## Introduction to Mold and Health

mold has lots of distinct advantages. We'd be in real trouble without it. But yeah, there are some issues. But I think the big issue is water and water damage.

If we don't keep our buildings dry, then the molds that are out there are doing exactly what they're supposed to in nature. They're supposed to help break down organic material.

And when we build our homes out of organic material, as we frequently do, if you get them wet, then they become self-composting. And unfortunately, some people are much more hypersensitive to those types of effects than others.

But there's a lot we can do to help prevent mold in the first place. And if you've got a mold issue, there are things we can do to take care of it. Hi, this is Ray Solano with another edition of Healthy Choices Doctor Talks as we bring some of our most prestigious and intellectual guests that really expand our knowledge of longevity medicine and getting rid of some of the speed bumps along the way that really make a huge difference in our overall health and chronic conditions.

Many times they are misunderstood, many times underdiagnosed, and many times under acknowledged.

## John Banta and His Book on Mold Control

And John Banta has been just an amazing person that's spent his life going through and illustrating and just in an amazing book that we're going to talk about today that really lays out exactly how you can recover and just look for those areas.

John, thanks for joining Healthy Choices as Dr. Talks, and we look forward to what we can talk about today. So, John, jumping right in here, tell us about your book.

We just had such a great conversation, so I'd like to just turn it over to you. Okay. Well, thank you, Ray. Really appreciate it. So my new book is Mold Controlled, A Guide to Finding, Fixing, and Preventing Mold Problems in Homes.

And I think the title really says it. It's 384 pages that deals with just as many aspects of mold problems in buildings as I could crank in there. I'm very big on not trying to.

vilify mold. Mold has lots of distinct advantages. We'd be in real trouble without it. But yeah, there are some issues. But I think the big issue is water and water damage.

If we don't keep our buildings dry, then the molds that are out there are doing exactly what they're supposed to. In nature, they're supposed to help break down organic material.

And when we build our homes out of organic material, as we frequently do, if you get them wet, then they become self-composting. And unfortunately, some people are much more hypersensitive to those types of effects than others.

But there's a lot we can do to help prevent mold in the first place. And if you've got a mold issue, there are things we can do to take care of it. You know, it's probably safe to say that if you have mold, don't completely destroy your entire surroundings.

There are ways to remediate it and to fix it. You're not going to get away from it, right? You're not going to get away

from it. You're going to be able to get rid of the bad toxins that are occurring and also try to fix your body so that it can be resilient because moles are everywhere.

It's not that you're going to live in a sterile environment. And I think that's, I don't know if you just, you heard recently, they discovered on the space station, the Chinese space station, a unique bacterium, much like a, that's never been seen here on earth, but it was important for the proper, I would say, balance of natural biotics in the space station, that it realizes much like lactobacillus is everywhere here, there's the body has to have bacteria and it probably has to have, I guess you would say a detente alongside mold, to be able to live alongside it, as opposed to not to completely extinguish it.

## Why Mold Grows and Why Water Damage Matters

And I think that's what we maybe help you can explain to us. So people just absolutely just don't freak out. Sure. Happy to do it. You're absolutely right.

We need a balance. Some molds are completely normal and if we didn't have them, we would be in a world of hurt. Right. Cladosporium cladosporis is a type of mold that actually inhabits the leaves of broadleaf trees and it performs a vital function.

If it wasn't in the tree leaves, then the tree wouldn't be getting the nutrients that it needs. So the tree provides the photosynthesis types of nutrients to the mold and the mold turns around and provides a breakdown of those products that the tree has manufactured right back to the tree.

that serve as a fertilizer to provide the tree exactly what it needs to survive. And taking it one step further, when autumn comes and the leaves start to die and fall out of the tree, they're already pre-inoculated with the cladisporium, which is vital for turning leaves into soil.

And cladisporium cladisporis is one of the types of molds that can actually grow at temperatures all the way down to freezing. And so when the leaves fall out of the tree, the breakdown begins.

and it goes on throughout the winter so that the leaves are already pre-prepared for when spring comes and things warm up, a whole different set of molds move in and start taking advantage of those nutrients.

in the leaves and complete the breakdown. So it's a wonderful thing. Cheeses, of course, if we didn't have molds, we wouldn't have a variety of cheeses or, you know, bread uses yeast, various wines, botrytis is used to make a variety of sweet wines.

And so many, many places that mold is very beneficial. There are some molds that are essential to our balance of nature, but They do break down buildings when they get wet.

And probably one of the biggest problems that we have in North America is that gypsum drywall with paper facing on it has become one of the major construction materials.

And there's probably no more perfect food source available for mold than paper. It's a pre-digested cellulose. quite a variety of different molds exist that can use that as a nutrient and do use it as a nutrient.

And it's a jungle out there because at different temperatures, different types of molds thrive at different levels of nutrients, different types of mold survive.

And so they're trying to fill the niche, but the critical factor is always how wetter things. Are they wet enough for the organisms to start to grow? But another thing that I find really amazing, a lot of people get very concerned about mycotoxins produced by molds, and they'll listen to internet and sales marketing that tells them, you got to kill the mold.

Well, when you attack mold, That's one of the things that can actually turn on the toxin production and make

matters a whole lot worse. And so my whole book and my whole practice for the last 35 years has been focused on physical removal of mold when it's in places that we don't want it and relocating it to the landfill.

So, you know, we're either going to flush it down the drain or we're going to send it to the landfill. And trying to kill it, first off, mold is very resistant to the various types of anti-microbials and products that are used to attempt to kill it because it's got a very hard seed-like coating on the outside of it.

And it takes a while for the moisture to soak through and allow that organism to germinate. So spraying it and trying to kill it, what it does is it leaves a certain amount of anti-microbial film present on the outside of the spore.

But when it germinates, now all of a sudden it's sensing from the very beginning that there's some stressor that's trying to take it out. And that can then turn on its biotoxin production.

So we're much better off physically removing it. So far, I have not been able to find any evidence that soap and water cause a problem. And so what better way to remove it than using a soap or detergent?

or surfactant that's able to emulsify the fats. I mentioned earlier there were so many problems with the information that's being posted on the internet.

I mean, we're constantly seeing posts about how you should use vinegar to try to kill the mold. Well, first off, the vinegar can't penetrate through that hard outer coating quickly enough to really kill it.

## Safe Mold Cleanup and Why Not to Kill It

But You know, if you think about it, the way that mold spores and fragments exist, they have this polysaccharide coating that has lipid mixed in as a part of the layer.

Lipids are fats, and everybody's heard the saying that oil and vinegar don't mix. So if you're trying to use vinegar to clean up something that's got an oily substance or emulsify it, it just doesn't work.

Not only that, but your various types of mycotoxins, biotoxins, they're either going to be water soluble or fat soluble. And so if you're using just a small amount of detergent, it doesn't take more than maybe five drops to a quart of water, that's going to emulsify the various fat soluble toxins.

And if they're water soluble, then the water that you put the detergent into is going to help pick that up. And by using I prefer disposable microfiber cloths.

We can do an excellent job of picking up those really fine microscopic particles and just cleaning them away. Yeah, that's a perfect analogy that people misunderstand.

You know, we've heard bleach, right? What a problem that has been. And we've also heard peroxide. Maybe you can talk about peroxide and being able to use that as an agent.

Well, we run a specialty compounding pharmacy and we use a number of mitigating units, cleaning units that use a combination of all that. Maybe you can bring up the, discuss about peroxide.

Well, so again, peroxide is really not going to be doing anything to clean up fats or lipid types of materials. I think what peroxide primarily does, it has its effectiveness for bacteria, especially the ones that the peroxidase enzyme can have its activity.

If you see that foaming of peroxide, that tells you that you've got some real biological activity going on there. that's not a bad thing, but it's probably not mold.

What peroxide does with mold is it tends to bleach out the color. Unfortunately, what that means is that you're not able to just look at the surface and see that it's been affected, and so it makes it a lot more expensive when you

can't target the surfaces that you need to be working on.

So I'm not a fan of peroxide from the standpoint of doing remediation. Again, detergents are the thing that really seems to get it cleaned up and we can use detergents in our laundry for helping to get them out of our clothing.

We can use detergents on just about any type of non-porous surface and a lot of the porous ones too. Where we have trouble cleaning the mold out is if the item itself has gotten wet or the building materials have gotten wet to the point where mold has actually started growing within that material.

And the way I like to think about this is that the mold is creating its hyphae, which are root-like structures that are burrowing into the material, and they're physically degrading it.

They're not something that you can just clean from the surface. And so if you have personal possessions that have actually developed mold, it's probably not going to be cost effective to save them.

On the other hand, if you've got a $20,000 painting or you've got something that has emotional value, you know, a great grandmother painted a a painting and it's the last thing that you have to remember her by.

There are ways of preserving and cleaning and restoring. And so throwing these items away is not really always necessary. Now, I would not suggest that you try to save a 69 cent roll of toilet paper.

Oftentimes we'll see people that will, you know, store it away, even though it's got mold all over it. thinking maybe they'll clean it up later. And you know, no, things like that, it just doesn't make financial sense.

So we want to evaluate them from a cost effectiveness of the cleaning as well as from the practical standpoint. But one of the things that happens with mold sensitivities is people can be upregulated so that they're actually expressing that level of sensitivity.

And it's a much greater level of sensitivity than what we would normally experience. And so I think the key is to get ourselves physically removed from those types of exposures that can continue the upregulation, get ourselves away from those, get ourselves undergoing treatments, get everything back, calm down to a point where we're actually back to being able to handle the normal routine levels of mold exposure that we're going to be getting.

John, one other question that we hear is the use of ozone. We've been a big proponent of ozone, even IV ozone. We see a lot of ozonators. How do you feel about ozone in the killing of mold?

Well, so first off, let me say that I think there are a lot of very wonderful uses for ozone. You know, Hearst Castle in San Simeon, they use an ozone generator for purifying the water in the big swimming pool there.

And there are a number of ozone uses with regards to water purification and hot tubs and other things of that nature. And then there are a number of various types of medical uses.

We hear about dentists using ozonated water for perfusing the cavity that they've drilled and things like that before filling it. When I start talking problems with ozone, I'm not talking about those types of applications.

From an airborne ozone standpoint, We've all heard about the problems with the ozone layer, which is of course up there, but also ozone being a pollutant down near ground level.

And when I was working at the University of California Davis prior to beginning to do this type of work, I was involved with a lot of medical research and we had ozone chambers where they were actually doing different tests on various life forms, plants and animals to see what kinds of problems there are.

Ozone can be very damaging to the lung tissue. Right. And the problem with ozone is you don't have control over the reactions.

## Ozone, Peroxide, and Other Remediation Methods

If there's something present that's reactive, it's probably going to act on it if it can. It's a powerful oxidizing agent. And so just because you can do something doesn't mean you necessarily should do it.

Older homes, the insulation in older homes is often made out of natural rubber. ozone breaks rubber down very quickly. I had one client years and years ago that she couldn't tolerate the elastic that was found in regular underwear.

And so she would bring import underwear in from Europe where it was made with natural rubber. And she ozoned her house and within 24 hours of setting up the equipment, what she found was that all the elastic in her underwear was going bad.

And so, you know, You can end up causing house fires by destroying the rubber in the insulation. You can end up destroying your underwear. by destroying the rubber and that.

But there are other side reactions that I think can be very problematic. So for example, malathion, the pesticide, you know, people have been told that they can use ozone to get rid of the malathion and they can.

It literally does get rid of the malathion. But about 15 years after that started being advertised, what we learned from university research was that It doesn't completely get rid of everything.

It doesn't turn it into oxygen and carbon dioxide and water the way that a lot of advertisers had claimed. Instead, the malathion is converted into another chemical called maloxone, which is a thousand times more toxic than the malathion.

So you don't always know what you're going to get if you have a building that has lumber in it. And most of our homes in the United States are made with softwood, fur, or pine.

When you expose that to ozone, the terpenes in it will actually create formaldehyde. And yet there are these studies that have been done, white papers that have been published, showing that ozone breaks down formaldehyde.

Well, yeah, that's true. It does break it down. If you take and shoot some formaldehyde into a chamber and along with some ozone, it will break that formaldehyde down.

But if you've got it running in the presence of wood, Now it's creating the formaldehyde at a much faster rate than what it's able to break it down. And so there are these unintended consequences.

And so it's important to really understand the mechanisms and not just go with the first thing that you hear about a product. The whole situation with ozone and portable room air purifiers got so bad that the state of California actually outlawed them.

If the levels of ozone exceeded that, which you would find outdoors in nature after a lightning storm, then that was considered too high. We also know that from OSHA's standpoint, a tenth of a part per million is is too high.

And one of the things is if you can smell ozone, then it's high enough to be causing damage to your lungs and it's above the OSHA permissible exposure limit, so for an eight-hour exposure.

So I am not a fan of these things. There is some anecdotal evidence that if you expose mold to ozone then you can turn on its mycotoxin production capabilities and make the environment a whole lot more toxic than it would have been otherwise.

That's one of the things that I'd be very interested in seeing tested to actually be able to document that further. Well, that's good to hear. So we've gone through all the common items.

So the best thing for when we have mold exposures to get rid of it and also prevention. So let's talk about prevention for some of the things for structures for houses and inspection.

Many times when we have patients that we say we do the surviving mold visual contrast test, right, is a good way to determine that there's a screening tool, not a diagnostic tool, that something is off.

And that means you're being exposed somewhere. So that it gives you a detective to go look and to look for common areas for what you see of where there's a water exposure.

Maybe you can go through the, you know, maybe the top five items. So people just make sure that they're aware of something you look on a daily basis. So I think that You know, water can come from plumbing that has a problem.

It can come from accidents, spills and things like that. It can come from deteriorated building materials that are allowing rain to enter into the infrastructure.

It can come from condensation moisture. If you have a difference of temperatures, oftentimes we'll see cold windows. You know, when it's cold outside, then the window on the inside forms a layer of condensation moisture.

And these are, you know, all sources of moisture that can end up creating problems if we don't keep it under control. And again, I mentioned unintended consequences earlier.

You know, it's one of those things where one of the solutions to dealing with condensation on your windows is to install double pane or triple pane windows and they become more insulated.

So they're no longer as cold as they were and less likely for the condensation waste to form on them. However, most older buildings that have single pane windows also don't have insulation.

Or if they've had insulation added, it's not been very consistent. And so now what you end up with is the next coldest surface becomes the new condensation point.

And if that's hidden inside of a wall cavity or someplace that you have no access to, now you end up with the condensation forming in a hidden location and creating a problem.

We have a wonderful tool that can help to figure that out. It's called a thermal imaging camera. If you calculate what your dew point temperature is and you set your camera to alert to anything that's colder than that temperature, you can do very quick scans with thermal imaging cameras and tell exactly where the dew point temperature is going to be.

And not only that, but you can predict. If you know that the dew point temperature is 20 degrees less than what it is right now, you can look for those colder surfaces and then determine whether or not they're at risk of for the condensation forming and creating those types of problems.

The fifth place that I wanted to mention was appliances. Front load washing machines are notorious for developing mold inside of them, inside that rubber gasket.

## Preventing Mold Through Inspection and Moisture Control

We've got to keep them scrupulously clean and ventilated when they're not in use in order to allow them to dry down so that the molds don't grow. Plumbing leaks.

I'm a fan of saving money and yet one of the things that we see with a lot of the various types of plumbing that's used these days is they're very, very prone to ultraviolet light degradation.

And so if your glass is not UV shielded and you've got exposed plastic plumbing, that's the type of thing that can help it deteriorate much faster. And so, you know, we build our buildings today in ways that don't support the

longevity and different materials have different I mean, your personal longevity?

Well, the house longevity, which can certainly influence the… Your longevity at the same time, that's right. But as an example of longevity, you know, most people realize, okay, my roof is going to last maybe 15, 20, 25, 35 years, but they wait until it fails and there's already water intrusion before they actually do something about it.

And if they just patch it, if it fails in one area and they just patch it and it's reaching its useful life expectancy, there's a very good chance that there's going to be another area that's going to fail in the not too far distant future.

So thinking about those sorts of things, when the water comes in through the roof, it oftentimes takes days or weeks before it shows up in the living space.

The insulation in the attic gets wet, it holds that moisture like a sponge, and the water never makes it through into the living space where you can see it, but you've got mold growing in those hidden areas.

eventually the insulation gets saturated to a point where the gypsum drywall becomes saturated and now you see the stain and people say it just happened.

Well, it didn't just happen, you just saw it. I think that You know, one of the things that we hear a lot about is condensation moisture, but the need for dehumidification.

And certainly the part of the country that you live in has a great deal of influence on that. If you're living west of the Rockies, HVAC systems rarely have problems with mold growth inside of them.

They may end up with mold spores and fragments being sucked up by them. and landing in them. But those are like the un-germinated seeds. They're not really developing or actually growing.

On the other hand, east of the Rockies, where we have humid conditions, and of course, the further southeast that you are, the higher these types of humidity conditions will exist.

And so mold growth inside of HVAC systems and ductwork is very common in humid parts of the country and less common in drier parts of the country. Of course, we have regional differences.

We have microclimates. So if you're living real close to the coast, you may have high enough humid conditions to create issues. But also if you're living right next to the coast, you've got salt.

And if the builder is using galvanized metal as flashing and it's being exposed to salty conditions, it doesn't take very long for it to corrode and start to rust away to the point where it's no longer serving its function.

And so there are lots and lots of regional differences that are important to be thinking about. And I've tried to do my best to summarize those in a chapter on longevity and different types of materials that are used.

You know, if you want to prevent that from happening, they used to use a lot of lead, but of course lead has its own consequences. So now we see a lot more copper being used for for those.

And of course, copper is very expensive in comparison to galvanized metal. But, you know, you can pay now or you can pay later depending on the approach that you take with the building.

John, I want to take our final minutes as we close up here to give me the title of your book and where to purchase it. I mean, it is an encyclopedia, okay, to let people know we have it.

in our pharmacy to teach our pharmacist on some of the things to educate patients to look out for some things to some survival tips to be some common sense approach is great great book and maybe you can give us that information as well.

Thank you. Well, it's real easy. It's available wherever books are sold. If it's not on their shelves, then you can order it. I'm a big fan of IngramSpark as a printer.

They're the company that does all the printing for books that are being made available to libraries and hardcover and to book sellers. which can do it in hardcover or in paperback.

But Ingram Sparks is compliant with the European Union requirements for printing books, which say they're not using the toxic chemicals in the inks. They're not using the petrochemicals and the adhesives for the bindings.

And so when you get those books from your local bookstore or from Barnes & Noble, for example, you're getting a book that smells like paper, like a book.

Well, that's good. Yeah. The title of your book again for our listeners? Mold Controlled, a Guide to Finding, Fixing, and Preventing Mold Problems in Buildings.

Great. And John, you've got a website, I believe, that you can share with all our audience. So you can order it through my website as well. It's johncbanta.com.

That makes it super easy for patients. And I know we work with a number of physicians nationwide that really uncouple some patients so they get recovering, get their lives back.

I know we work very, very closely with Dr. Andrew Heyman and Richie Shoemaker that have all contributed. There's a lot of different opinions out there for which is in medicine, there's always opinions, choices.

But you know, the good thing is, is everybody has their personalities are different, their makeup is, their chemistry is different. So sometimes you need different methodologies to get recovery, but we don't want people to suffer.

If people have some chronic mold infections, it doesn't end well. It's really important to start the journey and to take some simple approaches first.

And I tell some people, you know, if they're living in a home or area that is contaminated, just leave. Don't continue to try to believe that it's just going to go away.

Get healthy first, right? So get healthy first so you can make those proper decisions. Let me interrupt for a second. One of the problems we're seeing happen a lot, people that just leave oftentimes get into another situation that's as bad as the last one.

## Book Details, Resources, and Closing Remarks

And so With mold control, it actually has a chapter on looking for a place to rent or buy, you know, and how to go about treating a vacation home or all of these types of things.

All of the above. All of the above, how to deal with water damage, the 25 steps that are necessary if you are going to remediate. All of those types of things are going to help to understand it and take the mystery out of it so that it's not a panic situation.

It's something that you understand how to deal with it effectively. Well, John, we appreciate your time today. And this is another edition of Dr. Talks.

Check out our website, PDLabsRx.com for more information. We also have our longevity medicine clinic, LavalPerformance.com, LavalPerformance.com, where our trained practitioners that can be able to help people on their journey to fix, get down to the root cause of many of these conditions.

It's a very specialized area. So we take some common sense approaches to fixing that. LavalPerformance.com. And we check out all of our recent podcasts on healthy choices.

that are listed on our website and also on Doctor Talks. So we're going to thank John. Thank you so much for this and your book. We'll have that listed on our website for people.

And again, it's on our shelf and a Bible for our staff to be able to learn. And again, we also want a special thanks to your illustrator. I know you gave me a story and I tell everybody about the illustrator.

that does in her recognition and her self-portrait. I think that's a great story. Yeah, she's wonderful. Really appreciated her. ability to draw things that are quite difficult.

When you look at mold through a microscope, because that's the only way you're going to be able to see it, you're looking at something that's been smashed and just all kinds of disturbances.

It would be like trying to take a flower that you've pressed in a book and maybe beat it up a little bit. And then take that and make it look live and vibrant, just based on never having seen the plant, but seeing the dried remnants of it.

And she was able to really bring the mold illustrations to life. Plus she really stretched her capabilities and did some wonderful illustrations of the way that mold looks when you see it in homes, like minor, moderate, and major types of problems.

And it's a one of a kind. I don't know if anybody else has anything like that. So thanks again. John, we'll do this again. Thanks, Ray. Appreciate it.

Take care. Take care. Bye-bye. Bye-bye, everybody. Thank you for tuning into Dr. Talks. We hope today's episode has enlightened and inspired you on your path to optimal health.

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