Episode 15 - Sarah Garfinkel

Thu, Jul 27, 2023 2:34PM 41:22

SUMMARY KEYWORDS

brain, signals, people, heart, emotion,

Thank

cingulate cortex, which is also an area that represents physiological arousal. So you're sort of now getting more alignment of physiology, and linking it to an area of growth in control. So this is what happens when you teach autistic people to be more introspectively accurate,

Caswell Barry 09:45

how to teach them. I'm curious, what do you what does that process?

09:49

Oh, yeah, it's again, it's really simple, like basically. And so interoception is about the accuracy with which you can sense bodily sensations. And it's both a state and a trait phenomenon. So some people are really Be good, some people are bad at baseline, but actually, we're all good if we run for the bus or watch a horror film, because it's state dependent as well. So when you make the signals more strong, then there's greater accuracy for the heart. So what we did is we just got people to the star jumps or run around the room, something very simple to raise the cardiac signal. And then we did very simple tests where we played them tones in sync or out of sync with our hearts. And we got people. So it's really internal external integration. But they're very, very hard tests, to know when to tone it, and things are out of sync with your heart. Partly because the tones are always the same temporal frequency you can't get you can't be accurate, because you know, the rate of your hearts, the tones are the same that either just mildly timeshifted off or on your heartbeat. And we teach people using these things to be more accurate when their heart is beating stronger and faster. So they're having interoceptive feedback. And because of just an exercise, they're having extra sets of feedback, I'm telling them whether they're correct or incorrect, and also their heart slowly comes back to baseline, and they're able to stay within this interceptor channel. So we repeated this after six sessions. And that's when we saw the connectivity changes in the brain. Moreover, and this is a thing, so now talking far too much, but I've got excited

Caswell Barry 11:29

what we're trying to do,

11:33

but we found drops in anxiety. And we've published this significant drops relative to a control group who are also at tip autistic, you also underwent a different type of intervention. And we

really loved art. And I thought I was like, I just don't know. But I also love people. And so I said, so I made a side switch to psychology, and thinking that I might want to be a clinical psychologist, ultimatef o

have a scientific. You know, they want that scientific underpinning as well. So it sounds like that blend that you hit upon a level, the practical experience notwithstanding, seem like to be a natural feeder into psychology.

Caswell Barry 31:22

You know, what, I'm gonna go further, I want to, I want to add to what Steve just said, so what while you were just saying what you said, I was thinking, you know, this is so you're so going against the sort of the Descartes, the Cartesian view of like, the duality of modern body and mind, I'm wondering whether is that do you put that down to the arts background that you like? This, this, you know, the, the emotional side of the human spirit is so much more present in art than

31:49

I think it's probably a mixture of a few things? It was such an interesting question. Yes, I think it's maybe about to do art you create, and there is a creativity streak in that. I think it also I do think my education was helpful for me, because it made me think for myself, like, it was so rowdy in class. Sometimes you just sort of had to sit in the corner and think, and try and work it out and come up with your own excavation, explanations that might not have really necessarily made sense, I think there was, instead of just being taught how to do things, I think there was a real streak of independent thought that you had to do just to sort of survive in that school. And then I think the final thing is that I am a bit dyslexic. From age eight, I was going to Bart's hospital before dyslexia was even a big thing quite regularly, because I was just had sort of unusual patterns of different things. And I think that dyslexia thing as well, it made it hard to learn as well. And not only the school, but just, it just was a it was a real challenge. So I'd have to try to figure things out on my own, sometimes at my own speed. And I think it's probably an amalgamation of the school that dyslexia, the creativity and art side as well all sort of mash together to to be helpful in the end.

Steve Flemming 33:11

And did you or do you remember, a decision point about academia? Did you have a point where you thought, yeah, an academic career is for me, or just something you kind of fell into.

33:46

It actually dropped out the MDMA PhD. Why they dropped. It was actually my friend, Jessica, because I knew her she she got into fast track civil service. And what they did was they just happened to have marked at that point, the only thing they've marked was the presentation for the dissertations. And the only two people to get top marks were me and Jessica. So I got this phone call, which my parents didn't tease me about for ages. They used to play Ring Ring, do you want a PhD? Because I, the phone just rang one day, and they were just like, well, we've got this spare PhD place. And actually, it really was life changing, because I'd come from this background, and I was a bit dyslexic. And I didn't perform that well in exams, that actually, I don't think I ever would have had the confidence to apply for a PhD position. But it was research that I really fell in love with rather than the exam stuff. And it was the research that got me the PhD and it really probably was my biggest life changing moment.

C Caswell Barry 34:49

That's amazing. That's really amazing. It's really good. It's also something I feel that we sort of increase increasingly, it feels like that's much less likely to happen these days. There's sort Have the channels are much more sort of strict and laid out to get like, and maybe we're missing something because the result because if if, you know if it's if someone like you feels that they maybe wouldn't be able to I wouldn't have made that decision themselves or maybe wouldn't have got to this position like the same thing wouldn't happen now then we're, we're really doing something rhyme. I really

35:19

believe that especially as dyslexic Some evidence suggests that dyslexic brains develop a bit later. And I spent a neurotypical brains developing that later as well. And actually, it's, it's in these people who think a bit different, where potentially you get magic happening. And that can take more time for it to shine and manifest. And those who do really well in the exams very early on and able to learn things which are taught to them won't necessarily be the ones the creative experimentalists that create the paradigm shifts. And I did do some mentoring for individuals I know lots of people do at UCL, it's one of the things I love about being here to help people who maybe didn't have the same advantages and starts as other people, to help them feel that they have the confidence and mentor them along the way. So they we don't, they don't drop out. Because I do feel like it's really in diversity that we can really build and understand.

S Steve Flemming 36:24

Okay, so we're almost out of time. So this has been absolutely fantastic. We'd like to finish off by just asking you what you're currently working on. Now. What do you think the fear the field holds for the next year or two of your research?

36:40

Well, I'm really excited because I've just got a major grants, and so for over 4 million from the

Wellcome Trust, to run along with Camilla noids. At Yeah, a new grant.

Steve Flemming 36:52

Wow, fantastic. Congratulations. Can you can you tell us a bit about the

36:59

Yeah, so it's, it's really trying to understand emotion from the perspective of bodily signals. So it's looking at emotion granularity. So knowing what type of emotion you're feeling, emotional awareness, and the capacity to control your emotions. And in regard to all different bodily systems, looking at the guts, looking at the heart, looking at respiration, monitoring the signals both in the body and the brain and their interactions. And then looking at modulating different systems in the body to see if we can change the way that people process control and understand their emotions. And then the final phase is a really big clinical trial in mindfulness. Because mindfulness can be used to treat depression and anxiety, but it doesn't help everyone. It helps some people, they love it, some people, it doesn't help at all. And some people can even get worse. And it's to understand whether mindfulness may work to body based signals. So controlling the signals in your body, the precision with which you can detect them, interpret them, and whether that actually predicts whether mindfulness is efficacious or not. And we can also try augmenting mindfulness using interoceptive mechanisms to help people with depression and anxiety. So that's, that's the seven years of funding. So that's, that's the main thing. Bplendifferen

39:39

so I mean, conditions that were typically only seen in regard to brain disorders such as schizophrenia. Actually huge see changes in the hearts before you see any symptoms of schizophrenia. So you can see longitudinal healthy sample cardiac changes happen first. And you can also look Look at cardiac morphology, and show that that actually serves as a risk factor for schizophrenia. And you can also look at, for example, how statins. So, drugs that act on the cardiovascular system can actually be protective for schizophrenic and bipolar episodes. And so all of this so things which would typically like schizophrenia is like a typical brain condition. Actually, there's really exciting data from the heart, saying that that could be a driver.

C Caswell Barry 40:33

Amazing. I'm glad we let the heart question through those. Those are some of the best facts. Yes, that was great.

Steve Flemming 40:39

Excellent. Well, thanks so much, Sarah, for joining us on this episode of brain stories. It's been really excellent to have you with us. And we'd like to thank Matt Wakelin, Maya Sapir and Travis mark for their roles in taking brainstorms from an idea to a fully fledged podcast. We'd like to thank Patrick Robinson and UCL digital education for editing and mixing. Please follow us on Twitter at UCL Bray stories for updates and information about forthcoming episodes. See you next time.