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Between crime prediction and crime prevention

Transcription of the interview with Adrian Raine[1] - Ch. 3

3. Biological-based treatments to reduce and to prevent violent behaviour

I think an important question is, it's fine to document a biological brain basis to crime and violence, but what are we going to do about it? That's a difficult question to answer. And certainly, we have not been conducting biological interventions to reduce crime and violence. But I think we should, or that

"We should begin to consider biological interventions alongside psychological and social interventions, to stop future crime"

The case of Omega-3 supplements

What we have been doing recently is conducting randomised controlled trials, where we give Omega 3 to children.

They have conduct disorder, anti-social behaviour. But, in this randomised control trial, we give Omega 3 to half of them, they are randomised, to get a drink, a fruit juice drink containing one gram of Omega 3 per day. The control group get the same drink, except it does not contain the Omega 3.

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But what we do find is that this treatment does reduce aggressive and anti-social behaviour. It's especially effective in reducing impulsive, what we call reactive, aggression.

This treatment is reducing aggression about 20%, 20/25%.

We are finding that the reduction in aggression continues, even after they stop taking the Omega 3 drink. The caveat, however, is we've only followed them up for six months after the treatment finishes. So, how long does this last? We don't know

If bad brain causes bad behaviour, the logic would be, well, let's upregulate the brain to improve social behaviour, that's the simple logic of it.

"If bad brain causes bad behaviour, well, let's upregulate the brain to improve social behaviour"

We have a long way to go. So far, there have only been two randomised controlled trials giving Omega 3 to prisoners, one in the United Kingdom, the other in The Netherlands. In both cases, they found a 33-35% reduction is serious offending in the prison.

So that put us on to the idea that perhaps Omega 3, in particular within nutrition, could be useful. I'll describe one more recent study.

This is a study my graduate student conducted, Olivia Choy. This is a technique called transcranial direct current stimulation. This is a technique where you pass an electrical current through a part of the brain. In this case, we passed it through the prefrontal cortex. This is a technique which can, if you like, upregulate the functioning of that region of the brain. We did that for just 20 minutes. It's a randomised control trial. Forty men get the stimulation, 40 think they are getting the stimulation, but they don't. The next step, one day after, we bring them back to the laboratory.

We give them what's called a social vignette, meaning, imagine maybe you're a man, imagine you're in a bar with your girlfriend. You go to the toilet, you come back, and you see this other man hitting on your girlfriend, he's chatting her up, he's flirting with her.

And you're told, in that situation, would you pick up the bottle and whack him on the head?

What we were finding is that the group who had received the prefrontal upregulation the day before, they were showing a 40% reduction in the likelihood in that situation that they would commit a physically aggressive act.

"Prefrontal upregulation is reducing the intention, the intention, to commit a criminal act"

Importantly, she also measured aggressive behaviour in the laboratory, but she did not find that the transcranial direct current stimulation reduced behaviour. It reduces intention. So that's an important thing to bear in mind. Mind you, that was only one stimulation session. What if there was more? What if it wasn't for one day? What if it was for several weeks? Could we find that it could reduce behaviour, because intention to act is the beginning of actual behaviour, isn't it?

So, the stimulation upregulation prefrontal cortex is enhancing our sense of morality, and that's what's accounting for, in part, the reduction in the intention to commit a criminal act.

There's something about that that we feel uncomfortable with. People are worried about changing the brain. The counterpoint, however, is that even social interventions change the brain.

Cognitive behaviour therapy, social psychological therapy, is known to chain the brain afterwards. That's why behaviour changes, that's why emotion changes. So that would be my response to those who are worried about brain changes. Our brains are changing all the time.

So if society, I think, can begin to get used, more and more, to understanding our brains are changing every minute, every day, perhaps they would be less concerned about the use of biological techniques to reduce anti-social behaviour.

"If society can begin to get used, more and more, to understanding how our brains are changing every minute, every day, perhaps we would be less concerned about the use of biological techniques to reduce anti-social behaviour"

We want to change behaviour. The other important point is, will it change behaviour not just tomorrow, not just in a week's time, but will it reduce recidivistic offending in a year's time, two years' time. That's what the law is looking for.

With any intervention that any of us try to create for prisoners, the important challenge is can we show reductions in offending, when they're let out of the prison, not just does it reduce aggressive behaviour in the prison.

If the amygdala is burnt out in psychopaths, for reasons beyond their control, then how moral is it of us to punish them as harshly as we do?

[*to be continued*]