

Dr. Aysha Akhtar on the End of Animal Testing

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Did you know 90-95 percent of drug and vaccine experiments on animals fail when they reach humans? Why are we still using outdated methods that hinder medical research and cause unnecessary suffering? This episode of the Sentient Media Podcast explores the dark world of animal testing with the incredible Dr. Aysha Akhtar.

Transcript:

Ana Bradley: Welcome to the Sentient Media Podcast, where we meet the people who are changing the way we think about and interact with animals and the world around us. Today, we're covering a topic that's actually very close to my heart. And we're going to be speaking with an incredible person, Dr. Aysha Akhtar, and we're going to look at animal testing. So I say this is an issue that's close to my heart, because it was actually an image of a kitten being tested on in a lab that I saw when I was six years old that sparked my journey into questioning how we treat nonhuman animals. In fact, I made it my mission as a kid to end animal testing. And I used to write letters to laboratories that tested on mice and rats and say, please stop doing it, I will offer myself up instead, I'm a six year old, you can use me. Nobody ever took me up on the offer. And I've stopped writing to them. But anyway, at Sentient Media, we tend to focus on farmed animals. But something that not a lot of people consider is that the test subjects the animals that are used in laboratories are also farmed in really huge numbers, but just not for food. There's a massive industry here in animal testing, many stakeholders and beneficiaries who have it in their interests to keep animal testing very much alive, something that Aysha is very aware of as cofounder, president, and CEO of the Centre for Contemporary Sciences, which is pioneering the transition to replace the use of animals in experimentation with superior human based testing methods. So a little bit more about Aysha, she is a US veteran and a double board certified neurologist, and preventative medicine specialist with a background in public health. Previously, she served as the Deputy Director of the US Army traumatic brain injury programme, developing the Army's brain injury prevention and treatment strategies for soldiers. And as if that wasn't enough for a decade, she was the medical officer of the Food and Drug Administration, and most recently, the Office of Counterterrorism and emerging threats, implementing the studies on vaccine effectiveness and safety, using top secret security clearance to develop national preparedness strategies for public health threats. Which gets me giddy because of the top secretness, but I'm sure it was very serious. She's also a fellow of the Oxford Center for animal ethics and author of two books, *Our Symphony with Animals* and *Animals and Public Health*, and has written a few pieces for Sentient Media as well. Welcome, Aysha, thank you so much for being here today.

Dr. Aysha Akhtar: Thank you so much, Ana. And I have to say you sound like you must have been such a lovely little girl.

Ana: Yeah, I don't know what happened.

Aysha: No, I didn't mean that you changed. But just I love stories of kids who care and so passionately care about what's happening to other animals that they do things like you writing those letters, offering yourself I mean, that's so sweet.

Ana: Yeah, yeah, I guess it's something that comes more naturally to kids. Like, I remember when I saw that picture. And I was just like, going home telling my parents like, what are we doing to these kittens, like what is happening? And then you start to make that connection with what's on your plate, and you're like, wait a minute, this is not okay. This is this is horrific. And I think if anything, we kind of train

children out of that way of thinking. I mean, have you always been kind of like that? Do you have a similar story? Or was it something you came to later in life?

Aysha: So I've always been deeply passionate about animals. When I was a kid, I used to rescue orphan birds and injured animals. And then but my family, we were not vegetarians, we ate animals. And we had our two cats who we loved. It was actually a story about what happened to one cow it was a PETA Magazine that we had received, we never heard of PETA before. We got some some information in the mail from them. And we read about what happened to one cow. In the process of converting her to meat basically, it was heartbreaking. And we had never thought about these issues. And we made the connection with our cats. And we realized there's no difference between this poor little cow and our two cats their ability to feel and their emotional capabilities or lives. And so my family we actually became vegetarian together and then later vegan. And then, this was back in the late 80s, and then once I, you know, became involved, I mean, I started reading everything about it like you I started you know, kind of learning about so many ways in which we exploit animals and that's when I learned about animal experimentation as well. And also with you that you when you mentioned that was such a passion, you know, particular issue for you. This was for me too, because I always knew in one way I was going to go into the biological sciences, I decided I'm going to be a researcher or a doctor, I kind of always knew that. And so when I learned about what people do to animals in the name of research, it hit me doubly, because it also felt like a betrayal to how I really looked up to anyone with a white coat. Basically, I looked up to any scientists and doctor, any researcher, and to think that people could do these things to innocent little animals really hurt me deeply. And so that then, because there are just been so few people who do focus on working on animal testing issues, that's really been the the main passion of mine as well. Although I care about all the issues, Natalie portation. I've written about all as many issues as it possibly can. Animal testing is one that's particularly near and dear to my heart, ending animal testing is near and dear to my heart.

Ana: Yeah, it's funny that you mentioned that you always wanted to be a doctor, or always like working in this space in biological sciences. Like, again, when I was a little kid, I was thinking, I wanted to be a vet and look after animals. And then as I got to about 10, or 11, I realised that you have to go into an abattoir. And you have to do these things that kind of help this animal suffering and be a part of kind of perpetuating that. And I believe there's this kind of, I don't know, there's almost like a bias when we look at people who enter into the medical space because they have to go through these steps in order to, you know, test on animals or prove that they've, you know, are okay with abattoirs, or whatever it is that the by the time you get to the point of running your own research lab, you've already gone through all of these hoops that have to disregard animal lives and animal sentience. Like, did you have to ever have to experiment on an animal in a lab? Like what was your kind of journey there?

Aysha: So I refused to dissect frogs and fetal pigs and other animals when I was in high school. And then I tried to refuse because I was a biology major in college, I did try to refuse to do some experimentation that was required. I almost sued my college. But the fact was, because I chose to be a biology major at the time, it was considered that I was n't going to win the lawsuit against the college because it was my choice to become a doctor or a scientist. So I ended up having to change my major, I still went to medical school, but just as you said, it's kind of this sort of thing that either the more inherently compassionate people are weeded out from the scientific field earlier on, or they become desensitized as they go through the process. And the idea of experimenting on animals becomes normalized and of course, that's the case with every industry, right? Everything that in every way in which we exploit animals, it becomes seen as normalized and that now, it's not only normalized, it's considered by many, not by me by many necessarily for medical research and for progress. And so it's it there is a definitely an education, kind of desensitisation and acceptance of animal testing that occurs within the educational curriculum itself.

Ana: Yeah, that's right. And one thing that I really love about your work and the way is the way that you, like, weave together the stories of human and non human animals together, like your message, it's not them and us, it's all of us together. Could you explain a little bit about how you got to that idea? Like, what sparked that for you?

Aysha: Well, you know, as a doctor, we were never taught to think about our relationships with animals, right? And when you think about this as a whole, we know in medicine, that everything we do, everything, every element in our lives can influence our health and wellbeing I mean, how we eat, as we know, how we work, how we play, how we share resources, how we relate to our environment, so on, but it was we never talked about in the medical field, how our relationships with animals affects our well being. And that was just so glaring, it's such a blind sight on the part of the medical field. So you know, I started using that. That idea about how do our relationships with animals affect us to really explore the many facets and that included not just these animals in fermentation, but factory farming, food, the wildlife trade, for farming, you know, anything you can manage it and basically every it really comes down to This mean, in almost every way we can imagine when we hurt other animals that comes back to hurt us. And so it's really important. I felt that was kind of a key role. For me a key mission was to really highlight that it's not us or the animals, it never has been. It's always us and the other animals, and I'll say other because we are animals too. And you know, what's good for other animals is good for us. And you know, and it's very clear, and I think that, unfortunately, is the message that may change people, when the message about the animal suffering itself is not enough, right? So humans, we tend to be rather self absorbed. And for many of us, the suffering of animals isn't enough to cause any real behavioral change. But hopefully, at least when you know, it's highlighted, that they're suffering, which actually causes our suffering as well, maybe that will push some people more to make some changes that they might not have otherwise.

Ana: Yeah, I think it's a really good point. And I wonder, like, we definitely struggle with this notion, like as a species, we struggle with this idea that how we treat other animals affects us, what you think it is about us that makes us kind of struggle to, you know, to make this connection? And have you throughout your journeys and talking to people and spreading this message? Have you found that most people are receptive to it? Do they kind of go, Huh, yeah, I didn't realize that all of this, you know, exploitation actually hurts us, as well as the animals, other animals?

Aysha: Well, you know, there's a kind of a selection bias in this respect, because the people who come to hear my talks tend to be people who are more willing to hear what I have to say in the first case. So I don't know, I've never been, you know, out talking to an audience that is totally naive to these issues, never thought about them in the first place. For the audience that I have talked with they seem to get it, it makes sense. I think part of the reason why this notion, where this notion comes from, is really getting back to the Western, you know, philosophical landscape in a sense, that really puts humans as the dominant species and above everything else. And so we've really drawn a very rigid, thick line between humans and all other animals. And so that has helped to justify, in many people's minds, just about anything we can think of doing to other animals that you know, there. And we only think about it as what we eat, how we use other animals is benefiting humans. And of course, that is a myth that's been propagated by the industry is exploiting animals, so it's, you know, it's the myth that we need to eat either. It's the myth that we need to experiment on animals, you know, it's the myth, again, and again, when you think about all the different ways in which we use animals, that we need to do these things to animals, or it's better for us to do these things, animals. And so that, that, that feeds into that already Western ideological, philosophical, in cultured kind of way in which we think about us ourselves as a species and every other animal on the planet,

Ana: Exactly where the opposite is actually true, as you have proven. So let's kind of get the lay of the land as it comes to animal testing. Could you tell us a little bit like, what is animal testing? What does it look like? And why do we do it?

Aysha: So if we were to think about why it's been done, animals have been experimented on, they've been cut open, live, sometimes on the public stage live for centuries. And the reason why we did it is because people could do it, right. And it was more acceptable to cut open a screaming dog than it was, of course, to cut open a screaming human. And so that's why we did it. Now, if we think about it, in the beginning, we can say yes, what we saw in other animals was applicable, in general to what we would find in humans, because we're looking at gross anatomy, gross physiology. And so like, you know, yes, the heart beats in the same general way in a dog and a cat in a monkey as it does in humans. But we've moved beyond that stage now in medicine. And we're now looking at subtle nuances and in biology, neuro chemistry, genetic expression. There are so many differences between species in these areas, but that culture in that industry of animal testing remains still. And despite the fact that in so many ways, how we approach medicine has changed, but that culture of using animals, the idea of using animals to try to understand what's happening in humans remains. Yeah. Yes, sir. Oh, no, no, I was gonna go on and describe some of the general ways in which animals are used if you want me to go into that now. Yeah, that'd be okay. Great. Yeah. Yeah. So the best that we can figure out as far as numbers are concerned is that more than 200 million animals were used every year. And that's, that's probably an underestimation. And we don't really know. And the reason why we don't know is most of the countries, which experiment on animals do not provide any transparency or provide very little transparency. And so the top three animal testing countries in the world are actually the U.S., Japan, and China. The U.S. is terrible. In regards to transparency, the Animal Welfare Act, which is the only regulation that it even applies to using animals in experimentation, excludes the majority of animals used. So the majority of animals used in experimentation are not even counted. So we really don't know how many are used, but the best estimate is at least 100 million are used every year.

Ana: The mind boggles on this because I understand that, like mice and rats aren't counted as animals in this Animal Welfare Act. How does that even happen? How is that possible?

Aysha: That happened because there was a every time there's, whenever there was an attempt to include mice and rats, there's a heavy lobbying industry that wanted to maintain animal experimentation, that would argue that, oh, if we had to count mice and rats, because they're the majority of animals used, for example, that would be too laborious, and it would drive up the cost of research, and it would impede medical progress, and blah, blah, blah. So they were very successful, because they had a lot of dollars. So you know, so there's, there's a lot of underhanded stories there. And so, but even I will say, even for the animals, and this is something people don't know, even for the few species, which are covered, and those are mammals. Most mammals, the Animal Welfare Act excludes mice, rats, birds, invertebrates, non mammals, and excludes the use of animals used in agricultural research. Now, for those species, which are covered, the Animal Welfare Act is quite pitiful. It's basically a checklist approach. So if I were running a laboratory, and I have monkeys, or I have, you know, dogs or cats, I have to say, yes, the cage size is a certain size, yes, for dogs, I've got to give them an opportunity to have a little bit of run each day. Yes, I provide food. Yes, I provide water. But and here's the important thing. The Animal Welfare Act provides no limits on what can be done to animals in the name of research, no matter the amount of pain and suffering. So if I want to say that providing food is going to interfere with my study outcome, I don't have to I can starve my dogs, if I want to say that providing pain relief, after I burn pigs is going to, you know, interfere with my study outcomes. I can burn them alive without giving them any pain relief at all. So the Animal Welfare Act, it might well not exist. It's quite pitiful. It truly is.

Ana: What does it do?

Aysha: It just you know, it gives a cover, I would say so people so laboratories can say yes, we comply with the Animal Welfare Act, even though we know so many do not even comply with those few dismal things that they have to comply with. But so, you know, this is what the industry that holds on to defending and experimentation will say, Oh, we have to comply with all the regulations and the animal welfare standards. So it gives them a cover when the animal welfare standards are really meaningless.

Ana: I mean, okay, so this is happening to millions of animals, you know, on a yearly basis. If we can say that actually what comes out of these experiments saves millions of humans, then perhaps there's an argument to be made that it's, you know, there's some suffering of different species to protect our species. But how effective is this testing at getting good drugs and vaccines?

Aysha: So if we were to think about the larger landscape of animals and how they're used, I'll break it down into several categories. So one animals are used in education, they're used to train people in surgical techniques, you don't need to do that, you know, surgeons are being trained in the hospital. And so you don't need to be doing these things to animals. They're still used in educational dissection, high school classes, biology classes, at universities, and so on. The other second category is animals that are used to test for the safety of chemicals. So these are called safety and toxicity testing and household products and cosmetics are under this. So these you can imagine cause a lot of suffering because you're basically just burning their skin alive, pouring chemicals into their eyes, force feeding chemicals, you know, to see how basically, at what level does it take before the animals will die before half of the population of animals die, that's called the LD50, or lethal dose 50 it's terrible. It doesn't tell us anything about what the safety is going to be in humans, or what that level would be in humans, so that's what a lot of people think about when they think of animal testing, right? These are chemical household cosmetic testing. Now cosmetic testing, for the most part, is not as significant of an issue anymore. And it's still even where it is still done on animals, it's still a very, it's a minor part. It's a it's, it's a small part of the overall ways in which animals we use experimentation. Third category then is for drug, drug and vaccine development. So this is where most people also think about how animals are used to test for the safety and effectiveness of drugs and vaccines. This is about maybe about 25 percent of how animals are used in experimentation. And so when people talk about life saving treatments, this is what they think about. They think about, you know, animals are being used to produce life saving treatments. The truth is, like in the United States, the Food and Drug Administration oversees, you know, drugs and vaccines and either approves them or doesn't approve them for use in humans. Now, with rare exception, the FDA, Food and Drug Administration will require all drugs and vaccines to be tested on at least two different species before being tried in humans. But guess what? We now know that 90 to 95 percent of the time, the vaccines and drugs that have been tested on these animals that passed do animal tests end up failing? When tried in humans? Most of them fail because they're ineffective or unsafe for humans? So we can almost say, I mean, I would say we can say, in drug and vaccine development, 90 to 95 percent of the animal tests fail, they do not predict what we're going to see in humans. So why do we even continue to do that? Another concern that we have is that because of that high failure rate, that lack of predictive nature of animal testing, it's very possible that life saving treatments were actually abandoned earlier on in the progress because of results in animals that didn't apply to humans. So treatments that didn't work in animals, for example, might have worked, but were abandoned early on. So we may have truly missed out on life saving treatments. And then if I can just say one last thing. And then the last, the last category, which is really the biggest category for how animals are used, is not drug development, not chemical safety and toxicity testing. It's actually what's called basic research. And this is curiosity driven research. This is research in which I, as the researcher, could capture songbirds from the wild, which one of the universities in the Northwest actually did bring them into the lab to scramble a part of their brain to see how that affects their singing abilities. This is the type of research that's often done in academic centers and is heavily funded by our tax dollars. This is actually where most animals are used in experimentation.

Ana: I didn't know that I probably like a lot of people more pictures, the animals have been used for that, that 25 percent being used for the life saving drugs. I mean, you've just laid down so much information. It's a lot to take in. I guess the kind of resounding question is Well, I have to like one is that number of 90 to 95 percent. For that, you know, for the ones being tested for drugs and vaccines. Is that accepted by the scientific community?

Aysha: I don't know if the whole community but I will say is increasingly being not accepted, and is increasingly, and the reason why is increasingly being non accepted is or the reason why I know that is because there's an increasing momentum in creating more human relevant testing methods that are based on human biology. A lot of people are aware now of that huge failure rate in vaccine and drug development, based not only on animal testing, but as significantly on the effectiveness of animal testing. And so there has been a growing momentum to move away from animal testing, at least in those areas, to replace them with better, more reliable methods. So there, yeah, so the, the answer is yes, among some segments of the scientific community, they are aware that and they're pushing for a change, among other segments of the scientific community, they are either not aware of it, or they are not pushing for change. And I will say, the Food and Drug Administration, although they're aware of that, you know, significant failure rate, they're still very much holding on to the requirements still, every drug and vaccine has to be tested on to other species, because that's what they know. That's what they're used to. That's what they've always done. And that's what they continue to do.

Ana: And so the majority of the animals who are being used in these experiments are being used in like, yeah, like you say, for curiosity, why aren't we hearing that story? Like, why is that something that is kind of news to people? Why don't we talk about this? Or why isn't it part of the of narrative of animal testing?

Aysha: It's hard, I can't tell you how many times I've tried to pitch stories, even trying to get letters to editors, in mainstream media outlets, and just completely ignored them. They're not interested in hearing about the scientific issues about the counter arguments to animal testing, unless it's coming from, you know, animal rights groups, because media loves to pitch it as animal rights groups versus scientists. It's that same old narrative, right? You care about animals, or you care about humans, they're not, they've not been friendly to the idea of other scientists, actually saying, Hey, this is actually animal testing is not the best way to use our dollars to use our resources. Look at all of the animals used in what's called basic research. And it's, you know, and so media, we can't get the message out through mainstream media. So there's social media, and I think, you know, a lot of organizations do try to do that. But it's difficult to get this message out, because we're talking about science, right? And, as you know, the population is kind of scientifically naive. And so there are some complexities and nuances to getting accurate information out. So in that sense, it's a lot more complicated. But yeah, you know, so the scientists who are doing these research, curiosity driven research, of course, they will never call it curiosity driven research, they'll still, and this is what they do on their publications, like the one about the song birds is, is they'll say, oh, this may, this study may lead one day to a cure for Alzheimer's cure for Parkinson's disease care for, you know, dementia of other forms, and so on, and so on. And so they'll always tie something to their research to suggest that it may lead to treatments down the road, even though it's a bunch of people. And we know it, and so, you know, it's so that there's a kind of an entrenched, there's a lot of power. Let's just say there's a lot of power, protecting this industry.

Ana: Do you have any idea how valuable the industry is for that, say the basic research, like, how much tax dollars goes into that?

Aysha: We don't know. Again, this is another thing where we have so little transparency here in the United States. So in the United States, the National Institutes of Health is probably is the single largest funder of biomedical research. And about I guess it was about 10 years ago, there was a some statistic that

suggested that about almost 50 percent of NIH dollars went towards methods that included animal experimentation. exactly the amount we don't know. Right, because NIH isn't going to reveal that information. We don't know how exactly where those dollars are going. We don't know exactly how those animals are used, we don't know exactly, you know, which animals are used and and how many, there's been no indication that that number has changed. And so what that would imply is that about up to half of NIH dollars, our tax dollars are being used upon NIH, which then goes to fund, this type of research is being devoted towards animal experimentation. I suspect, the majority of the other half is being used to fund clinical trials, human trials, because those are very expensive to run is incredibly expensive to run human clinical trials. So the point is, is that it's not like NIH just spending 50 percent on animal testing and 50 percent on human relevant replacements of animal testing. No, it's not like that at all. They're funding most of their pre human clinical trial testing goes towards animal research, their funding goes towards animal research. So that what that means is, so if NIH is \$40 billion a year that they get about 40 billion a year. I think that was their budget this past year. So think about half of that, you know, going towards animal research. Now. That's just NIH, there's the Food and Drug Administration, the Centre for Disease Control, there is the biomedical advanced research, development authorities called BARDA, there is a military, they do a lot of experiments on animals, there is US Department of Agriculture. So you know, and then there's charities, like the Michael J. Fox, Parkinson's Foundation, and you know, American Cancer Society. And so many of these other types of medical charities that people give their money to, that basically gets funneled into a lot of animal experimentation, as well. So we don't know how much is spent on animal experimentation. The United States, it's a lot, that's all I can say.

Ana: Yeah. switching gear a little bit, I don't think we've fully touched on cosmetics directly, like thinking about testing on animals, for cosmetics has always, you know, broken my heart, you know, animals going through these, like horrible tests for, you know, some makeup or bubble bath or whatever. And I'm not the only one. And I think that, you know, Lush and the Body Shop, you know, and other companies like that are doing a lot in that space, kind of showing the futility of testing on animals for cosmetics. Do you have any sense of if animal testing in that area has decreased in the last, you know, 15/20 years?

Aysha: Yes, animal testing definitely has decreased in regards to cosmetic testing. But there have been a couple of changes recently. One is the UK, I believe the UK is now reconsidering bringing back animal testing for cosmetics, which is upsetting a lot of people. It doesn't make sense. It's incredible step backwards. And a lot of companies have to apply with what China's asking for because now China's a huge market for many companies. And so China requires animal testing for cosmetics. They've made some strides in the last year or so. But they still require animal testing for cosmetics.

Ana: I was just gonna say that. I have read that I think it is this year that they are going to remove that stipulation, I believe, but yeah, I don't know if they've achieved it.

Aysha: I haven't heard about them removing all stipulations. They're making some progress for the better because they were even more draconian in the beginning, but now they're, they're heading in the right direction, but they haven't, as far as I know, they're still requiring animal testing for many types of cosmetics and cosmetic ingredients.

Ana: Yeah, it's definitely nice to hear that it's been going down in that space. But yeah, obviously, there's still a lot of work to do. And if the effectiveness of, you know, animal testing for these vaccines and drugs is, you know, what, 5 percent likely that it will be successful, then obviously, there's a lot of work to be done there too. But I wonder if we could chat a little bit about the supply of these animals, like I mentioned in the intro there that something that a lot of people don't consider is how, like in the U.S. you have essentially factory farms for dogs like beagles who are taken to laboratories to be tested on like

yeah, what's your understanding of the supply chain like how these animals are treated from like, you know, birth to death?

Aysha: So yes, there are factory farm-like conditions for the animals raised for laboratory use. Most animals used in laboratories now are bred like this. So that includes mice and rats and rabbits and non human primates and dogs and cats and pigs. And just like with every industry that sees animals is just a commodity. I mean, you assume they're being abused unless proven otherwise. And so the end goal is to put them into a laboratory where they're going to undergo most likely very harmful experimentation. Yes, so there have been some undercover investigations, specifically on factory farm-like breeding facilities for Beagles. And Beagles are the main type of dog used in experimentation, not because they're any closer to humans biologically, which is what people would think, is why they're being used. But because Beagles are being used, mostly because they're very gentle, and trusting creatures, so it makes it easier to manipulate them in the laboratory and easier to experiment on them. Now, non-human primates, I don't know what the number is, how many are still imported. but non-human primates are still being imported from overseas from facilities in Southeast Asia and throughout Asia and parts of Africa. So they're still being captured from the wild there and, you know, placed in just terrible conditions and then shipped into the United States. But non-human primates are also being bred for experimentation as well.

Ana: What about when an animal has been tested on and has gone through their life, you know, in the lab, like, what kind of end do they get to their suffering?

Aysha: It depends on the animal and depends on the situation, for most animals, they're going to get killed. Because what the researchers are going to do is they want to see what biological changes have occurred internally, that resulted in the outcomes that they saw in their study. So they're gonna kill them, they're gonna, you know, take them apart and try to understand some things internally. Or they'll just kill them because they've already been used for one experiment, they're tainted. Now, let's say they were given an infectious disease. They're tainted, they can't be used for another type of experiment, right. So they're killed that way, most of them are killed, many of them undergo repeat experiments, they may be recycled. And this is especially the case with non-human primates and dogs, larger animals that are more expensive to house and to cover. So for researchers that they're going to want to hold on to that investment as long as possible. And I, you know, I'll say investment, quotation marks. So non-human primates will undergo either chronic long term experiments or repeated experiments of one sort or another, so they can undergo a lot, all of these animals undergo so much pain and suffering. A few and this is very rarely, there have been in some cases where some animals after they have been used to a certain degree will be adopted out. And so you'll hear about some organizations that help facilitate that. That's just I mean, that's like a drop in the bucket, though, the number of animals that get adopted out,

Ana: Do you think is the like, is the research space and scientific communit, you say that there are changes and there are strides to towards, you know, non animal testing? But do you feel like you're an outlier? Is what you're doing, accepted by the groups that are still continuing to do animal testing? Do you feel there's a good reception towards your methods?

Aysha: I think I would say that I have a greater reception now than I would have 10 years ago. Without a doubt. I've been fighting animal experimentation for more than 30 years now. And for the first time, I actually have hope. And I really do because there is a change happening within the scientific community. We're not at the tipping point yet, but it is growing. And there have been new methodologies that have been created so much more human relevant testing methods based on human biology, right? Not with the biology of a dog, or a cat or a monkey or a rat, but on humans and that's what makes sense. So now at the Centre for Contemporary sciences, we're finding a lot more people who are willing or open to really talking and partnering with us. But I think there's maybe a selection bias there because I'm not interested in anyone who is going to stand in our way if they're going to be holdouts on maintaining the status quo,

that they're, you know, I'm not even gonna try to work with them, try to convince them try to change them is a waste of my time. A waste of our resources. Why waste the resources that donors have, you know, put their trust in giving to us. And so we just really focus on working with those who want to make the change who are willing to work together to make that change.

Ana: Yeah, you're blazing a trail? And they can they can catch up.

Aysha: That's the idea. Yeah.

Ana: I wonder if you could tell us a little bit more about your Center for Contemporary Sciences? Why did you establish this yourself, instead of joining with, you know, an existing organization? What's driving you there?

Aysha: Is this going to sound arrogant? But I have my vision, I have my vision for how I want to see things done. Listen, I mean, the thing is, is that, you know, we have so many organizations who have been working on these issues, they have so much money. And the fact is, they haven't changed the system. And so, you know, I can try to work within those organizations, but I'm going to be beholden to how they want to do things, and I wanted to give a chance to see if my vision will work. So I co founded the Centre for Contemporary Sciences, and we launched just about a year and a half ago. I know that sounds arrogant, but you know, what, what has been tried hasn't really worked. So well. It worked in cosmetic testing. But again, that's a very small number of animals in comparison, you know, in the overall picture of how many animals are used in experimentation overall. So this is a chance to really see if we can try some different approaches and different ways and and in a sense, kind of start fresh. So the Centre for Contemporary Science doesn't mean our predominant approach is really to work on the scientific ways to replace animal testing. And so what we do is, we partner with many organizations, academic institutions, and others to really educate, provide more education on what these other newer methods can do to change policy to allow for more of these new methods to be used at the FDA. And to one day, we're going to work on changing NIH funding policy so that more of their funding goes towards the development of newer, better methods that will replace animal testing. And so that, you know, we've got some different approaches that I think are a bit unique. And this is really about moving the needle really towards creating, developing, creating, improving, and using more effective methods that are really going to make this a win win for humans and animals. And so it's our goal is really to create this ecosystem with a larger ecosystem that fosters this change in science, foster the change in funding, foster a change in policy, all to kind of elevate and increase the use and discovery of better methods of testing.

Ana: Yeah, I don't think it's arrogant at all, for you to say that you needed to set that up. I think it's super necessary, incredibly important work that you're doing, and it doesn't exist out there. So you're doing the exact the right thing. I wonder, we don't have like too long left. But I wonder if you could explain a little bit, you mentioned doing superior human based testing methods. What exactly is a superior human based testing method? Could you give us a bit of insider info?

Aysha: Yeah, so one, one that a lot of people are, you know, will probably hear about, or what's called 'organ on a chip' technology. And that was sort of, I guess, invented, discovered, created around 10/15 years ago, and it's now really taking hold in a lot of academic institutions. Prince Charles, I think, just funded a major endeavor in the UK now on this technology. So it's really garnering a lot of enthusiasm. It needs more funding, though, and there's always room for improvement, without a doubt, but it needs more funding. But basically, you're capturing human tissues, and you're capturing human tissues on microchips. That's why it's called 'human organ on a chip'. And you're creating three dimensional structures of an organ that captures a significant component of an organ. So for example, if I were to create a human lung on a chip, a human lung on a chip actually can breathe like a real human lung. I

mean, it's component of the human lung on a chip is a human kidney on a chip, heart on a chip or brain on a chip mini brain.

Ana: Are these like physical things, or is this like a, like a computer programme,

Aysha: These are physical entities, and they're often combined with artificial intelligence, or what people calling smart, I guess, smart machine learning or something, I'm probably butchering the terminology. But these are physical chips. And they're human tissues that are grown. The reason why they're so exciting is because you're step up from the traditional, what's called in vitro testing methods that were of the older days, and in a sense, and not that those still don't have a place, but these three dimensional chips are these are three dimensional, as opposed to two dimensional constructs. So they're much more faithful to the actual human organ. So now there's human bodies on a chip. Now, you can kind of pretty much connect a multitude of many different human organs and through a system in which you can see how a drug works through many of these organs, and so on. Now, this is just one kind of method. There's also many human organs grown in the lab. Now, I suspect, we're going to get to the point where we can actually grow human organs in the lab. That will be the how we, what we use for, you know, transplants, which would be good news for pigs, which are used a lot now for human organ transplants. Now, one of the things besides the fact that these are human biology, these are human tissues. And these are, this is human biology. The other wonderful things about some of this technology is that we can actually at some point, we're going to get to the point where we can conduct clinical trials, human clinical trials in the lab, meaning one day, and there's going to be an like an Ana version of a human organ on a chip and an Aysha version of a human organ chip. And someone that represents the 50 year old, white, Caucasian, you know, the white male, like my husband, someone who represents an elderly Pakistani female, like my mom, you know, someone who represents a young boy in South Africa, right, because we know there's so many differences even within our human population. So we can capture tissues from diverse, you know, from a diverse population. And we will be able to one day run actual clinical trials in the lab before we get to live humans, before we get to that final stage. And so that's going to significantly improve the drug development process. Make it so much safer for people to enrol in clinical trials. And then on top of that, we're also going to embark on an era of what's called personalised medicine. So Ana, if you were if, let's say, if I were to get breast cancer, tomorrow, a drug that might have worked for someone else for their breast cancer may not necessarily work for me or may not necessarily be right for me. So there's going to be a point when my tissues in these types of organ systems and other types of methodologies can be screened against the drug. So people, researchers and clinicians will one day get to a point to see if a drug or vaccine is going to work in my biology. So that's going to be personalized medicine. And when you think about that, where does a rat have a role in this, we're getting to that kind of fine detail where we're now seeing that what may be safe in you, and effective in you may not be safe in practice in me, how does an animal play a role in that in that equation? So this is some of the wonderful things that are coming out that these new technologies can do, because they are based on human biology.

Ana: I mean, that's definitely a future that sounds incredible. It also sounds expensive at this stage. Like is what you're doing in your Center? Is it something that is scalable? Is it something that labs are actually going to be able to use based on their current, you know, finances?

Aysha: Yeah, so we, you know, I just want to say we don't create these technologies as an organization. So we help create an ecosystem basically, that furthers these technologies and allows for their greater use, but some of its already some of this personalised medicine is actually already being done on a smaller scale with some companies with some countries. But it hasn't reached, you know, a large scale endeavour and that's probably something that's happening going to happen more within let's say, the next 20 years. And when we get to that point, but like everything, it's always more costly in the beginning. And then once you get the process down, and you can you can scale things much more easily. And then you

educate scientists and doctors of how to use these things. And then it becomes, you know, the default. And that's where we're heading.

Ana: This might be a totally incorrect assumption, but you know how like cultured meat cell based meat is made? Is that like a similar process to how we're creating these like organs?

Aysha: Well, I will say, I don't know exactly all the process behind the cultured meat. But I will say that the technology, the basic technology came out from the medical research side, because it was the the need to create these three dimensional structures, human biological structures in the lab, that is facilitating the development of cultured meat.

Ana: Makes a lot of sense. Amazing. Okay. So I want to just kind of bring this back to you an article that you wrote for us in June this year, about a new bill, that you were writing that could phase out animal testing for good. Could you just shed a little bit of light on that bill? And perhaps if you know what the status is now?

Aysha: Was that the FDA Modernization Act? Or is that a different one? Okay, the FDA Modernization Act? Okay. Yeah, so I'm very proud. You know, in only 14 years, we helped we were the scientific community behind this new bill is called the FDA Modernization Act of 2021. And it was just recently introduced into the Senate in October, I was at the press event, and it was, you know, it was great to see the senators very excited about this new bill. So it's a bipartisan bill. Cory Booker, on the Democratic is the Democratic lead, Rand Paul, is a Republican, the Republican lead. And there's a lot of you know, you know, it's funny to try to get Republicans and Democrats who have such opposing views on so many things, to get along with this, but they did. But basically, what this bill does, is that it goes back to an original statute that was created in 1938, we basically set up what the FDA is today. And in that 1938 statute, because animal testing was all that was known at the time, it required all drugs to be tested like that. And so what we've done is we've gone back to that statute and just changed the word 'animal' to 'non clinical', non clinical means non, in this case, non human. So basically, what that means is that it just allows, if it passes, this bill will allow for the use of other types of testing methods, it doesn't take away animal testing, because if we tried to do that right now, it will never pass. But it starts to pave the way for more and more drug companies to start using, like organ on a chip technology and other arguably, more effective methods that are based on human biology.

Ana: So awesome, congratulations on that. Thank you. Very quick follow up question that I forgot to ask before about the about the organ on a chip and these kinds of tests, are they? I know the answer, but are they more effective? You know, the if the animal laboratory tests are, you know, 90 to 95 percent ineffective? Are these human centered ones, are they like, what's their success rate? Do we know?

Aysha: We don't know. Because they haven't really there haven't been any real significant studies yet. And they're not being used in place of animal testing currently, because the the regulatory lead the policies don't allow these testing methods to be used in place of animal testing. It's weird, right? Because so when I was at the FDA, I remember my office funded the development of some organ on a chip technology, because we knew the animal testing was problematic. So we funded some organ on a chip technology. But guess what, the developers had to prove, validate their method against the animal testing. The animal testing was so problematic in the first place, why are you validating something against something that's already bad. Isn't the point, shouldn't it be validated against what we're going to expect to find in humans, you know, and so it's a completely messed up way in which the regulatory agencies are getting about this. But what I will say is, how can you be worse than 90 to 95 percent failure rate, so it can only get better, so the studies are starting to come out. And there have been enough studies at least that show that oftentimes the organ on chip technology have found safety problems at the animal tests did not or they were able to show effectiveness that the animal test did not effectiveness in humans that the

animal test did not, but there hasn't been any systematic evaluation because the data is still too new. And there isn't enough yet. But that's something that we're starting to compile so that we can have that information on our website.

Ana: Mm hmm. Yeah, that's, that's really cool. And, okay, finally, if it's our tax dollars, you know, that are going towards supporting this kind of industry, the animal testing industry, like, what can we as individuals do to help mitigate that? How can we change our behavior, or what can we do to make it better?

Aysha: So much of it is our tax dollars and the government's really the biggest single funder of animal experimentation. So if you stay tuned, follow us on our social media, we're going to be actually be hosting some ways that you can contact or send a letter to your Senator, or Congress person to let them know that you want them to pass the FDA Modernization Act. So please follow us we're we're kind of working on some website changes so that template will be up at some point. So people can directly contact their representative. That's one thing you can do, you can follow us share social media posts that we put out, educate people, people just don't know about these issues, please do so. And then the other thing is, you know, I know it's a bit of a work, I do recognise this when you write to to write to your congressperson, and to find out, you know, where to send a letter or something, I think there are some easily accessible platforms now, online where you can find out who your representative is, if you don't know, and how to contact that person if their email and just send them a quick email if you can, and just say, please do what you can to, you know, put less funding governmental funding into animal experimentation, you can just put that note, that little one quick liner, they're not gonna care about this long message. They don't want to read a long message. All they want to know is how do you vote? Yes, for animal testing, no, for animal testing. That's basically it. That's what they're going to calculate. And so the more emails or phone calls, they get like this, the more they see that the public cares about these issues.

Ana: Amazing. Thank you so so, so much for your time today. It's been really enlightening. I've definitely learned a lot from you, as I always do when I listen to you or read your work. Yeah, it's been a pleasure to talk with you today.

Aysha: Thank you so much, Ana. I'm always so grateful to be able to talk about these issues, as we talked about earlier. Not many media sources will want to talk about these issues. And that's that's a crime in so many respects. So I'm really grateful to Sentient Media for doing this.