Stress Syndrome) people with more anxiety, more susceptible to mold toxins?

Scott McMahon, M.D.: People with PTSD and other mental illnesses I hate to call that a mental illness but that's the way its classified but people who have those problems particularly the anxiety related mental illness definitely have a more difficult time if they have mold disease too. The reason is that once the blood brain barrier is... and of course the blood brain barrier is a specialized lining in the arteries that feed the brain with blood. Once that becomes degraded it's no longer able to filter out some of the chemicals that it's designed to filter out of the blood circulation of the brain. When that happens, cytokines, toxins can get into the brain, can attack the hypothalamus. The hypothalamus is the crux of what's going on in the body. The hypothalamus pretty much runs most of the normal functioning of the body. One of the functions is how fast your heart beats for instance or how fast you breathe. When those systems come under attack, you can have your heart just start racing or pounding in your chest. You can simulate what appears to be or what people call a panic attack. It can set off all sorts of things and make your PTSD worse because its anxiety driven.

Dave Asprey: What are some of the different symptoms people have when they get Chronic Inflammatory Response Syndrome from exposure to toxic mold?

Scott McMahon, M.D.: There are many physical symptoms that we see in people who have been exposed to mold particularly if they have the genetic predisposition. It's almost always multisystem. Having said that, in small children we usually just see one problem like chronic headaches or chronic abdominal pains that nobody has been able to diagnose or they're just tired all the time. Whenever I see that in my pediatric practice I do the normal workup and when we've ruled everything out and do the mold workup and almost always we find the answer there and with treatment it goes away.

In adults and teenagers, the classic is that there are multiple problems in multiple parts of the body so it's not just chronic fatigue but its chronic fatigue and brain fog symptoms like difficulty with concentration, short term memory loss, losing words, problems with falling asleep, problems with urination. Problems with voiding maybe 20 times a day or more, waking up in the middle of the night multiple times to void. They'll have eye

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symptoms where they're tear for no apparent reason. Certain kinds of light like fluorescents lights or bright sunlight will be a real problem for them.

Can have problems with lungs, shortness of breath even in trained athletes going up 1 flight of steps and being totally out of breath, unexplained cough. They can have problems in their stomach with actual pains or they can have gassy, bloating, nauseated all the time. Oftentimes they're told they have chronic Inflammatory Bowel Syndrome because their lab test comes out normal when tested for other things. They can have diarrhea all the time or they can have constipation. Some go back and forth. Some people are hot in a normal environment. Others are cold and some will go back and forth.

Some will get tremors in their hands particularly if you spread their hands. Their fingers you'll see them shaking like that. All these symptoms and more, go away with proper treatment. We also mentioned women and their periods will frequently have some significant problems. Some people will have nosebleeds or other bleeding problem like you yourself did when you were a child and a number of systems can be involved. Tachycardia which his just your heart racing, palpitations, anxiety issues.

Some people will get shocked infrequently when they touch another person or turn on a light switch. Got a chock some will even arc. One of the first patients that I ever saw he had hardwood floors in his home and when he had socks off he would walk through the house he would still get shocked which is amazing to me so a number of symptoms.

Dave Asprey: How does toxic mold make people have more static electricity?

Scott McMahon, M.D.: Toxic mold makes people have more static electricity because of the way they're sweating. Many, many people will have night sweats and day time sweating too and as you're sweating more sodium will be deposited and chloride too, will be deposited in the skin and those are conduction molecules. The sodium will conduct electricity and so you become a receiver.

Dave Asprey: What is CIRS?

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Scott McMahon, M.D.: CIRS is Chronic Inflammatory Response Syndrome and it can be caused by a number of things the most common of which is chronic exposure to water-damaged buildings. Water-damaged buildings have mold in them. They have live mold and sometimes they have dead mold. Dead mold it's important for people to understand dead mold is just as bad as live mold. This is a not a disease of a mold infection. This is not a disease of a mold allergy. This is a disease where toxins, chemicals which can't be alive or dead.

Chemicals get into your body and trigger a chronic immune response and that's what we see. It's chronic because once it starts its just progressive unless you get treated. It's an inflammatory response in your body to these toxic molecules, these toxic chemicals, and these poisons that you breathe in and perhaps ingest too. These poisons coming into your body and you don't recognize as being foreign. You don't make any effort to get rid of them and they poison you from the inside.

Dave Asprey: What does mold do to your ability to see?

Scott McMahon, M.D.: Mold can affect your vision too. Many of our patients had difficulty with certain kind of lighting like florescent lights, some with incandescent bulbs, many with bright sunshine or the bright headlights at night when it hits their eyes it actually causes them pain or difficulty seeing, can cause you have tears. It can cause your eyes to be red and inflamed all the time. I've seen a number of patients who have what ophthalmologist call dry eye, which is a chronic inflammatory response in the eyes. In some people it can affect their visual acuity. They need to wear glasses or stronger glasses.

That's not what we advertise but I have seen a number of patients actually have an improvement in their vision, in their ability to see long or short or change in their glasses after they have been treated. I've seen chronic dry eye go away which I'm told by ophthalmologist doesn't happen. It can affect your vision in a number of ways. It can also affect your visual contrast. Visual contrast is your ability to see the difference between different shades of coloration. The testing that we do visual contrast sensitivity is a screening test that we do to see if maybe you have this disease or not. Visual contrast can be affected because of peripheral hyperperfusion and because of toxicity to the retina from the toxic molecules.

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Dave Asprey: What is a mitochondria and what does mold do to it?

Scott McMahon, M.D.: A mitochondria is the power source for the cell. It's the engine. It takes oxygen and sugar and makes energy for the cell to work. There are a number of different levels at which mold toxins can affect mitochondria.

Dave Asprey: Is Prozac an appropriate treatment for mold illness sufferers?

Scott McMahon, M.D.: I have used Prozac before in patients that were severely depressed or suicidal. It's a temporary measure at best. In general, I don't like using any of those medicines in my patients. I think that they're always underlying problems and it's better to treat the underlying problem than treat the symptom.

Dave Asprey: What percentage of your patients by the time they reach you have been told that they're crazy by at least 1 doctor?

Scott McMahon, M.D.: Probably at least 50% of my patients have been told that they were crazy or they were making things up or they need to see a psychiatrist or that there was something wrong with them but it wasn't physical.

Dave Asprey: How many doctors are treating mold illness today would you say?

Scott McMahon, M.D.: Probably every doctor in the United States is treating mold illness they just don't realize it. They think it's a combination of Inflammatory Bowel Syndrome and Chronic Fatigue Syndrome and Multiple Sclerosis and so there are a multiple different diagnoses for these patients but they really just have Chronic Inflammatory Response Syndrome. It's important to understand that because there really are no good treatments for any of those other diseases or Fibromyalgia for that matter. At best all they do is treat the symptoms whereas we treat the root problem and we see people's problems go away. We see their Fibromyalgia pains go away completely.

We see their weird neurologic things that have been diagnosed as Multiple Sclerosis away completely. We see chronic pains go away or be reduced significantly. We see

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their chronic fatigue go away maybe not 100% but maybe 80, 90% of their fatigue goes away completely. We see people who have bad days every day who feel terrible every day and by God's grace these people with Dr. Shoemaker's protocol when they are finished they become functional human beings again and they can become productive members of society. They can become grandparent again who can lift their babies. They don't need to use wheelchairs and walkers and the like.

Dave Asprey: Do things like neurofeedback and biofeedback help people who have survived exposure to toxic mold?

Scott McMahon, M.D.: Absolutely mold survivors can improve with alternative techniques like biofeedback.

Dave Asprey: Is it possible that one of the reasons that Paleo diet is so effective is that it's much lower in high mycotoxin foods?

Scott McMahon, M.D.: It could be that those who have benefit from the Paleo diet are having some benefit because there's a reduction in mycotoxins in the food that they're eating. The message that people need to understand is that if they've been diagnosed with Fibromyalgia, Chronic Fatigue Syndrome, Lupus, Multiple Sclerosis, Inflammatory Bowel Syndrome, even Rheumatoid Arthritis don't have objective data that actually prove that they have those diseases. They probably should see somebody like me who is aware of mold toxicity and what it can do to people.

Those diseases as they're currently treated by western medicine there's no hope. You can modify symptoms but you don't really get much better. On the other hand, we can do our 10 biomarkers and if you have Chronic Inflammatory Response Syndrome you'll have at least 5 of them will be abnormal and we can treat you and make the vast majority of your symptoms better or go away.

Dave Asprey: Mold can cause autoimmunity where your immune system starts to attack different systems in your body, what are some of the most common systems that end up being affected by mold illness? In other words, if I'm exposed to water-damaged building and I'm one of these 1 in 4 people what parts of my body could start getting attacked?

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Scott McMahon, M.D.: Any and all systems of the body could be affected by mold. Again, we look at the hypothalamus. The hypothalamus you have the parasympathetic nervous system controls pretty much all of the body's normal functioning through the sympathetic and your fight or flight system can cause things to go much faster. Your heart beat faster. Your pupils dilate. Your lungs breath faster those 2 nervous systems are connected hardwired to almost every cell of your body.

In the meantime the hypothalamus also regulates the pituitary gland, which controls the entire endocrine system, which touches every cell of your body through the chemicals that are released in the endocrine system. We see pretty much every system of the body affected. Maybe not all in one person, but every system of the body.

Dave Asprey: When your immune system starts to attack parts of the body, it can attack your joints and cause Rheumatoid Arthritis. It can attack your brain and cause likely Lupus. It can attack your nerves and when it does that it can cause Peripheral Neuropathy or it can cause MS. I'd love a list of things like that just for autoimmunity where it's not even the poison from the mold did it is that the poison hacked your body and made your body start going after its own systems. Those things I know you can have hypothalamic autoimmunity, pituitary autoimmunity, and Hashimoto's autoimmunity just a list of like the mold will make you do this to yourself.

Scott McMahon, M.D.: Mold affects your immune system and it can create autoimmune problems. For instance a large percentage of my patients will have antibodies to gliadin, which is definition of gluten sensitivity. It can cause peripheral neuropathies, which can be confused with Multiple Sclerosis. It can cause problems I believe in the thyroid. Maybe the trigger for many people for Hashimoto's can cause problems directly in the brain and on and on.

Dave Asprey: Walk through what happens there's a leak under a sink or a leaking roof, what happens to the mold? How does it start? Where does it go?

Scott McMahon, M.D.: Mold starts because of water intrusion. When you look at the typical house you have sheetrock, maybe a false ceiling or maybe that's in an office building and you have insulation and all these products are food for the molds and

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bacteria that can make toxins and cause Chronic Inflammatory Response Syndrome. The one resource that is needed by the molds and bacteria is water. Molds and bacteria that are outside, molds and bacteria that are inside your house if it's not water damaged are not dangerous to you. They're usually in survival mode. They're not making secondary metabolic products, like toxins.

When you add water, the one ingredients that's necessary, they're able to develop all the free energy that is necessary to reproduce and multiply a factor of thousands of times more mold than there was before. They now have the energy to make toxins. Some people want to compare mold outside to mold inside a water-damage building I say it's like comparing to hand grenades. There's no comparison between them. Once the mold has started growing and making toxins, it has a number of different ways of getting into the air that we breathe and causing damage.

For instance if it's in your HVAC or your heating, ventilation and air conditioning system that's blowing through vents throughout your house and coming out through registers, basements and crawl spaces frequently they'll have a return and that will suck mold toxin from the air that's in the basement or the crawl space underneath the house and bring it back in and spread it through the entire house.

Alternatively, if a sheetrock has mold even if it's on the inside of the cavity, the molds can pass through the sheath rock and into the air circulation. Again, dead mold is just as bad as live mold because it's a toxin and the toxin isn't alive or dead it's a chemical and if it gets inside your body and you can't process it, it can cause damage to you. A house for instance will become water damaged through a leaky roof or toilet overflows or whatever, water gets to mold and molds are everywhere. Water allows the molds to grow and they grow exponentially. It also gives them the energy to make the toxins, the chemicals that actually make you sick.

Molds even without toxins, can cause you to have allergic symptoms but the molds that make the toxins those toxins when they get into your body they're like poisons and they poison you from the inside out. If you're ever in a house where there's cigarette smoke you can smell the cigarettes smoke everywhere even if the people only smoke in 1 place. That's just one of the laws of nature is that particles diffuse through an entire volume. If you have mold in one little area of your house and once those molds hit the

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air they will diffuse just through the normal mechanisms of nature through the entire house.

Dave Asprey: If someone who's expecting a new baby had a choice between spending money on remodeling a nursery and on having their home inspected or tested for mold toxins, which is a better investment?

Scott McMahon, M.D.: I believe whether you're expecting a baby or not it's always better to spend the money making sure that your house is mold free than say for instance remodeling.

Dave Asprey: Explain what happens with mold versus mold toxins. When you kill mold what happens?

Scott McMahon, M.D.: Dead mold is just as bad as live mold. When mold dies its cell wall desiccates. It gets dry and it'll break apart into little fragments. The fragments have toxins on them. This is a disease of toxin. When you inhale those toxins they're in you. If you don't recognize them as being foreign you have a difficult time getting them out of your body. In fact you probably can't and that's why part of our protocol is to actually get the toxins out of your body using cholestyramine.

Once the mold is growing at some place in your house it's going to release these mycotoxins. The toxins are poisons. They are chemicals. You can't kill them. They are what are causing the problem in mold illness. They float around your house and they can deposit themselves on your furniture, on your books, on your possessions, on your clothing. Some people will move or they're remediate their house but they don't take care of the possessions and so the mold is still there and its still floating around. The toxin from the mold poisons the people.

Dave Asprey: Can people fully recover from toxic mold exposure?

Scott McMahon, M.D.: Some people will fully recover once they've gone through Dr. Shoemaker's treatment protocol. Tends to be younger people, people who haven't had illness for as many years. Some people will not fully recover but they typically get 70,

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80, 90% of their cognitive abilities back and get 70, 80, 90% of their energy levels back so they can still function as productive members of society.

Dave Asprey: What would you say to people who claim that exposure to some mold toxins will only make them stronger?

Scott McMahon, M.D.: I think if you're a person that believes that exposure some mold toxins will make you stronger you probably should be taking poison on a regular basis. You probably should be taking all sorts of poisons because those will make you stronger too by that thinking. I think it's an absurdity.

Dave Asprey: How do you treat someone who comes in with toxic mold?

Scott McMahon, M.D.: When a new patient comes usually I review their previous medical records to make sure that it's worth it for them to come to my office. We usually start with a 2-hour appointment and we do a very thorough history. We do a physical exam. We do an environment history and then we spend the rest of the time discussing what Chronic Inflammatory Response Syndrome is, whether or not they have it, how we proceed to prove the diagnosis or not and what the treatment protocol is.

Dave Asprey: What is the treatment protocol typically look like say for an average patient?

Scott McMahon, M.D.: There are 2 parts to the treatment protocol. The first one is avoiding toxin. If you live in a water-damage building move or remediate the building. If you work in a water-damage building, do your best to get it remediated. If your child goes to school in a water-damage building, find a different alternative. That's part 1 and that is for the rest of your life because most of these patients are genetically predisposed that the toxin will just stay in them if they're exposed.

The second part of treatment will usually use a medicine named cholestyramine and it's been around for 40 or 50 years. What it does is it basically detoxes the gut, which creates a chain reaction, which detoxes the body and pulls out a lot of different toxins out of the body. By removing the toxin, you remove the trigger to the disease and you're actually treating the cause.

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Dave Asprey: Do you ever use activated charcoal and bentonite clay along with the cholestyramine?

Scott McMahon, M.D.: I don't personally use bentonite clay or activated charcoal, but I know other practitioners do. I use cholestyramine and our results are roughly 90% of our adults, get 75% or more better.

Dave Asprey: Why do large food companies avoid the issue of mycotoxins almost entirely?

Scott McMahon, M.D.: If I were a food manufacturing company and my desire was to make a lot of money, I probably wouldn't tell people about mycotoxins because I wouldn't want to alarm them. I want them to buy my food.

Dave Asprey: Is there a way that people can get rid of these mold toxins once they're present in their home? Can they bake them out? Can they wash them out, use chemicals?

Scott McMahon, M.D.: There are methods of remediation, which are effective. Chlorine bleach on sheetrock does not work. The molds and the bacteria that make the toxins live under the surface of the sheetrock and Clorox only cleans surface mold. You have to remove the offending products. Sometimes you have to remove the wood whether its rafters or studs sometimes you don't it just depends on how invasive the mold is.

Once you've completed remediation, you have to clean the personal products that are in the house. If you don't do that then they are cross-contaminated even if you move to another place that is mycotoxin free. If you haven't cleaned your personal products you're just going to transport them into your new environment and you'll continue to be exposed.

Dave Asprey: What would you think if there was a bioremediation product something like a bacteria that eats toxic mold including mycotoxins?

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Scott McMahon, M.D.: It would be awesome if there was a biological agent that could eat toxic mold. To date, there have been a number of studies that have looked at different products and we haven't found one yet that successfully kills both the spores and the molds. I've been a doctor for roughly 25 years and while I was in medical school the ideas of Fibromyalgia, Inflammatory Bowel Syndrome these were new concepts, new diseases. At the time it was very easy to distinguish one from the other. You have Fibromyalgia here you have a patient who doesn't sleep very well and chronically has really sore muscles.

Inflammatory Bowel Syndrome is somebody who has a lot of stomach issues and sometimes constipation, sometimes diarrhea. Chronic Fatigue Syndrome started roughly the same time and these are people that are just profoundly tired and even multiple sclerosis. Weird neurologic things that happen over time. They all used to be very distinct diagnoses but over time as people have done more research.

What they find is that these syndromes actually overlap a great deal so that the only difference you really see between them is the people who are labeled Fibromyalgia have mostly muscle pain but they have all these other symptoms that overlap into these other diseases that people with Multiple Sclerosis diagnosis have mostly neurologic issues. It's their primary complaint but there are other symptoms overlap. You have these different diseases that are emerging toward each other. When you get to the center of that circle where they're merging, that's Chronic Inflammatory Response Syndrome.