S4, #18 Dr Sarah Lensen: Trying to conceive – the truth about IVF add-ons

Joyce Harper (00:22)
Today I am doing a podcast that is long, long overdue. I'm talking to Dr. Sarah Lenson about trying to conceive the truth about IVF add-ons. Sarah is a senior research fellow in the department of obstetrics and gynecology and newborn health at the University of Melbourne. And for many, many years, she has had an interest in women's health, particularly around evidence-based medicine. She does a lot with a group called the Cochrane Group and they have a journal which is dedicated to what we call systematic reviews, which we will explain in the podcast of evidence-based medicine. And she is involved, she's co-lead of the Cochrane Gynaecology and Fertility Group. So we start this podcast by explaining what evidence-based research is and about randomized control trial and the systematic analysis and the difference between cause and effect.

So we hope that's going to be really useful. I have started other podcasts like that as well. I think it's just so important to learn. But then we go into IVF add-ons and we get quite controversial. And something that came up during the podcast was realizing that we should run some debates around these topics because people don't agree. Some of my friends, long-term friends and I don't agree about the evidence and how we interpret the evidence of IVF add-ons. But Sarah and I agree that we stick to the official rules, regulations, guidance from society such as Eshera and Her Group in Australia and the HFEA, et cetera. So it's going to be a great podcast. Hope you learn something, but I'd love to hear your view about what we discuss in this podcast today. Enjoy.

Joyce Harper (02:11)
Welcome, Sarah.

Sarah (02:12)
Hi Joyce.

Joyce Harper (02:14)
It's gonna be really great to talk to you today about IVF add-ons. And this is a topic that one of those podcasts I think, why didn't I do this before? Why is it taking me four years to do a podcast about I IVF add-ons? Anyway, let's first talk about your career. What led you to want to work on fertility, especially evidence based treatments?

Sarah (02:37)
Sure, well, I guess I actually kind of fell into it because during my undergrad I became really interested in the randomized control trial as a design. Like I just love the simplicity, the purity, but the power of randomization and how you know, how much power that can give you to answer research questions. And it was when I was moving from Australia back to New Zealand that I wanted to get more involved in and studying randomized controlled trials and the Cochrane collaboration's an obvious kind of place to go. And in New Zealand, the Cochrane, the main Cochrane group we have there is obstetrics, gynecology and fertility. So that's how I kind of fell into the to the field. you know, ten years ago now or whatever it was. But yeah, I I'm really enjoying it.

Joyce Harper (03:27)
Brilliant. Can you explain in simple terms what a randomized control trial is?

Sarah (03:35)
Sure. So it's a type of research study when you want to test whether an intervention has some kind of health outcome. So instead of just kind of like watching what patients or people are are doing and they're picking their own interventions and then measuring what happens, you kind of experiment on people and and individual people get randomly allocated like flipping a coin or rolling a dice, it's random to either have the new intervention that you're studying or to have some kind of control or placebo group. And the power of it is that when you look at the outcomes, so say in our fertility space, we might we might randomize people to, you know, a new IVF add on when they're having IVF, so they either have the new add on or they don't. And then we follow them up and see if they get pregnant and have a baby from IVF. And because we've done it as an experiment, we know when we look at the outcomes, if there's a difference in the two groups in the number of babies born, for example, we know whether it was caused by the intervention or not. Whereas in kind of observational research where you're just, you know, let people choose if they want to have the add on or not and then follow them up, you get into lots of kind of statistical problems in terms of things like confounding, which is a bit complicated, but basically it just means you never really know for sure if it was the add on that made the difference or something about the people who chose to have the add on. so the randomization really helps you to still down what the true effect of that intervention is.

Joyce Harper (05:06)
And we're going to talk a little bit about misinformation at the end, but I think while we're explaining the research, I think it's really good. And I have done this as well on several other podcasts, including one with Lauren in January, we talked a a a bit about the different types of research, but let's just go in a little bit more now. So you mentioned the observational studies. So if people on social media are talking about observational studies, they as you said, they're really not as powerful because they can be so many different confounders.

So say for example, I think Annis Makagi just put a reel on today and she talked, she was explaining this and she was saying, it's like saying ice cream can cause skin cancer, but maybe people who are s eating ice cream are spending more time outside, so then they're exposed to

Sarah (05:52)
Yeah.

Joyce Harper (05:52)
the sun more. So it's that difference between just observing those things and that yes, you can observe the same endpoint. So in IVF you can observe, did they get pregnant or not?

But there are so many different things that you can see there about people that eat ice cream, people that don't eat ice cream, and and in any clinical study, whether it's IVF or not, you can see if you're just observing people, it's going to be very different than a randomized controlled trial. So anything else you wanted to add to that

Sarah (06:20)
Yeah.

Joyce Harper (06:20)
to make it clearer?

Sarah (06:22)
I think that's right. So in in those observational studies you can establish an what we call an association. So in your ice cream example, there's an association between ice cream eating and skin cancer. As ice cream eating goes up, the incidence of skin cancer goes up. That's an association. But the what the randomization does, it allows you to tell it allows the researchers to know if that association is a causal relationship. If the ice cream caused the increase in skin cancer. And so, you know, if you did do a randomized control trial where you randomise people to eat ice cream or not, then you wouldn't see that effect that was observed in in your hypothetical observational study because it's not an actual causal relationship. We you know, in in in in your example it's actually this the sun exposure that's causing the increase in skin cancer.

Joyce Harper (07:17)
Brilliant, you said all the buzzwords there. Now you mentioned the Cochrane, and you've done loads of brilliant work for Cochrane, but most people listening are not going to know what Cochrane is. But explain to us about when we've done these randomized controlled trials, explain to us what we can do with those and what the what the Cochrane does and a little bit about the Cochrane.

Sarah (07:37)
Yeah, so Cochrane or the Cochrane Collaboration is a global not for profit organization that aims to bring together all of the relevant evidence for specific research questions or specific, you know, health conditions into one place, critically appraise it and then kind of give an over and overall answer. So we you know, there's lots of people all around the world, for example, testing the different IVF add-ons that exist.

And there might be one study published about time lapse technology in Australia and then another study comes out of India the next year and then another study on time lapse comes out of the UK. And those individual studies are important on their own, but it's even better to bring them all together into one place, what we call a systematic review. Bring them all together, combine them statistically if we can, and give like one kind of overall answer in terms of what's all of the evidence about this add on time lapse or whatever it is, what is what does all the evidence say when it's put together. So that's what we we specialize in at Cochrane is having really good methods to search for all those studies, to critically appraise them so we know, you know, where there might be bias creeping in, to statistically join them together and to and to do something that we

call grading the evidence, which is kind of trying to decide how much we we trust it or how reliable the findings are so yeah, we're a big global group, so I I'm co-lead of the Cochrane Gynecology and Fertility Group. But there's a Cochrane group for every health condition that you can imagine. And we all publish lots of these reviews of different interventions. So anything, you know, asthma, dementia, cancer, stroke, you know, any condition that you might be interested in, there's probably a Cochrane review about it.

Joyce Harper (09:25)
So this is really important because we talk in in science about a pyramid of evidence-based medicine. So at the bottom, you've got things like case supports and cohort studies and the observational studies, and then the top two are the randomized controlled trial that you mentioned, and then the systematic review that you mentioned. So the systematic review, as you said, it's the it's the creme de la creme. But we when people read these papers, they also have to take in account, as you said.

That some of the evidence, some of the studies are are low quality. Unfortunately, most of the studies are low quality. there are they're not perfect, they're published studies, but they're not necessarily perfect. and the Cochrane Review will make that clear whether the evidence is low quality, medium quality, or high quality. So that that's just such important work, isn't it?

Sarah (10:16)
Yeah, that's exactly right. And I think in the lay public, you o like a lot of people on the street sort of think, it's been peer reviewed, that that's the marker of quality, has it been peer reviewed? But Joyce and I will tell you that a lot of our peers, our so called peers, like they're not capable of doing, you know, thorough expert quality reviews of papers. So just being peer reviewed these days, it doesn't it doesn't mean that much.

Joyce Harper (10:44)
I I saw a woman did a reel the other day. I won't say what it was about, but she she said, My paper's just come out and it's so important. It has been peer-reviewed, then it took a year or something. And I was like, it's so that she was sort of trying to sell it that. it was so robust. They took such a long time and they really detailed peer review. That is not a good advert. That just means the journal. Yeah.

Sarah (11:08)
Yeah. Like it only just scraped in.

Yeah.

Joyce Harper (11:11)
Or the or the journal just wasn't very good at getting the reviews and it took a long time. I've had some papers that literally people were on holiday and then the referee forgot and blah, blah, blah, blah, blah. And yeah, so as we've said, having a peer reviewed paper does not mean it's a high quality piece of research. So I think we've we sort of covered the nuts and bolts there, so that's that's so, so important. And you and I and

many others are trying to get these messages out about published research. Let's talk about the IVF add-ons. So what what is what is an IVF add-on?

Sarah (11:46)
Hmm. So what I think an add-on is, and I think it is a little bit grey, but really it's anything that's optional and not necessary to the kind of standard process of IVF. So something that's added on, hence the name. usually it's used or, you know, used by patients or recommended by the clinic with the with the the aim or the claim that it's going to increase the chance of success in some way and also because it is something extra, it usually costs patients extra as well. So that's the kind of broad definition. It could be anything. It can be s extra medicines the doctor might recommend that you don't strictly need as part of an IVF cycle. It could be an extra procedure that the doctor that the IVF doctor wants to perform. It can be extra stuff that happens in the IVF laboratory, whether it's, you know, dipping the embryo in an extra solution or manipulating the the eggs, the sperm or the embryo in some way that's not kind of strictly necessary. It can be even things that patients access out in the community, like complementary or alternative therapies, acupuncture, extra supplements, even, you know, special diets that are people are, you know, that we hear people kind of recommending to each other specifically for IVF could be considered an add on.

Joyce Harper (13:11)
That is brilliant and exactly the same as I say. That's the that was almost word for word what I say.

Sarah (13:17)
Yeah, right.

Joyce Harper (13:18)
So for me, I think that's pretty straightforward. But other people, I see so many people say, well, the difficult thing is defining what an add-on is. But Sarah, you and I would say exactly the same. So I I think I think it's clear.

Sarah (13:30)
I think it just gets like grey when you know, something like time lapse, which we I mentioned before where it's a special incubator that the embryos are growing in that takes a photo of the embryos all the time. And at some clinics they might charge patients for their for their embryos to go in the time lapse instead of the normal incubator. It might be something the patients decide whether they want to do, so it is an option and it might be something they paid for.

Whereas at the clinic next door, maybe all their incubators are time lapse incubators and they don't even tell the patient that they they have to use some incubator. So that's the one they chose. The staff like it better. The patients don't even know. The patients aren't being charged more for it. That's when, you know, it gets a bit blurry. Maybe at one clinic it's an add on and the other clinic it's not an add on. so I think there are some kind of grey areas, but I think by and large it's pretty obvious what is and isn't an add on.

Joyce Harper (14:28)
Yeah, here, here, totally. So I was involved with the Human Fertilization and Embryology Authority, who are the governing body of fertility treatment in the UK. And quite a few years ago now, we set up a traffic light system. So looking at all the evidence and the Cochrane reviews and the randomized control trials that you've mentioned, we looked at we didn't do many, we looked at a handful, I think it was about 10 at the time of add-ons, and we looked at all the evidence that had been done for these.

And we rated them green if we felt that all the studies or the studies showed overall, like the Cochran view, that it did benefit the patient. So ideally improve life birth rate for IVF. then there was amber if the evidence was not quite positive or negative. And then it was red if there was either no studies done at all or if the studies showed that it didn't improve live birth rate.

And for me that was really straightforward. And then but what the discussion was was that, well, if it's green, then some people are saying then it's not an add-on anymore. But according to your and my definition, it's still an add-on because it's optional and it's something that most clinics will charge for because it's optional and it's extra. So for me, I felt that if it went green.

If there were studies that came out and said it went green, yep, we've got the evidence now. It but it can still be on the add on list. So I I I didn't I found that a little bit but yeah, it people have these odd views about add ons, don't they?

Sarah (16:03)
I agree with you. I think there are possibly some you know, like strategies or techniques where if there was overwhelming evidence, say like fresh versus frozen transfer or something like that, if there was overwhelming evidence that one of those was better than the other and everyone in the world kind of switched to only doing, for example, frozen transfers, then maybe it wouldn't really be an add on because no one's really choosing, it's always the same thing that's happening. Whereas for a lot of these things they they might also come with some risk of harm or cost. So that even when there is established benefit, there's still downsides and so will still be something that different patients choose to have or not have. And so I think a lot of the time, even which we don't we'll get to, but we don't really have we're never really in this situation anyway. But if there was overwhelming evidence of one of the add ons being beneficial, it wouldn't necessarily become like routine for everyone and and not like a decision point anymore.

Joyce Harper (17:02)
Yeah, that's a good that's a good argument. Maybe at some point in the future, it's so routine and so embedded that it wouldn't be an option and a paid ex option. But as you said, we just haven't got to that stage. So I can see long term certain things would move and become established. But as you said, we're not there. we'll come back to the technique pre-implantation genetic testing for aneuploidy, which I think I need to do a special podcast about. And I think I might

Sarah (17:31)

Yes. I think that needs a whole podcast or two.

Joyce Harper (17:31)
Controversially. Yeah, that is a whole point. And I think what I might do is do it as a discussion. Get someone who's really for it, someone who's really against it, and and and I'll I'll referee. I'll referee in the middle. So I think that that will be

Sarah (17:45)
Yes, gosh.

Joyce Harper (17:46)
one for next year that I'll add on my list. But we'll come back to that in a little bit more detail later. But that is one of the add-ons where in many clinics in many countries, it's just routine now, it's just embedded, which Is really bad because the HFEA have said that this actually reduces the chance of you getting pregnant, as all the data shows. So, anyway, anyway, we'll come back to that one. Now let's talk about your work. So, as you said, you've been working on this for years and years now, and you've set up a new website called Evidence-based IVF. Why was it important for you to do this?

Sarah (18:25)
Yeah, so that's right. I've been working in the area of add-ons for a long time and we've done a lot of Cochrane reviews summarizing the evidence and you know, a lot of the time concluding there's no evidence this helps. And that term that no evidence is a little bit tricky because it can mean two things really. It can mean we have evidence that this doesn't help. So we know what's going on. We we have good evidence and it doesn't look like this add on makes a difference. Sometimes you're in that situation. More often we're basically saying we have no idea. There's no evidence i in any direction. There's almost no evidence. The evidence we have is really low quality, really small numbers, lots of risk of bias, or for whatever reason we just don't trust it. and I think just seeing the proliferation of these add ons that are available. I mean, we were talking before, maybe before you were recording that when ESHRE, the big European society for human reproduction and embryology, like the big IVF Society in Europe was looking at the evidence for add-ons. I think they reviewed 40 different add-ons. So there is just this crazy number of extra things that patients have to think about. and so we wanted to make a resource to really help patients, you know, in that decision making. We've seen that the existing information sources that patients tell us they use, IVF clinic websites and social media, fall far below what w you know, what we might set as a standard of a good evidence-based level of information. They're always overpromising, overclaiming, marketing language, you know, and kind of marketing spin about how this clinic uses this treatment and come here, we're we're at the front of the curve kind of thing. and patients are much more likely to share positive stories online about using add-ons than negative. So you get these kind of skewed everywhere the patients are looking, they're getting these skewed, a skewed sense of the true effect of these treatments. So we wanted to make a resource for patients somewhere they can go. It's trusted, evidence based information, paid for by the Australian government. There's no commercial interests, you know, no skin in the game from our side. We just want people to have the facts. so that was kind of our motivation to to take all everything we're doing in

Cochrane and like spit it out into a resource that that's for patients, something they can understand and use for their decision making.

Joyce Harper (20:49)
And and it's so important. So the HFEA traffic light system, which is a little bit more complicated now, it's got grey and black. since I I was involved with with helping create it. But it is it is patient facing, but I think having another one and having one from Australia adds really important clarity to this. So you mentioned the Eshera guideline. So I was involved with writing that, but it

It's it's a it's an article, so it's not we never did anything for for patients, which we should have done maybe. And as you said, we looked at over 40. and that is a really big list, and it was controversial, and it took a long time for us all to get agreement. So I think the beauty of what you've done is that it's patient-facing, it's for the patients to try and help them navigate this. What I think's really sad is that we actually are in this situation.

So in the UK, we are governed by the HFEA, as I said. And the HFEA, it I think it's a real shame. I mean, it's it's not their fault. It's just the way they're a government set up body and they have restrictions about what they can do. But they can if they get a new procedure that comes into them, they can either approve it or disapprove it. so so so you can use it or say we can't use it. And to say you can't use it.

There's got to be evidence around safety, etc. So if a new technique comes in, my view is we need to only let it be used under a research license. So it's only specific clinics that use it, and they're using it to gain evidence, like doing a randomized control trial, doing proper research to see if this procedure works or not. Then, if the evidence showed that this procedure was beneficial to the fertility patient then it could go on the approved list. But that's not happened. So now we've got this real mess globally where there's all these procedures, over 40 of them, that are out there being offered and marketed in a really clever way to vulnerable people going through IVF. I've been through IVF. I know you'll do whatever your doctor says if they said, right, do this, stand in a corner for half an hour a day with a pint of milk on your head, you know, you'd you do it.

if you thought it might improve your chance of getting pregnant and pay me a thousand pounds for the privilege. Okay, I'll do it, I'll do it.

I'll do

Sarah (23:17)
Mm.

Joyce Harper (23:18)
you know, you feel so I I think what you have done, and and you mentioned that you've done the work looking at how Australian fertility clinics market these things, and we've done the work on the UK clinics. So I think it's so important having this. Now on your

website, you've got three separate categories. So you've got pregnancy, life birth, and miscarriage.

Can you explain a bit more why these are so important for the patients?

Sarah (23:46)
Sure, yeah. So for every add-on we look at, we have those outcomes at a minimum. and we chose them in, you know, in collaboration with our our patient collaborators because the website was produced by our research team, but we had a big group of patients helping us design it and also people working in the IBF clinic, doctors and embryologists and stuff. and those are the three outcomes that really came out as being most important.

Obviously the goal of IVF for everyone is to have a baby. So that is the kind of primary focus. that's something we focus on at Cochrane and like a most of the time good randomized controls, for example, they'll say our primary outcome, the outcome that we really care about the most in the study is live birth. but for for lots of different reasons, lots of research doesn't publish live birth. So lots of studies get done and, you know, they don't follow pa they follow up patients for their first pregnancy scan and then patients discharge out of the clinic and then see you later and they don't follow them up to find out if they had their baby or not. So lots of studies get published and they only have pregnancy data. So that's kind of like the second best outcome to include. And we include it so that we have more more numbers to use to look at because otherwise we'll lose maybe half the studies. On average don't have live birth data. And then miscarriage is another really important outcome for patients having a miscarriage is really devastating event. And so you know you already mentioned PGTA before, but that's something that PGTA aims to to reduce the chance of miscarriage. And if that's all it does, patients will want it because especially patients who've had a miscarriage before, they tell us, you know, I'll do anything to kind of reduce my chance of having that again. That was really, really awful. So that's why we landed on those three outcomes at a minimum. We also have for PGTA. You can't really get a away with not talking about PGTA. You're talking about add-ons. for PGTA we and some of the other our outcomes that we will add some of the other add-ons that we might add soon. We also have the cumulative outcomes. So it's a little bit complicated, but you know, when when people are having an IVF cycle, they often get multiple embryos or if they're lucky they get multiple embryos. And you can either just look at the outcome of one single embryo transfer, did it work or not?

Well, sometimes it's really important that you actually look at what happens across the whole IVF cycle. Did the person get pregnant and have a baby or not? Once I've looked at every embryo transfer from that cycle. And that's called the cumulative outcomes across the whole cycle. And that we look at those outcomes for add ons where it really matters, like PGTA, because PGTA kind of tells tells the the IVF team like, don't transfer that embryo, that embryo has a chromosome problem and so it's important that we look at what happens to the whole IVF cycle in case they're you know, excluding embryos that they could have actually had reproductive potential. So live birth, clinical

pregnancy and miscarriage and then sometimes cumulative live birth, cumulative clinical pregnancy and cumulative miscarriage as well.

Joyce Harper (26:51)
Yeah, you've explained that really well. I know it's a lot for patients to take on, but in my experience, and thousands of IVF patients I've talked to, they they are clued up with all these words and this how how all this works together. I'm gonna do come quite we will come back a little bit more to PGTA because it drives us both mad. But before we do that,

Sarah (27:11)
Mm.

Joyce Harper (27:12)
how did you decide which add-ons to look at? You said you're gonna add some more, and it is a lot of work. And I mentioned that HFA, I think we did 10.

I think they've got about thirteen on their website now, I'm not quite sure. And with ESHRE, we looked at over forty. How many add-ons have you got your website now? And and and you said you're gonna look at some more. So how did you decide the first batch?

Sarah (27:33)
So we when we launched in April twenty twenty five we had ten. I think we have thirteen now. I need to double check. And we will keep expanding it. But like you mentioned, it really is a lot of work because it's once we've done once we've kind of put the ad on on the website, then we s we set the timer and six months later we come back and we search for new studies and if we have them, well, then we have to go through this kind of long process of adding that into the evidence and updating the website. So

We we will keep expanding and I think we just added natra kill natural killer cell testing last week. and which was kind of an easy one 'cause there were no trials.

Joyce Harper (28:13)
No.

Sarah (28:13)
We still had to do the big search though. and then yeah, soon we'll be adding heparin, with blood thinners and we've had lots of requests for things like coco ten, melatonin supplements, nicotinamide, all of that stuff's really big on social media at the moment. So I think we're gonna start focusing a lot on on some of those supplements that are getting discussed a lot. So the original ten was decided by a mixture of like what's popular, what a patient's asking about, and also where is their potential for harm that we don't want to leave unaddressed. So that's how we kind of landed on the on the initial ten that we what that we listed. But we we will keep expanding it over time and we're really happy to hear

Suggestions for what we should and shouldn't kind of address on there.

Joyce Harper (29:03)
Yeah, it i it is a lot of work. And I mean help with HIVN ESHRE, it's it's a huge amount of work. and yeah, those the the supplements you mentioned, that's so hot for me because I've we've just submitted two papers looking at what's in female fertility supplements and then also how they're being marketed. And yeah, I won't I won't tell you the results yet, but it's it's shocking. It's a bit of a shock.

Sarah (29:28)
Mm. I can guess,

I'm sure.

Joyce Harper (29:30)
It actually the fertility supplements weren't as bad as the menopause supplements. We've done the same study on menopause supplements. Much, much worse. Menopause supplements really, you know, anyway, that's another that's another story of the supplements. I'll do more about that

Sarah (29:42)
Yeah.

Joyce Harper (29:42)
next year. can I ask, I haven't sat down and compared the Eshera list, your list, and the HFEA list. Do we all say the same thing? Or basically the same thing, or did we come to any different conclusions?

Sarah (29:57)
Yeah, more or less. Not not really. I mean, so the HFEA takes a slightly different approach to us that we only look at evidence from randomized controlled trials and we spoke about why at the start. and it's also a big kind of can of worms to open, but there's this new there's a an increasing concern, I guess, about trustworthiness in research that we've been encountering. And so we've been really strict more recently with really double checking that all the research we include is kind of passing these trustworthiness thresholds that we really believe that the study took place and that the conclusions are reliable. So we have a different scope, I guess, compared to the HFEA and same with ESHRE, I'm pretty sure when you were doing that process you included systematic reviews and if the systematic reviews included observational studies, well they got put in it too which was something I commented about in my feedback to the guideline, but we we won't go there. So we've just focused on RCTs. and so that's why for some of the responses for some of the I think for example the endometrial receptivity arrays, kinda testing my memory, I should look it up. The HFEA rates that is read, that there's a signal of possible harm, and that's based on observational data.

And so we haven't said that. We have said it doesn't look like it makes a difference. We have a different category system. We don't use traffic lights. We say doesn't we say no difference. Unclear or possible benefit or possible harm. So we have slightly

Joyce Harper (31:36)
Yeah, that's a

Sarah (31:37)
different systems. So there are some discrepancies, but I know why they're there and it's sort of just because we have we have a different approach.

Joyce Harper (31:46)
Yeah, no, that and that's really important to say. Now, I can tell you why in the HFEA and Escher, we did include the other studies. It's because we were being criticized so much of people saying maybe we shouldn't listen to what people say. and people but people were saying that, but there's some observational studies that are useful. So we really try to trawl through them all, and try to sift through. But as as you said, even a randomized controlled trial can be low quality.

But I I think it's so important for you to have done this in a different way, slightly different way. And yours is much cleaner. So, in my view, yours is definitely the cleanest of the data and very much needed. So I'm really glad about that. So let's let's talk about some of them. So we mentioned PGTA a few times. Can you just in in a nutshell explain? I mean, I could do it, but I want you to do it.

What PGTA is and what you feel about it.

Sarah (32:51)
Sure. So PGTA or pre-implantation genetic testing for aneuploidy is a is an add-on where you can test your embryos to see if they appear to have like the normal number of chromosomes. So what happens is the embryo, when it's five days old, a biopsy is taken from the shell of the embryo.

And maybe five to ten cells are taken from an embryo that has what, 150 or something? and that little biopsy gets sent away and tested to see how many chromosomes is in each of those cells. And then the result comes back and the result can say lots of different things. So it could say that the embryo is aneuploid, which means it either has one too many or one too few chromosomes. And we know that the aneuploid embryos have a have a reduced chance of implanting and establishing a pregnancy or giving you a baby. And we also know that some aneuploides are compatible with life, things like trisomy 21, that's Down syndrome. So the the result might come back and say all of these cells look aneuploid. It looks like the whole embryo has one too many or one too few chromosomes. Or the result could come back and say the r the embryo is euploid, which means it looks like it has the right number of chromosomes. Or it could come back and say it's mosaic, which is means some of the cells look aneuploid and some of them look euploid. Or it could come back and say it's inconclusive. We ran the analysis but there was some problem with the tests and we don't actually know and sorry you

did the biopsy and paid for it, but we don't actually have any more information from you. That doesn't happen that often, maybe three or five percent of the time. So the idea of it is that let's

Test all the embryos. The ones that come back as aneuploid, we'll we'll kind of put them in the bin. We won't transfer those because we know they have a low chance of of working. We will help you get to your euploid embryos faster. We put them at the front of the queue. We'll help you get pregnant faster. and we'll also help you avoid a miscarriage because the aneuploid embryos have a higher chance of of an early miscarriage. But the problem is that the test isn't perfect, so sometimes the results are false positive. So it comes back saying aneuploid. We think about five percent of the time it's wrong that embryo was euploid. You could have transferred it. Could have giv could have been your like one chance to get pregnant and have a baby. But the the error rate of the DNA analysis told, you know, the clinical team that it was aneuploid and so they kept it in the freezer or they threw it in the bin, whatever, you didn't transfer it. and that's cost you a small chance at having a baby the mosaic and the inconclusive embryos, they're also difficult for patients, I think. Like a lot of the time, even now we you know, we have this kind of growing evidence now that mosaic, the low and medium level mosaics, I mean, this is getting maybe too technical, but but that those embryos actually have almost as good a chance as a euploid embryo of resulting in a healthy baby. People are scared of that mosaic label. It's not it's not euploid what they were searching for.

And sometimes people just keep them in the freezer. They don't want to use them. And again, because we know that those embryos could how could result in healthy babies and they happen, you know, in natural conceptions they happen all the time. We wouldn't have even known about them. We would have just transferred them if you weren't having PGTA. But now that they have this mosaic label, bit nervous, maybe we don't use them that's a a possible problem. And the second part of the

The problem with the testing is that because it's taking the biopsy from the shell of the embryo, it's not taking the biopsy from the what we call the inner cell mass, which is actually going to form the the fetus or the baby down the track. And we know sometimes that the shell is not the same genetic makeup as the inner cell mass. So again, we could be getting it wrong. So there is a lot of this concern that the you know, and what we kind of think of as like maybe the problem with PGTA is

Yes, the evidence looks like it does reduce the chance of miscarriage. We think it does that. but it could also reduce your overall or your cumulative chance of having a baby from IBF because of all those problems, because it's throwing away embryos that were fine. or it's getting the result wrong, or even the biopsy itself, taking those ten cells from the shower could reduce the the health of that embryo just by taking a biopsy. So

I think I think it's almost definite that PGTA reduces the the cumulative live birth rate. It's just that we don't know by how much. Is it tiny? Is it half a percent? Or is it five percent or ten percent? We don't have the data. The the six or seven randomized controlled trials we have of PGTA, none of them have measured the cumulative outcomes

properly. Some of them tried, but they all made, you know, methodological problems or errors and what they were doing, that means that they none of them actually measured the true cumulative effect looking at all of the transfers. So PGTA, I think my problem with it really is that I don't think patients are told this, right? Like I think if patient especially patients who've had a miscarriage before and they really psychologically like just want to do what they can to reduce that chance and they're willing to forego

That it might reduce their overall chance of having a baby if it's also going to help them avoid a miscarriage. If they're making an informed decision with all that information, I think PGTA has a role for in IVF. But I don't think that's what's happening. If I look at IVF clinic websites in Australia, can't find a single one talking about that potential harm from PGTA, not a single one.

And plus in some parts of the world, you know, in the States the PGTA rate is so high, it's just become like a cultural norm almost. It's not really people stop thinking about the possible harm, I think, from PGTA because everyone just does it. Everyone just does it there now, like you were saying. It's almost become routine in some settings. And I think that that's probably a problem. I don't think all of those patients really need it. What do you think?

Joyce Harper (39:23)
Beautifully put, again, beautifully put. well, you know where I've been sitting. So I've been I started working on PGT, so doing this similar thing but for inherited disease in 1992, and it absolutely breaks my heart that for over 30 years I have been standing up saying there is no evidence that PGTA works. And it that breaks my heart.

Sarah (39:48)
Mm.

Joyce Harper (39:48)
I really, really wanted studies to come in and make it work, show me that it worked. I am not happy that I'm standing up and saying for 30 years it still doesn't work. I would I'm a scientist. I want evidence to come in and then we change our minds about our theories of things. That's how we work. and and I would love more than anything that this has happened with PGTA and it hasn't. So

I'm not gloating that I'm saying the same thing after 30 years. It's heartbreaking. Having been an IVF patient, it's heartbreaking that, as you say, it is routine. We we did an analysis of USA data years ago, and there were three clinics then that offered PGTA on every single patient going through IVF. And now in in many countries, as well as many clinics in the USA, as you said, it's standard. And we said an IVF add-on is something that's not routine and and it is routine. I mean they're paying, but this is a classic example where there as you said, there is no proper evidence. So what have you said about PGTA on your website?

Sarah (41:03)

Yeah, we've said, let me just bring it up so I don't s speak out of turn, but we have said that it reduces the chance of miscarriage. That's one of the aims of PGTA. Without, you know, s putting back fewer annuploid embryos that have a higher chance of miscarriage, we're gonna reduce our chance of miscarriage. That's what we can see in the evidence from randomized controlled trials. But it also looks like it reduces the overall chance of getting pregnant from IVF, so the cumulative pregnancy rate. We don't see quite that same signal for the cumulative live birth rate for some reason. We don't know if it's like there's just not enough data there. We talked before about not all trials report cumulative live birth rate and there's fewer live births and there are pregnancies. So there's like a statistical loss of power there. That could be why. But it definitely reduces the chance of having a miscarriage. It also reduces the overall chance of getting pregnant and I think having a baby from IBF. We also hear a lot it helps increase the or reduce the time to pregnancy. It's gonna get you pregnant faster, but we we haven't really seen that play out in in the data yet. And I don't think patients some patients do, but most patients don't have, you know, twelve embryos that they're gonna spend a year transferring back to back to back that

PGTA is really gonna speed things up for them that much. Most most patients who are candidates for P GTA, like older women with higher rates of aneuploidy over thirty seven or thirty eight, they don't usually have lots of embryos. They usually have one, two, three embryos. So, there's not that much like time to be saved, I think. It's not on a big scale. And we haven't seen that play out in the in the data yet either.

So there's

Joyce Harper (42:49)
Yeah.

Sarah (42:49)
a benefit for miscarriage, but it's also gonna reduce your chance. It also costs money. So I think it's something that patients just have to weigh up for themselves.

Joyce Harper (42:58)
D do you know how roughly how much it costs in Australia?

Sarah (43:02)
It's about seven hundred dollars per embryo, which is probably about four hundred pounds.

Joyce Harper (43:07)
Yeah. But that would that would add up. And you you mentioned that we didn't mention before, which we should you did briefly mention that women it I i I I know that I hate to put this on women, but women as we age, because we 'cause our eggs are all there from when we're born, before we're born, they the chromosomes that we've been talking about are really susceptible to become a bit abnormal or

I often use. Anyway, they they so what happens in the eggs and the resulting embryos is that because of this, you we can have these extra or missing chromosomes. So it is an egg, mainly an egg problem. But as you said, you mentioned the age 37. So as women get older, they're more likely to have eggs that have these abnormal number of chromosomes, which can lead to an decreased chance of getting pregnant, increased chance of miscarriage, and a decreased chance of having a live birth. So the theory of PGTA is logical. It just doesn't work. And as you said, what happens is that wim older women actually produce fewer embryos. So if you've got one or two or three embryos in your dish, I would not do PGTA or I wouldn't do PGTA anyway, but yeah it it's as if you've got 12 embryos as you said, then maybe but how many people have 12 embryos? And in I've asked so many clinics, if you've got 12 embryos, you had a really

Amazing response. You're going to get pregnant anyway. So it when the other thing with PGTA

Sarah (44:36)
Mm-hmm.

Joyce Harper (44:37)
is you have to freeze your embryos. So I'm not convinced about this getting pregnant quicker. And there's a big lawsuit going on in the US. I'm amazed there's not been one sooner. I'm amazed there's not one in the UK and Australia, and that people that have been missold this are not suing because they've paid thousands of dollars pounds to have this procedure where all the main societies, so your society, the ASRM, the American Society, HFEA and ESHRE, we all came to the same conclusion. So I it's just it's just one of these examples that it's just amazing that it's out there. And that so that's a terrible one. Let's let's put that to bed. I will try and get a debate next year where we talk about PGTA with a pro and a f against PGTA, which will be a bit hair racing. But

Sarah (45:28)
Be spicy.

Joyce Harper (45:29)
It'll be spicy. I love a bit of spice. It's I'll do that next year, not this year. what about what about an maybe an add on that's on your list that you think is pretty good? Was that were there any?

Sarah (45:45)
The bars pretty low, I guess, for pretty good.

Joyce Harper (45:48)
Yeah.

Sarah (45:49)
one yeah. One that we sometimes talk about possibly is embryo glue. So look, some we we have quite a few studies. There's eleven trials reporting data on the outcome of

pregnancy with and without embryo glue. And the problem is some of the new big studies show there's no

no benefit from embryo glue. But we also have some of the older studies included that suggest there is a benefit. And although it's tempting to exclude the older studies, that unless there's good reason to, and unless you think that obviously the IVF we did, you know, twenty years ago, or fifteen years ago is different to the IVF we did now. But when you're trying to find out about whether embryo glue inf influences the chance of pregnancy,

To e to exclude the old studies, we have to think that the effect of embryo glue has changed because of the different types of IVF that we use now compared to then. So just the fact that the studies are old is not grounds to exclude them altogether from the analysis. I c we couldn't think in our team, and we we, you know, spoke to lots of embryologists, if there's any reason why the newer studies are sh showing that there's no difference when the older studies found a benefit, and there's no kind of

biological reason for that. So we've put all the studies together. And overall, it still looks like there is a potential benefit from embryo glue. So that's one where we say on the website possible increase. It's not definite, but that's given the state of evidence for all of the add-ons, that's as positive as the answer ever gets, I think. so embryo glue is one, you know, where it is it is kind of green on our website saying possible benefit from embryo glue.

But even then w it's not a it's not sort of a certain thing.

Joyce Harper (47:42)
We did find the same in the HFEA. It was green at one point. I wrote a paper in twenty seventeen saying it was gonna be green and then and then they demoted it. But the Eshera we we came to the same conclusion as you. Can you just tell us what it is?

Sarah (47:56)
sorry. So embryo glue, it's got a very good marketing name. But it's basically yeah, an extra solution that the embryo can be dipped into or like soaked in for half an hour before the embryo transfer. And the the embryo glue solution has a high concentration of something called hyaluron or hyaluronic acid, which also Joyce, we should do this as a side project that.

So many of these add ons seem to come out of the beauty industry. So many women listening now will be like, yeah, Hyaluron, like my cleansers got Hyaluron. Like people know about Hyaluron because it's it's marketed in the beauty area. So it's the same thing. It's a natural substance, but it supposedly has this kind of viscous or sticky kind of property that when the embryo is soaked in it, it might or the fairy goes, that transferring that embryo covered in

these hyaluron molecules will help it to implant because it's a more a more viscous solution than a normal embryo culture media would be. that's one of the theories. So

it's just a simple solution and lots of clinics, I mean this is back to the like what is and isn't an add on thing. Lots of clinics just use embryo glue for all their transfers. It's quite low low cost. and they don't tell patients they're using it and they don't charge for it. So maybe it's not an add on at some

clinics, but it is at others. Maybe.

Joyce Harper (49:28)
Yeah.

Yeah. it's it it is one that's been hovering for us as well. Is there any add-on that gets your backup more than any others?

Sarah (49:42)
well, it's not something that we cover on our website and I'm almost like nervous to talk about it today, but there is this I've noticed some patients emailing our our website team about this in a was at a conference over the weekend where this came up. That the mitochondrial donation technique, something that's been introduced

you know, under a special license in the UK and and sort of s in Australia very recently to help people with who who carry a mitochondrial disease avoid transferring that disease to their offspring by using a donor egg and you put your your genetic material into the donor egg which has the donor's mitochondria in it instead of your own to avoid passing it on, right?

That's being marketed now to woman as a way to kind of like rejuvenate their chances by just for old reproductive age or or IVF failure, doing these spindle transfers or doing these transfers of your DNA into a donut egg of a younger woman in the hope that it's going to offer some kind of advantage. That one gets my back up because it's or it's experimental enough as it is for the purpose it was introduced for.

And it really there's very, very, very little research being done outside of the mitochondrial disease space that it worries me that that's being offered to patients already as like a rejuvenation option. Have you heard about

that?

Joyce Harper (51:23)
Yes, yes, yes. so so years ago when they started doing this, that so the mitochondrial technique was developed for it's it's something you you inherit your mitochondria for your mother. So it was developed. There's some women that carry a genetic abnormality and their children have a really severe disease. So they developed this technique for that, for treating those women. And there's a lot of work that happened in Newcastle in the UK, and there's been some births and some

Bit of controversy about it, but anyway, lots of controversy about it, actually. But what what I said at the time, people are spending so much time and energy discussing this

and working on it, and it's was treating such a tiny number of people. A really it's really it's hundreds, hundreds, let less you know, a few less than a few hundred actually, of people affected by this. It's very, very rare disease. But I could see what was gonna happen, I could see.

That okay, what they're gonna say is we can use this to rejuvenate an egg. And then it would be big money. So that was always bubbling under for me that this was gonna happen. And wow, it it and it scares me because I I I think the less we manipulate an egg or an embryo when we're doing fertility treatment, the better. And I I think this is just too too extreme, really too extreme. But I'm really glad you mentioned it.

Sarah (52:45)
Yeah, it feels

very extreme to me. it just feels so sick that our industry, you know, broadly speaking, global commercial IVF industry, is anything that they could market, doesn't

Joyce Harper (53:00)
Yeah.

Sarah (53:00)
matter if it works, doesn't matter if it's safe, doesn't matter whatever. And as long as they know patients are willing to pay for it and they can get it on the market, it's on the market. So it really worries

Joyce Harper (53:11)
Yeah. I

Sarah (53:12)
me about patients

you know, opting in for s for something like that that's so experimental and I don't even think really the biological rationale is there at all.

Joyce Harper (53:21)
No. the you and I both looked at fatinity clinic websites in our own country and I can totally see you've mentioned marketing and I'm doing lots of research on marketing now because it is the way science is communicated. And if you have a website that did all the evidence based treatments, it doesn't that your clinic doesn't look very sexy to the patient sitting there at home on a

Wednesday night, thinking which clinic should I you go to? If you see the clinic that had just, we do IVF, we do embryo freezing, we do XE, we do all these things, then you had the clinic that said, we are doing all the latest technology, we're using AI, we're doing this, and we've got a paper coming up about AI soon, hopefully. yeah, we're doing all this groundbreaking research and we're offering all these different treatments. Come

If you're sitting there and you don't know better, which one would you go to? You'd go to the sexy,

Sarah (54:20)
Yeah.

Joyce Harper (54:20)
shiny one that's doing all this amazing research and they're breaking, you know, all these new amazing what's the word? Can't think of the words very early in the morning here. Innovations.

Sarah (54:32)
Innovations, yeah.

Joyce Harper (54:34)
Yeah, they're they're doing all these innovations. Thank you. They're doing all these innovations about how exciting this is. That that's great marketing. So

For for me, besides obviously the top of my list that gets my backup is PGTA, absolutely for sure. But the other one that really gets my backup, you did briefly mention, was the whole natural killer cell thing. Because you've you've mentioned a few times about having a theory of why something may help. And the whole natural killer cell. So with the Esther study, we worked with Ashley Moffat, who's one of the leading immun immunologists in in the UK. And immunology to me is

Really difficult. It's not my topic. So we got Ashley in. And and she makes it very clear that this doesn't even make sense. So there's this theory that and that's so great marketing. You get natural killer cells. Sounds like amazing. you're gonna have these killer cells that are gonna kill off the embryo. They won't let the embryo implant in your womb. But what they've done in many, many clinics is they measure the natural killer cells in your blood, and the natural killer cells in your blood.

As far as I'm aware, have no relation to anything that's going on in your womb. We did do some work on this years ago that we never actually published. But Ashley was on a program about IVF add-ons years ago. I think it was a panorama. And I and she made it very clear to dis to explain that it actually doesn't even make any sense. And what they're measuring makes no sense. And then the treatments that they're offering are actually dangerous.

They're offering some treatments that are really, really bad for you, especially if you got pregnant. I heard from many clinics that the next day women were phoning up asking for it. Even though Ashie had clearly

Sarah (56:20)
Yeah.

Joyce Harper (56:21)

explained that this was really illogical, people are so desperate and so vulnerable that they say, yeah, yeah, let me do it, let me do it. And it's thousands, they charge thousands for this. So we are up against this and we're up against social media as well.

And you and I and others, we we were at a big at the Estra Conference, a big fertility conference this year in London. And we are we are now setting up a we have set up a group of global experts who want to try and tackle especially the social media misinformation that's out there, but also some of these startups that are doing things that just don't don't make any sense. And really how it's so difficult in women's health now to for

the public to understand what's real and what's not real. How do you feel about social media and what what that's doing for women's health?

Sarah (57:17)
I'm nervous about it. I think all all the work we've done looking at social media show like there's a lot of really clued up IVF patients on there sharing good information and and you know, having sophisticated discussions with each other. There's also a lot of, you know, noise, a lot of stuff from influencers that's not backed who knows what it's backed by, but not evidence. and I think it you know, even just

It really got me thinking then when you were talking about, what are we gonna do? Like there's a segment on national T V talking about how this new thing is is is it doesn't work, what Ashley was talking about, and then everyone rushes for it. And that's why I was nervous to talk about this mitochondrial replacement therapy being used or the spindle transfer. Maybe we should even remove it from the thing because I'm worried that it

Just talking about it, putting it on our website saying there's no trials. People say, what's this new thing? I haven't heard about that yet. I might try it. I know it's only experimental, but I'm kind of, you know, I'm desperate, I'm looking or whatever. And they could actually kind of backfire on the messaging. And so I think it really it's a shame that we're in this situation and the and people like groups like the HFEA don't have the power to kind of stop it before it gets here. Because once it's here, it's like this perfect storm of like

social media information, the hope and desperation of patients in the commercial market just drives this stuff like crazy. And then we're trying to bail, you know, teaspooning water out of a singing boat sort of thing.

Joyce Harper (58:55)
Yeah.

Sarah (58:56)
It feels a bit futile. but I guess someone needs to be doing it. And some people do really care about the evidence and maybe we need to play around with in our new group we're we were talking about, the psychology of

of our messaging, of our marketing, of trying to market the truth, how we can make that more attractive to patients, to w to women. to to to wanna be informed and to wanna say no in the face of unproven treatments instead of to want to rush towards them, I don't know.

Joyce Harper (59:28)
So the group we're setting up, it it's really

Sarah (59:29)
It's a bit of a depressing,

Joyce Harper (59:31)
bl it's really depressing. The group we're setting up is going to abide by the regulations and guidance from the relevant society. So we're we are going to work on women's health. So we're going to do fertility manopause, etc. and so for IVF add-ons, we've got your recommendations, we've got HFEA, we've got ESHRE, basically the same, slightly different data set, but basically the same. So it I think it's very clear.

But we will still get people out there that really say, no, everyone should have PGTA or everyone should have endometrial scratch or whatever whatever they're having. And the influencers, I don't know how they do it. Honestly, I've studied it too, and I don't know how they do it. They I think because they become very friendly and they're like your they're your friend and you trust them, you begin to trust them more than you trust your health professional.

And

Sarah (1:00:29)
Mm.

Joyce Harper (1:00:30)
and and I I don't it it's it's an it's an amazing it's amazing marketing. So we many of us have tried I've tried when I when I go and make a comment or I make a reel about some misinformation, I get absolutely slated. So I made a few reels about the misinformation that eating McDonald's fries on the day you have your transfer is going to help you get pregnant. You know, it's really not.

There is absolutely no evidence. There's not even been a study. It's great marketing. I got absolutely the worst trolling comments negativity that I've ever had on social media. And so as a person, that makes me vulnerable. So there's a lot of us who do know the right information and we're hesitant to put it out because, well, number one, we just don't have the reach that an influencer does. I just don't know how they do it. But also that the negative comments that we get.

I I remember I was on a Facebook group that I criticized PGTA a few times. And people were saying to me, you in the UK, you just don't understand. So these these are these

are just members of the public. And they're telling a professor who's worked in this for 40 years that I don't understand. And I normally try to be very humble, but what I normally write is, yeah, what do I know? I mean, what do I know? You obviously know more about this research than I do. I've been studying it for 40 years. I hate to sound

Cocky about it, but I mean I get really it it but I I don't blame

Sarah (1:01:56)
Yeah.

Joyce Harper (1:01:57)
the person making that comment. They've just got brainwashed by social media. So I think we have got a really big task because but I felt that if we if we unite some really important world leaders in this in these areas of of women's health, then we can stand together and we can stand with the backing of the following the guidance of of the relevant societies and hopefully.

We've all tried separately and we're not we're we're chipping away at the tip of the iceberg, but maybe together, collectively, we might have more of an influence. I don't know. We don't know. Which we're

Sarah (1:02:32)
I hope so.

Joyce Harper (1:02:33)
we're gonna try, sir. We're gonna try. We have

Sarah (1:02:36)
We have to try, that's right.

Joyce Harper (1:02:38)
to try. So I'm gonna try and end on a positive note. well, I tried to I tried to end there saying that this group we're setting up, when we're trying to find a sexy name, I don't know, I can't I'm rubbish at thinking about names. So if anyone out there can think of a name.

We're g we're gonna work on trying to demystify the misinformation and women's health. Come on, think of a sexy name. but let's finish on the questions I ask all my guests, Sarah. So totally changing the themes. What makes you happy and

Sarah (1:03:08)
Yeah.

Joyce Harper (1:03:09)
where is your happy place? Let's brighten it up.

Sarah (1:03:14)

what makes me happy? my happy place is definitely the beach. I just love it at the beach. Is that a boring answer? I don't

Joyce Harper (1:03:23)
No.

Sarah (1:03:23)
mind the sand, even getting in my sandwich. you know, I know some people hate the sand at the beach, but yeah, I just love the warmth. Again, it's my skin. The kids usually play together relatively well at the beach. It's just a good day out. That's my happy place for sure.

Joyce Harper (1:03:42)
Going to the beach today. We've recorded this early in the morning because I'm off to the beach.

Sarah (1:03:46)
There you go.

Joyce Harper (1:03:47)
Yeah. No, I'm just shy because I'm just so jealous that I'm far from a beach, but I'm gonna change that. I'm gonna move. I'm moving soon at some point to be nearer the I need to see the sea. It's it's great. So, no, it's a very

Sarah (1:04:01)
Yeah.

Joyce Harper (1:04:03)
very it's a great answer, and I think there's lots I could delve into about why that's but very, very last question, Sarah. What advice would you give your younger self?

Sarah (1:04:15)
Hmm. How much younger? Last week younger? Or

Joyce Harper (1:04:19)
Anything.

Sarah (1:04:19)
15 year old younger? no, I don't know. I think maybe one piece of advice. I think this is a bit cliche, but you know, we're always so scared of of of failing, like not doing things because we're worried we're embarrassed ourselves, or we'll fail and then we'll I guess we'll feel ashamed or embarrassed. So I think just to go for it. And sometimes I really when I'm really nervous and I about, you know, putting my hand up for something or asking for something that, you know, I think that I should am entitled to or should go for, but I just feel like a bit sick about it. I channel this really, I won't say their name, but like an old colleague who, was a man and really just used to shamelessly promote himself everywhere and put his hand up for stuff that I was too nervous to put my hand up for

but definitely more qualified than he was and he'd just go for it and he'd get all of these positions and it just every time I'm worried I'm like, just channel so and so, you can do this. Other people are putting their hands up and like they're not as good as you can do it. So I think I'll probably just tell myself to have that sort of a perspective a bit earlier. Might have been helpful for some my professional life and some, you know, personal things along the way too.

Joyce Harper (1:05:40)
That that's a c that's a great comment and God, I bet you must wish you could tell him what you're doing.

Sarah (1:05:48)
I know. No, I never will.

Joyce Harper (1:05:50)
I think that's brilliant. Yeah, we he shall remain nameless. But yeah. I love it. Love it. That's a that's a great story. Sarah, thank you very much. And yeah, doing this, I've realized that next year I'm going to do some podcasts. I'm gonna do a whole one on PGTA, and I think we'll do whole ones where maybe a bit of a debate with some of the topics that our new global group on misinformation is going to be discussing because one of the things that's come out from that is a lot of people saying, but there's people that don't agree with you. So for example, PGTA again, god, I can't believe I'm saying it again. But one of my colleagues has he he was on he was giving a talk at the ESHRE conference a few years ago, one of the online ones and he said he said that I think he I I might misquote him. I won't say who it is. He basically said that but anyone that doesn't agree with him is an idiot.

I think he did use a really harsh word. I can't remember whether it was idiot. And I was just sitting there.

What? Scientists don't I'm

Sarah (1:06:52)
Guess you're an idiot, Joyce.

Joyce Harper (1:06:54)
an idiot. I'm an idiot. It's always been the back of my head I'm an idiot. so obviously we don't agree, but we agree with the evidence. So we I I think I'm going to do a number of podcasts on some of these topics that are on our list. such as HRT being a preventative preventative medicine and fertility testing, those sorts things. Let's do a debate. People have said, well, let's hear the other point of view.

why don't you people have said, why don't you get together? And I have tried to get some people together before, but I'm gonna do this on a podcast mini series of debates in women's health and get a pro and against and let's thrash it out. We won't be in the same room, so there'll be no punches thrown.

Sarah (1:07:35)
Yeah.

It'll be safe.

Joyce Harper (1:07:38)
We'll be safe, but watch this space. I am going to try to get some debates going next year of some of these topics. So thank you for because that discussion

Sarah (1:07:46)
That's good.

Joyce Harper (1:07:47)
today brought that up. Sarah, thank you so much. I know you haven't been very well. So thank you for getting through this this morning. You can go and relax now. Been a real pleasure. Thank you. I will, I will.

Sarah (1:07:54)
Yeah, sorry for coffee. No, thanks so much for having me. It's been fun. Have fun at the beach, Joyce. Bye.