

**Toxic Babies: Threat to Our Evolution?**

Presenter: Latham Thomas & Penelope Jagessar Chaffer

*The purpose of this presentation is to convey information. It is not intended to diagnose, treat, or cure your condition.*

**James:** Hello! And welcome back to The Evolution of Medicine Summit. This is your host James Maskell. And we are here on the pediatric day, the kid's health day of The Evolution of Medicine Summit. And we are here to talk about a topic that has not really been a part of the conversation in medicine but needs to become a part of the conversation right now. And we're going to be talking about nontoxic pregnancy.

And typically throughout this summit, you've heard from all sorts of doctors. And we've had an opportunity to connect with them. But today I haven't got doctors in the house. I've got a couple of people that I think have been on this topic and have been trying to have this conversation with the general public and having this conversation for years.

I'm very excited to welcome today to The Evolution of Medicine Summit, first of all, Penelope Jagessar Chaffer who is a filmmaker, a BAFTA-nominated filmmaker. She made the film *Toxic Baby*. You may have seen her amazing TED Talk as well on "Toxic Baby." Welcome, Penelope! Such a pleasure to have you here.

**Penelope:** It's great to be here, James.

**James:** And also I have with me today Latham Thomas. Latham is an author and a lifestyle maven. She wrote the book *Mama Glow* and has recently put together an e-book with the Environmental Working Group on the nine tips for non-toxic pregnancy. And Latham was sort of a key link in the chain to get us connected with the Environmental Working Group and bring them on as an official partner for the summit, which we're super excited about because I think they might be one of the most benevolent organizations on the planet. So, Latham, it is so great to have you here as well.

**Latham:** Thank you for having me.

**James:** So we're going to talk about non-toxic pregnancy. At a recent functional medicine conference, they were talking all about food. And some food gurus like Michael Pollan and others were talking about how food was the ultimate upstream medicine. But, I think what we can see today and what I want to get into today is that there may be something that's even more upstream, which is toxins during pregnancy because it

really seems like we may be setting a blueprint for kid's health even before they're born. And no amount of good food otherwise is going to potentially undo the damage of what can be done even before someone arrives in this world. I really wanted to just start with that.

Maybe, Penelope, I could start with you. I know you were making films on all different sorts of topics. And you actually created *Toxic Baby*. What was it that sort of thrust that conversation into your desire to make that a big part of your world?

**Penelope:** Like most women, the concept of toxicity really hit home when I was planning my first pregnancy. And then I became pregnant. And looking into research, as an environmentalist anyway, I was just stunned to find out that there's a significant amount of science that showed that environmental toxins could affect human's health, could affect baby's health. I was just really shocked that it wasn't discussed, certainly not discussed with obstetricians. It's not discussed in the general media, and really no information out there.

**James:** Yes. It's interesting that since you've made this a key part of your career, have you seen progress since the film came out as towards an understanding that this is a serious issue that needs to be taken seriously?

**Latham:** Well, what I'm seeing, James, is a real shift in the sort of cultural consciousness of this. But, interestingly, the shift seems to be coming from pregnant women themselves. I feel like the medical community has struggled in a way to keep up with the science. But as more and more of the science has come through—and a lot of that is dependent on amazing new technology that allows us monitor things in a way that wasn't possible a couple decades ago—as more and more concerns are arising and as people are watching their children get sick...I mean the rise of chronic disease in the western world is just absolutely shocking.

So mothers and fathers, parents, are watching their children get sick, their peers, and their family's children get sick. And they're asking themselves, "Why is that?" And they're hearing things. And I think as a result of that the consciousness has grown. But, I think it's really growing in that area. It's not really being reflected throughout the medical community, who should be supporting it.

**James:** Absolutely. And I really appreciate your pioneering work in that. And, Latham, having met now with the Environmental Working Group a few times and chatted with them, they really felt like just from your ability to communicate these sensitive topics in a way that gets people to feel empowered by it, that was a big part of why they chose to

do this work with you. What was it that made you want to go in this direction with you? Because you've been a lot more focused on birth and lifestyle either side of the birth itself. What was it that really made you want to get into this world of talking about toxicity and pregnancy?

**Latham:** James, well, we always were talking about it. I think that one of the things that we look at first when a woman comes to us, whether she's pregnant or looking to get pregnant, is her lifestyle. And what we find out is that inherent in the lifestyle is the disease, right? The lifestyle itself creates and promotes toxicity, especially when we're living in an urban environment.

And so when people come to us, they come for two different reasons, usually: that they're already pregnant and freaking out and finding out that there's all sorts of things that they should be doing or that they haven't done yet and they're trying to incorporate, or they cannot get pregnant.

And thirty years ago we were dealing with a population that was trying their best not to get pregnant, right? And now we have people who would give anything to get pregnant. And so what happened in the last thirty years that would cause a rise in fertility challenges in both men and women?

Well, we see a rise in consumption of like these Frankenstein-type foods, you know, these non-foods and chemicals that haven't been tested that have entered our food system. There's been like a lot of lobbying for the food companies that are making foods that are making people sick. And there's heavy marketing. So people are eating things that are essentially like tested upon us in real time. And so there's no long-term testing done on any of the food. There's also the chemicals that we use, the plastics.

When I was a baby, my mom had glass bottles. And I was breastfed until I was a year old. And then after that, I think she used glass bottles and then food from the garden and from the grocery store. But it wasn't like you had a choice between organic and conventional. Like there were farmer's markets. And this is in California. Things were grown in a way that was respectful of the forgiving soil that we had that Mother Nature has lent to us.

And people also cooked more. There wasn't this convenience that we have now that's cutting back on time, shaving time for people, and making their lives more convenient. But, guess what? It's not convenient to get sick. It's not convenient when your kid turns up sick, or when you find out that there's been a genetic disruption or rudiments of some sort of disease that developed in utero because of some simple choice you

could've made.

And so I think that now that there's so much information out there especially with the work that Penelope has done with *Toxic Baby* and really bringing the science and the lifestyle pieces together in such a real way for people to understand that it's not just a fringe sort of like hippie group talking about this stuff. It should be interesting. All of us should be concerned. And all of us should be making lifestyle choices.

So I think with the Environmental Working Group, our biggest, I should say, motivation was that we were already inspired. And I think that since this is something that's effecting our population that we are serving, they need to know this information. They're not going to go to the site and find it all because their site is very dense with information.

So I said, "Why don't we create something that's accessible, that's branded Mama Glow?" Because our people will read something that's text-heavy if there's also imagery. We found a way to create a resource that people would pick up because it looks interesting, but you actually feed them what they need when they open it. And I think a little bit with this work, we have to do the kind of vitamins-in-the-dog-food technique where it's like you're giving it to people in a way that you're packaging it. It's sexy. It feels good when you show up.

You're meeting interesting people when you get there. But then you get fed what you need like what you do with the functional forum. It's really hard-core information, but it's packaged in a way that people can handle it. They can palette the taste of it, and then they actually get what they need, and then they go home and they start talking about it and it spreads. I think that's what we really need to do is figure out how we're going to drop a coin in the water and keep it rippling, you know?

**James:** Yeah. Well, I can certainly see the ripple effect of that book is going to be serious. And it seems to me, Penelope, that we're right on the edge now of a serious conversation happening about this. How excited are you that the sort of mainstream...Almost like with this topic it was like the toxic pregnancy revolution will not be televised. You could only see that this was going to come on at certain times on certain websites. But now it seems like it's hitting really the mainstream.

**Penelope:** It really is. I've seen a fundamental shift over the past decade in terms of how this conversation is happening. And looking at what Latham's doing and her work and how we're able to coalesce the community into understanding that. That's amazing. And it's exciting for me because I feel as though an empowered pregnant woman can

make amazing choices in her life that will fundamentally effect the health of her child. One of my great frustrations has always been why is this information not more readily accessible?

A very good example of this is there's several studies now that show that pesticide use in your home leads your baby to have—for a pregnant woman, if a pregnant woman is in a household that uses pest control or even out in the garden using weed control—her child has a significantly higher risk of developing leukemia, acute lymphocytic leukemia, which has one of the highest rates of incidence in the United States.

So that's a really simple thing that you can say to a pregnant woman. "Don't use pest control. Don't use pesticides in the home while you're pregnant." Let's look at ways of dealing with this problem and not the automatic way, which is to just go out and get something really toxic and bring it into the home.

And yet that is something that is not being communicated. And I think even if there's one study, it's a very simple thing to do. It's not going to alarm anyone. It's not going to have them shrieking and running for the hills. And I also have to say, James, that I do think this is also growing in tandem with the movement towards a more empowered pregnancy. I think there was a period of time where pregnancy was seen as this thing that women have to be rescued from.

**James:** It's a disease, wasn't it?

**Penelope:** It's a disease, you know. And the medical community has to come in and save you and navigate you through this thing that you're going through. And when your birth comes, it's an emergency room situation. It's sirens. It's, "Get the baby out! And I've got to help you to do that." And really disconnecting women from the experience that their foremothers have been going through for millions of years.

And I feel that we are slightly riding on the coattails of that movement towards a more empowered pregnancy where women aren't what I call these Rapunzel-like creatures where they're terrified of anything that is happening in pregnancy. They're terrified of the birth.

And a lot of what Latham says and does, I get the pretext of Mama Glow is that pregnancy is an amazing time. It's an empowering time. But there are things that you need to know that could fundamentally effect the health of this child that you really want to bring into this world. So, let's do it. You know?

**James:** Yeah, I think that's so key. And you said the ripple effect there, Latham. Just in this summit, we have a speaker on the Paleo day talking about how the ability to create sustainable change starts with women and starts with the family. It's a unit of sustainable change. You can't have one child that's eating gluten free, and everyone else just chomping on bread all day. Like everyone has to go through it together as a family because it really helps to maintain change.

And so it seems like the potential for a ripple effect to start in the birthing process and then to go out into starting with their family after that, but then beyond as they set a good example, and other parents see that they're healthy. I mean this really gets down to the crux of your work. To what degree do you see the empowerment in the pregnancy process could actually lead to this empowerment revolution in medicine more generally?

**Latham:** Oh, I think it's huge. Dr. Mark Hyman wrote the first endorsement in my book. And summarizing what he said, was that this work saves not only one life, but two. And so or if you have multiples.

**James:** Yeah.

**Latham:** But it's not just that you're protecting and preserving the life of the child that's growing within you, but also in with that in mind, you're working on making yourself a better person, birthing the best iteration of yourself as a woman and as a mother. The child gives birth to the mother. The mother gives birth to the child. And so as you rise in consciousness around these topics, it's really hard for it to isolate because women don't live in isolation in our consciousness. When we're doing one thing over here, it affects everything else we're doing.

That's why they say if mommy's unhappy, everybody's going to be unhappy because if she's mad about one thing, it effects everything else and everyone else. And as we see that because the mother is the crux of community and because she is the vessel for everything to come through or that's bringing life, bringing new ideas, bringing new products into the home, whatever it is, it comes through her. So she's that point of entry. But also she can be the gatekeeper of what can stay out.

And so I think that the more conscious that women become and empowered as they go through this process, what we really try to do is make sure that women have adequate resources, information, and feel confident when they go in to speak with their doctors. They're saying, "Okay, so can you tell me what exactly is inside of this vaccination that you want to give my kid ten of?" Or, "What actually is inside of the epidural?" Like what is it composed of? Or "Can you tell me a little bit about all these plugs and things that

are going in me when I go into labor?"

I think that people don't ask these questions. "How come I have to have so many ultrasounds? Why is that routine?" I think that instead of just thinking like this is just normal, women get so many heightened sensations during pregnancy and what happens is that everything that comes up to the surface. Any superficial neuroses you have, it comes to surface. Any fears that you have come to surface. And certainly any hunches that something is wrong come to surface. And so when you walk into a situation and you're like, "I don't think I should be getting that ultrasound," or, "I don't think this should be happening," you have to use that and speak up.

So our work is about helping women to give themselves that permission. Penelope's work, too, it's about being able to say, "You know, I saw this study. I saw this film. There was this information. They talked about this chemical. It's in this thing that you want me to use, or it's in that lotion," or, whatever it is, remember these things. Make these connections, but really listen to that intuition.

And I know people say, "Oh, let your intuition be your guide." And people think it's like some hippie doing kumbaya thing. It is not. It is part of our primal brain and our spirit working together to help to keep us and our babies safe. That's why we have these heightened sort of superhero, really, I guess, powers, right? I guess it's how it works.

**James:** Powers, yeah. Lifting the car off the baby and that kind of thing.

**Latham:** Yes! And then why we get so scattered is because we're not listening to it. We're listening to everything else people are telling us including the people who are marketing heavily against us. We're very vulnerable to take things in when we're pregnant: everyone's information, things about how the birth is going to go, etcetera.

So I think that the more concise, clear, and very accurate information that you have on these topics, it's not for us to scare anyone. This is actually to make people feel so empowered that they can have an actual choice, not the illusion of choice because what you think you have is choice. But when you go out and you choose things, you bring them into the home with no idea of what effect they could have on your body and on your baby, that is not a choice. It's not even an option.

So I think that with the medical community actually becoming more educated—and that's why your work is so important—we bring these people in and they actually see that, "Wait a minute." Outside of what we've been taught, everything's changing constantly. So they're relying on information that they learned in medical school and

then that they learn at conferences. And then they read journals. But, they're not on the grassroots level and looking at any of these studies, looking at the work that people like us are doing because it's not really their business, right? And they're guiding women who believe in them and trust in them to information that is wrong. Women come to me and go, "My doctor said use this or use that," or, "It's ok to drink Poland Springs." And I'm like, "Under what?" Like who says it's ok to do these things?

So I think they need just as much education and information which is why we wanted to reach out to all the OB/GYNs and providers in the area and give them copies so that they could keep, but also send them the PDF to read through. And say, "Do you have any questions? Because if you do, we're happy to put you on the phone with people at the Environmental Working Group or at Mama Glow. We're happy to come and speak," because I think that the more they become educated, then it becomes a real partnership whereby the patient becomes educated and is giving information that's validated but also supported by the doctor and vice versa.

It's not a power over, power under thing. If I come to you, and you don't know something, you should actually go then and research it as a doctor. Then, come back and say, "I looked into what you said. And here's a bunch of things that I found." And then the patient now can work with their other practitioners, like their doula or their midwife or whatever. And it's all kind of like a way to make her feel more empowered.

And that also then gets out into the world. As we know, consumers drive the market, right? And so when you go to the doctor, that's a consumer experience. They work for you. So for you to be afraid of them or afraid to ask questions or afraid to share information that you've learned is not the right way to start off a relationship with someone's who's going to bringing your child into the world.

**James:** Absolutely. I think one of the hunches that you mentioned women get is that there's a real commercialization of this birth process in America. It's like, "Hey, here's your Poland Spring . And here's your Pampers. And here's your formula." And this is a big thing I think people are starting to wake up to. That this is a marketing opportunity. And it's being seen as such and being treated as such. And that's a real concern. And I definitely agree with you that we're getting to a point of no return.

In fact, recently Stephanie Seneff from MIT who's a researcher said—she's a widely published author on things like Alzheimer's and autism—she said recently a shocking thing that if we carry on at the same rate that one in two kids will be autistic by 2025. So you can see that one in two, I mean, it costs \$2.5 million over the life of an autistic child to look after them. And that's a conservative number. So you can see that none of

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these numbers are going to add up very quickly. So we have to take action now. And I think you guys are really starting to spread that word.

So, Penelope, from your research is there a time in the birthing process where we have to be most vigilant? I mean, obviously, increased vigilance is needed in all parts of it. But is there a certain time where it's most crucial to be really, really, really clear about the toxic potential of your life?

**Penelope:** Well, that's a very good question, James. There's some good news. But unfortunately there's some not-so-great news. And the not-so-great news is that the most vulnerable time in pregnancy is in the first trimester, particularly for boys because the process of masculinization where the embryo goes off onto the male pathway, we believe that it happens anywhere between the sixth week and the eighth or ninth week of pregnancy. Often women are just beginning to find out that they're pregnant then.

So, that really plays into the importance of pre-conceptive preparation and care, planning your baby and trying to eradicate some of these exposures that will interfere with that process. And the reason why they interfere with this process and any of the processes in pregnancy is because the development of the embryo and the fetus is run by infinitesimally small amounts of hormonal interaction. Every process in pregnancy from the release of the egg, conception, masculinization, the development of the organs, the timing of the birth, whether you have the baby early or whether you have the baby late, the kind of labor that you have, they're all driven by hormones.

And a lot of the chemical compounds, the toxic chemical compounds that we're looking at, toxicants and toxins have the ability to disrupt the hormonal signaling within the body. So for a process like masculinization, which is reliant on testosterone being triggered at the right time, can you imagine that if the embryonic system, the brain and the rest of the physiology, believes that it's receiving a dose of testosterone or it's receiving what the body thinks is estrogen or something that's anti-androgenic—so anti-male hormone, anti-testosterone—then it could slightly tweak that development.

And because they're such small amounts...You know, pregnancy is a fundamental blueprint. It's not kind of like, "Oh, let me take a bit of that and do a bit of that." It's very, very, very particularly signposted throughout the entire process. Cells are laid down in a very, very systematic way. Organs are built up in a very systematic way at very systematic times. And so we see that particularly with boys.

So in rodent studies and other laboratory animals, if you introduce chemical compounds like phthalates, for example, which are known to interfere with the male hormonal

signaling, the pups of the moms exposed to those chemicals have genital birth defects like cryptorchidism where the testes have not descended at birth. Or hypospadias, which is a condition where the urethra is not at the tip of the penis. It's actually on the shaft of the penis, and in severe cases could be on the base of the penis. You know that something has fundamentally gone wrong in that pregnancy when a newborn male presents those defects.

Interestingly, those defects are risk factors for later adult conditions, like testicular cancer, prostate cancer, low sperm counts. We see that boys who have these conditions, particularly when you're looking at more severe versions of that like when both of the testes have not descended, are not present at birth. They're far more likely to develop these conditions later on. And it also points to one of the difficulties with this in that with pregnancy, you have an exposure. And the effect of that exposure may not be seen for another thirty years.

**James:** Yeah, that's such an interesting point because now we're also seeing...I've seen studies with rodents, as well, where they're talking about transgenerational toxicity. So it's not just the toxins that you're putting into this child, but then that's going to translate into their children. So it's adding up in a certain way.

To me, my background is in economics. And I saw that this was basically an economic thing. It's called a negative externality—pollution—that you'd see is that the first coal-fired power station in Beijing didn't really do much damage. But now there's 100 of them. Now you can't even see to the next building along.

It sounds like what we're seeing is there's this sort of build up and the numbers that we're seeing now are a reflection of not just what's happened in the last couple of years, but in the reflection of the last 80 years of industrialization, or maybe 150 in certain countries.

**Penelope:** Absolutely. The science of epigenetics is a relatively new science, but is a science that is going to be a profound effect on us as a human population. And epigenetics really demonstrates how environmental factors have the ability to switch on genes that are then those switched on genes that carry multi-generationally. The studies that I've seen in rodents, we're talking about five generations later, those generations are still being effected by the initial exposure to the mother five generations before. That was something that twenty years ago, it was impossible to have a conversation about epigenetics in that kind of way.

And so, you know, my daughter's three years old. I've been preparing her for her

pregnancy from before I had her. The minute I found out that I was having a girl, I've been preparing her for the pregnancy that she might have thirty years time, which is a phenomenal thing, disturbing thing for some people, but a really empowering thing for me because I can look at my child. And I can say, "Should anything happen to her, I did the best I could," rather than, "I was really scared. And I didn't know what to do. And my doctor couldn't tell me. And I just thought it was just better not to kind of take it on board," which a lot of women feel that that is the only response that they can have because they don't have the support mechanisms to be able to make those choices. I'm looking at my grandchildren and my great grandchildren potentially from the things that I was doing in my pregnancy.

**James:** It's such an interesting topic. One of the first books that got me interested in this was *Having Faith* by Sandra Steingraber. And it was one of those, I was reading it during when my wife was pregnant with my daughter. And I feel like we're taking the same approach too. And she really talked about looking at motherhood from the ecological point of view. Like you would look at people are environmentalists and they hate what we're doing to the planet. And yet there's a lot of toxicity that's going on. And in some ways, the ecosystem of the womb, the N=1 ecosystem, like you said before, is even more delicate because those small changes in toxicity can make such a huge difference.

So, Latham, what would you say are the sort of the big things for people who are listening today? What are the big triggers? These big environmental toxins that are the sort of the game changers as far as like being aware of and being empowered around?

**Latham:** I think there's an exhaustive list. But I think to make it so that you don't feel like you're going crazy, focus first, if you're not educated at all in this area, it's one area that it would behoove you and everyone coming after you to just do yourself the favor to look at the areas where you possibly come in contact with toxins on a regular basis throughout your day. So look to see the things that you do the most. So I say like look at rituals first, right? When you get up in the morning, what are you using to brush your teeth, to wash your face and hair? The things that you do every single day. When you're washing dishes, what are you using? When you're mopping the floors, what are you using?

What I found was when we clean the home, often times the air quality in the home is worse than outside. And we live in New York City. You know, there is lead in these old buildings. Everyone lives in different places. In New York, there's pre-war buildings with lead exposure because paint chips and buildings move and shift, actually. And so children are crawling. And things are peeling. And they're coming into contact and

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everything's going into their mouths. Well, when you're pregnant too, when you're breathing in places that have mold or could have lead, these are things that you want to be thinking about.

Mercury, a lot of people are eating fish. I don't even know how people can continue to eat fish with all the things that are happening with the water supply. But, in fish, too, which people are told when they're pregnant, "Oh, stay away from sushi, but you can have fishes." But, a lot of the larger fish that can grow accumulate mercury because of the seawaters, right? We encourage women to have seaweeds. But then we see that the seaweed is growing in polluted places, too. So it's really something that you want to be looking at as well. So mercury.

And also, too, like looking at the things that you put on your face every day to beautify, right, the cosmetics. And that's the biggest thing because women, you know, when they're pregnant, they want to feel as beautiful as they did before. And sometimes people go through a struggle in how they feel. And I think you should always dress the way you want to feel. So that might include putting on blush or lipstick or something. But there's all kinds of companies out there that are not using chemicals and that are using things when you flip it over you can pronounce everything. And it's all edible. And so I think looking into using better products.

And then I think the other things are what are you sleeping on? The beds are flame-retardant and even the pajamas that we put on our children that are laden with chemicals and flame retardants. Make sure you're using natural fibers. Cotton even, too, is grown in the most toxic...It's one of the most toxic crops as non-food. But because it's a non-food.

But guess what? When they are switching the crops over, they grow peanuts in the same place that they grow cotton. And so what do you think's happening to that soil, right? It just soaks up all those toxins and agrochemicals, right? All of the pesticides, fungicides, herbicides. It's all in the soil already. And it grows the peanuts, which develop all these toxins that people are actually allergic to not peanuts. They're allergic to the toxins that are growing on the peanuts. They're allergic to that because we were growing up, we were able to eat peanuts, right?

So there's the rise of all these things. But thinking about the small things you do. And I know people are handing their kids not now peanut butter sandwiches and things. They're thinking now. But like look to see, there's always a chain link. And it connects back to us. Everything is connected to everything else. And so when you pull on one thing, it's connected to everything else, like John Muir said. And we have to really, I

think, look at the simplest things we do first because it can become daunting if you try to like take a big picture and then look and see that there's like ninety-five things going on in the home.

Just find three this week and work on that. If you can for thirty days change a pattern, then it becomes a new habit. And then take on another. If you're pregnant, definitely read this non-toxic pregnancy guide because there are nine environmental hazards that we focus on only. But those will make a tremendous difference. And it's not about just non-toxic pregnancy. It's a non-toxic life. This is not one period of your life that I think we're focusing on. We're actually encouraging people in this period because we know they're vulnerable and they want to do the right thing.

**James:** And they're receptive to the information at this point, as well.

**Latham:** Obviously receptive! Exactly. So, it's the best time to really think about this is when there's other people's lives on the line.

**James:** Yeah. Another doctor who I interviewed once about this topic, he said, you know, there's so many sources of toxicity that it's sort of overwhelming in a certain way. And his view was just let's focus on not purchasing any toxicity because if you're purchasing the skin care products and the cleaning products and those kinds of things, by purchasing ones that aren't toxic—like you said the edible skin care or otherwise—you're actually sending so many price signals out to the market and buying signals that we want this kind of thing.

The first place I lived in America when I moved here was in Georgia. And it was by all accounts a food desert. And what I saw is just in the period of me living there and then moving away and then coming back to see it, the organic aisle at the supermarket is now four times as big. It's four aisles rather than one. And that was in rural Georgia. And it's because more and more people started demanding it. And then the market just responds to it.

And I just see that we can't really control the lead in the house. We can't really control the air that we're breathing to a certain degree. We can't make those choices. But we can make choices about things that we purchase and that's a good starting point because we're actually changing the market every time we buy something and spend money on something.

And I think, one, people are frustrated that let's say this is there most important issue. If this is your most important issue, there's not political party that's talking about this so

you can't really vote for it. But, you can actually vote every day with your dollars to create change. And I think that's quite an empowering proposition, as well.

So, Penelope, I know in your film you focused on some specific toxins. It seems as though this conversation around toxins and autism and so forth is really coming to the surface with the new research that's coming out on glyphosate, which is the active ingredient in Monsanto's Round Up. And that is bringing us into a whole new conversation.

Do you feel like it's sort of a good thing that people are becoming aware of this through a very particular chemical, given that there's thousands of chemicals that are available? But it seems like this one chemical in Round Up, particularly, is taking our level of understanding of this topic to another level.

**Latham:** Absolutely. That's a great point that you make. You know, the whole concept of GMOs is a fascinating one. In Europe they've been dealing with the GMO issue for a significant amount of time, longer than what's been happening in the United States.

**James:** Because it came there first. I remember. I was in England when I was growing up there in the '90s, they were having those kind of conversations: "Don't put your GMO wheat next to the regular wheat." The environmentalists going out and like burning down fields.

**Latham:** Yeah, well, I remember Prince Charles. Prince Charles started his organic line. He was very vocal. And I think he played a really big part in creating that awareness.

**James:** Who says the royal family are useless?

**Latham:** I thought he was very effective. I think he did a great service because the organic movement really mushroomed off the back of that. And I feel like we get slightly lost a little bit in the current conversation about GMOs. And we get fixated on the genetic mechanisms. My concern about GMOs to bring it back down to the chemical is the fact that they were brought in to reduce the amount of pesticides that were being applied to crops. So crops were being genetically modified so that you could use lower level of pesticide.

What we found, of course, is that the pests have adapted, which we know that pests are really able to adapt. I mean, we've known that for a really long time. And we're seeing increased amounts of chemicals being used in crops and stuff like that. So, I think that it's a really good mechanism for people to understand that actually all of these things

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are interlinked. And it's not about one particular chemical. But that is a really convenient way of understanding how the problem exists because industry makes a claim. A chemical is brought in to solve what is thought to be a particular problem. That solution does not work. And the solution is to bring more chemicals into the equation. And that's something that we see symptomatically across much of the chemical trespass that we're witnessing.

**James:** Yeah. And it's such a huge topic. And it's definitely not going away. But you can see there's that sort of intergenerational issue, as well, where maybe it doesn't show up as a big problem in the first generation. But we don't really know what it's going to cause down through those other generations, as well. We're seeing the first signs potentially that the government is interested in looking at sort of like the honeybee collapse potentially as a starting point, right? So, now just recently they've started to look at that and say, "Hey, maybe we need to do something."

But it seems like it's funny this whole thing the evolution of medicine and the name because it's almost like we can't evolve quickly enough in order to catch up with the toxic exposure, which is probably not a bad thing actually because it's going to make us look at this a lot more clearly.

So where do you see sort of like the green shoots of success? Do you see things happening in the market or in governmental agencies that make you feel like we're sort of moving in the right direction now?

**Penelope:** Well, what I'm seeing is what I call the awakening of the consumer. I feel like that is where the exercising of the power that the consumer has. And it's something that I see in my film. We all believe and have believed for a long time that there's nothing you can do about this. This is just the way that it is. This is the lifestyle that we have. But we forget that the consumer is the single most important chain in the link of consumerism. And so therefore we've seen significant changes. Johnson & Johnson are removing a significant number of toxic chemicals out of their products.

**James:** The baby products.

**Penelope:** The baby products. We're seeing that with big multi-nationals like Proctor & Gamble and Tide, for example, the consumer saying, "I'm concerned about this. I want something else." And as a result of that, now everyone's scrambling to keep up with what the consumer is saying. And I think that's hugely important. I think also that when there's interest, there's more money. And studies require significant amount of funding.

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And so the other great news is that when there's increased awareness, there's an increased amount of studies looking at all of these different exposures and how they interact. And that's certainly what I've seen in the past decade, what went from a handful of studies to an entire avalanche of studies looking at this issue. And so I think that government agencies can respond better when there's a significant amount of science.

And part of the problem that the medical community and the scientific community in general has had is that they have felt resistant to adopting what has seemed to be a really revolutionary new way of thinking because the weight of science wasn't there. That's because the science is difficult. It's only recent technology that has allowed things to be measured in the amounts that they're being measured. And also that the volume of studies can be done to show that, okay, it's not just a small study. But you're seeing these effects multiplied throughout a range of studies.

**James:** Well, that's an interesting topic because part of this evolution of medicine is really an understanding of how technology's going to change everything. And we're possibly only a month or so away from Apple bringing out the iWatch. So everyone's going to have an iWatch. It's going to measuring all of your different vitals. It seems like sort of a futuristic movie in a certain way.

But could you see a time certainly in the future where people are able to track their own chemicals in their body and be able to sort of manage and look at those? I mean, imagine the data when we're all able to look at those. That's sort of an empowering proposition because I think if people really saw what was in them, they would be shocked into probably changing behavior more quickly.

**Penelope:** Absolutely. I always say that if you could see the effects that is happening to your child or to your cells every time you received the toxic exposure, you developed some sort of skin rash or something that you could see, this issue would have been dealt with I think a lot sooner. And so I completely agree with you in the sense that if we can detect what's happening within us, we're much more likely to respond.

In the film, I had myself tested extensively in the Netherlands. And that was a painfully protractive experience. It was a very expensive experience. But I feel as though, as you say, with technology moving at the speed that it's moving at, if you apply something and you have on your skin or you're breathing something in and there's something on your monitor that's telling you, "We're detecting this in the air. We're detecting this on your skin," you're certainly more likely to go, "Oh, my God. I'm not going to use that because I know for a fact that that's something that I'm being exposed to." I've been

hearing a lot about startups and innovators looking at how can we do that in a way that's functional and helpful to people. I think you're going to see—

**James:** And accessible.

**Penelope:** And accessible.

**James:** Accessible to everyone, yeah. And just to go back to the pregnancy piece because I feel like this was one thing in the book that really got it is that there was this sort of assumption for a long time that none of this mattered because the placenta was just going to do its thing, right? And that was going to filter everything out. And the baby was going to be fine. But that's not real, is it?

**Penelope:** No. And it goes back to what you're saying about the human body being able to adapt quickly enough. The placenta's an ancient organ. And estrogen is an ancient hormone. Everything mammalian that has replicated in life has done so through estrogen. And I think that that's one of the reasons why the human body's so susceptible to estrogen disruption.

And so the placenta is something that I try to visualize in my film. The placenta's being faced with things that it's never had to deal with before. And it's constantly being bombarded. And the idea that your child is being wrapped in this sort of organ-like protective encasement is really, really not true.

I mean, we understand that for things like smoking. We understand that for things for alcohol. But the medical community has been a lot more reticent in understanding that there are other factors that can also have those effects, as well. I mean the placenta's an amazing organ. You develop it. And then you no longer develop it. You no longer have it. But it's not built to deal with things like bisphenol-A or phthalates or parabens.

**James:** Yeah, absolutely. And those things, I know all those three that you just mentioned are in Latham's e-book, the phthalates and the parabens and so forth. Latham, you've been a little bit more engaged into the medical community working with functional medicine doctors and seeing that the rise of that sort of thought. You know, we talked about the empowerment revolution of consumers.

If you see that side of it mixed with what can now just be said about the progress and also the progress that we see in, let's say, Amsterdam, in the Netherlands, where they're actually talking to OB/GYNs about this and we're making progress, what's your sort of most optimistic vision for where health care is going to go in the next little while,

this evolution of medicine?

**Latham:** Well, I'd like to see the care put back in and the health put back in to health care. I think there's two things in the sort of doctor bedside manner. The patient respect needs to be there. I think that if you come in and you have some information you're unsure about, and then it's shot down, you probably won't bring it back up. Or you'll feel intimidated and maybe won't make certain choices that are aligned with your wellbeing.

So I'd like to see, number one, the doctor's becoming more confident in sharing the information. If they don't know, being able to have access to whether it's an app or a print out or like, "Here's a sheet with a bunch of great information. You should just read. This is not my area. But, here. Check this out." I'd love to see that.

Also, I'd like to see, and what we see a little bit is that because the midwives have been displaced in the United States, there was some very interesting legislation that started around ten years ago—or almost eleven now—to wipe out a population of very skilled birth workers who can handle normal births, as well as some complicated deliveries like breeches, and minimize the amount of...For me I think this is a huge issue because I see it globally, especially in places like Brazil where there's a C-section rate of like 99% right now which is ridiculous.

I'd like to see people not just thinking about, "During pregnancy I did really well. And I stayed away from this. I didn't use this kind of nail polish. Didn't use this, didn't dye my hair," but then they allow the doctors to pollute their bodies with these pharmaceuticals during the labor process, which is also a very sensitive process.

Your baby will learn in the first few hours of birth whether or not the world is a safe place. The baby learns that in the actual labor by the introduction of synthetic neurochemicals that are supposed to also mimic what the hormones can do. Nothing can mimic what the hormones can do in the way that the body does. It disrupts this very delicate dance between the mother and the baby. It forces the woman out of a primal state and into a thinking and afraid state because she can't understand what's happening through her body. She can no longer communicate with her baby on a hormonal level.

And the baby becomes also frightened. And so people think, "Oh, I'm just going to like take off the edge of the pain." I do not decide for a patient whether or not they should have an epidural. But what I do think is really great that's happening in other countries—especially like in the Netherlands, they do this—they make you take a course for two days before and you have to then sign off and say you've taken this course so

that if you ask for epidural during labor, they see on file that you took this two-day course. You know what the chemical does. You know what could possibly happen. You know everything about it.

When women are offered this when they're in a state of panic because they've already been thrust into a cycle of Pitocin, which actually creates very erratic and strong contractions, they just want relief, right? So they're in a state when they're already vulnerable. And then that usually leads a cascading effect. In this country we see it a lot of women ending up on a C-section table. And so not everyone can have like this blissful birth, necessarily. Some babies have to come out in a certain way. But, in most cases, a lot of these C-section births, a lot of these medicalized births can be avoided.

So, I'd like to see us really focusing also on how can we minimize the effects of the chemicals and not put so many of those into the women that are laboring because then you're reliant on tons of chemicals once the baby gets here for pain management. And guess what happens during that first couple hours of life. The baby is not in a state of complete alertness. And that effects like the immediate bond that needs to happen for like all these amazing physiological, magical processes to happen like the let down of the milk and so forth.

That's when women find that the doctors or the nurses will push a formula onto the baby because their milk hasn't come in. You know, when you're breastfeeding, you're patterning the eating habits of these children for the first thirty years of life. So when you're introducing formula on the first day of life through a bottle, not the nipple, it's like everything is being manipulated. This child is not even getting a chance. So we're thinking about the entire birth continuum, once the baby arrives, also, because then when a mom's reliant on formula then look what she has as what's available to her. There's nothing available to her.

**Penelope:** Yeah. The vast majority of formula is genetically modified.

**Latham:** All of it! And the first ingredient is high fructose corn syrup. So this is like the track that we're on. So there's a few tracks you can take. And so when you think about when people are like, "Well, I don't want them to be thinking about the pain," we want to empower them with all sorts of ancient practices. There's all kinds of ancient technologies that we can use that our ancestors used to move us through this process so that we can keep in the primal template that was intended for us to deliver in and bond with our babies and so that our bodies can respond in the way they were designed to do so that the babies end up being healthy down the line.

We know that the colostrum is very important for the baby to get right after birth. It's full of antibodies and all kinds of—

**James:** Microbes.

**Latham:** Everything that you need! When you're in a hospital environment, you want your baby not to get sick. The breast milk will create antibodies to anything that baby comes in contact with and feed it back to the baby through the milk. So we need to know that inoculation that we're being sold when you go in for your third day of life and they're trying to schedule you for the vaccinations, that your baby's inoculated every time they hit the breast up for milk. And the baby's immune system is reliant on the mother.

So I would like to see this sort of information relayed back to the patient. It's really the patient that's empowered just like you said, from our dollar to our womb, we need to bring it back to the, again, the mother is the crux of the community. If we are not empowered and feeling strong and not making decisions that align with the best and the highest good for our families, then everything else suffers.

That's really like where we see the world headed today, the destruction and the things that are happening are happening under our watch as mothers. So collectively we need to stand up and say, "Enough," and figure out how we can make the change. And Penelope and I are on the side of not afterwards like looking at it like early before, right?

**James:** Yeah. Well, I think you made so many amazing points there, Latham. And it actually ties into so many cool things that are coming up in this summit because, first of all, something is obviously wrong because America in fifty-sixth in infant mortality below Serbia, below Cuba and so forth. So there's no data that's going to tell me that there's something that's not wrong there.

The other person that you need to listen to on this summit is Dr. Robynne Chutkan. And she's a gastroenterologist. And she's on this pediatric day basically speaking about exactly what you talked about with regard to our understanding of the microbes, all about the microbiome. You know, the knock on effects of not going through the birth canal, not breastfeeding, on microbes, and mucosal immunity, which is the new understanding of immunology.

This weekend if you think your doctors don't get this, we have Dr. Aristo Vojdani talking about the evolution of immunology and really understanding the mucosal immunity. But the most important thing I think you said there, Latham, is that these doctors and all of

these healthcare workers, because of the insurance system, we've sort of forgotten that they work for us. And that voting with your feet is the most important way.

If 100,000 more people want a doula or a midwife in a certain area, people are going to train as doulas and midwives. And we're going to send signals to the market that this is the type of health care that we want. Having gone through a birth with a midwife with my own daughter, I would never do it any other way. Obviously, if there were complications, we have to look at that. But for most births, this is a simple, effective, cheap way.

And you can see countries that have a lot more midwives have a lot better birth success than we do. You can't be much worse than fifty-sixth in that. And we're definitely the lowest of the developed countries. So it's kind of embarrassing. But I also feel like we're starting to make some change in that direction.

So I really appreciate all of those points that you've brought out, Latham. And you've really set up a lot of the rest of this summit because medicine is really evolving to bring in the concepts that you've spoken out. And I'm so excited that we've been able to sort of encapture that in this summit.

So, Penelope, I'll just come back to you. I've asked all of the people, participants, throughout the summit, what their thoughts are on the evolution of medicine. This phrase the evolution of medicine has so many different ways that people interpret it. And I've been so excited to hear all of the different doctors and practitioners and other people talk about this evolution of medicine. When you hear those words, "the evolution of medicine," what does that say to you?

**Penelope:** Well, it says to me that medicine grows and responds in the way that humans grow and respond. Medicine is there to serve humanity. It's there to help us live the best lives that we have, to help us navigate disease, but also to promote our wellness. And I think it has to evolve. The whole premise of science is to evolve.

We've found ourselves in a really weird situation where science became really rigid and really stuck. And you see this when we talk about toxicity and we talk about the dose makes the poison. Paracelsus came up with this over 200 years ago. And he came out with this when, at the time roughly, around when Columbus set sail for America.

**James:** Yeah, 500 years ago or more.

**Penelope:** So, we've known for a significant amount of time that the dose does not

make the poison. Look at something like lead, for example, it's pretty clear that the dose does not make the poison, or mercury. And yet we've held tight to that. And I've seen that a lot when I started making my film, I was told that I was crazy. I was told that the scientists were crazy and that this is how it is. It felt very rigid. It felt that the science, and therefore the medical community who was reliant on the science, was not at all able to adapt or willing to adapt to an ongoing understanding of science.

But science has always been about someone coming in with a new perspective and shaking things up. It has always been that way. And maybe it's with the advent of a huge pharmaceutical industry, chemical industry. Maybe that plays a role in this but the point is that science evolves, humans evolve, and therefore medicine as the science of humans should be evolving, as well.

And what's really exciting about this time is that evolution feels very visceral. It feels like something that you can see. It feels like something that is really tangible, just the fact that the three of us are sitting down here having this conversation, that this event is happening at this particular point in time, I think is very telling. And so the evolution of medicine is of great excitement for someone like me.

**James:** Thank you so much for sharing that. It is extremely profound. And I really appreciate both of you for being on the cutting edge. Obviously, throughout this hour, if you don't feel like this is the most important topic in medicine, I think that it's pretty clear that it is because of just the sort of the ripple effects of the decision right at the beginning and the ripple effects throughout the baby's life and then the different generations. So we're potentially doing some damage that we're not going to walk away from and there's only one way to solve that. And I think we've seen some green shoots of potential in there.

So I really want to thank both of you for being here and being here on The Evolution of Medicine Summit. Audio is not an ideal medium for both of you because you both look very good and communicate very well. And I have to say more than probably anyone else on this summit, both of your websites are a great reflection of you, as well. The Toxic Baby, ToxicBaby.com and MamaGlow.com. These are amazing websites. These can be accessed by anyone in the world. These can be shared to different people, so many great resources on there.

What I really appreciate about both of you is that I think that it's going to take well-spoken, well-communicated messages for this paradigm to shift. And I think that both of you are doing an amazing job in doing that. I've really appreciated having both of you on the summit. I think this topic is such an important one. And it's fitted so well in with

the rest of the information. I just wanted to share my appreciation and thank you for everyone.

Thank you both of you for being here. Thank you everyone for listening on the line. If this was an interesting topic to you, make sure to tell every friend that you know that's pregnant or every friend that you know that wants to get pregnant. They need to get this information. And they need to listen to this because this is where the starting point happens that can create significant change. And I just want to say, again, thank you. Any other last words before we go here, Latham?

**Latham:** You can go to [MamaGlow.com](http://MamaGlow.com) and download the guide and read it wherever you are in the world. So you can take it from the site.

**James:** That's a great resource. And we're thankful for you for doing that. And we're thankful for you for introducing us to the Environmental Working Group. If you haven't got in their app, they've got a great app where you can look at the ingredients of different skin care products. If you're looking at ingredients on the back of a label of any product, you can just copy and paste it and stick it into the Environmental Working Group website and get all of the science on it. It's a great organization. So many great tools and so many empowering resources. We just actually have to start to use them.

So thank you, Latham Thomas. Thank you, Penelope. It's been great to be with you all today. This is The Evolution of Medicine Summit. This is the pediatric day. Thanks so much for listening. And we'll see you next time!