

This response was submitted to the consultation held by the Nuffield Council on Bioethics on *Novel neurotechnologies: intervening in the brain* between 1 March 2012 and 23 April 2012. The views expressed are solely those of the respondent(s) and not those of the Council.

#### **Anonymous 1**

**1. Have you ever used a technology that intervenes in the brain, and with what consequences? Please describe your experience.**

**2. If you have not used a technology that intervenes in the brain before, would you do so if you were ill? Why / why not?**

**3. Would you use a technology that intervenes in the brain for non-medical purposes, such as gaming or improving your cognitive skills? Why / why not?**

**4. What are the most important ethical challenges raised by novel neurotechnologies that intervene in the brain?**

**5. In what ways, if at all, should the development and use of these technologies be promoted, restricted and/or regulated? Please explain your reasons.**

Answers to questions:

1. I have never used technology that intervenes in the brain.
2. Yes i would use a technology that intervenes in the brain if I was ill. If it improved my quality of life and the benefits outweighed the risks, then I would go for it.
3. No i wouldn't because I don't think that it should be used for other than health purposes. There is a line that needs to be drawn and if we use it for non-medical purposes then there are not controls or barriers to it.
4. I think the most important ethical challenges are that they might eventually be used for non-medical purposes and then the uses will become endless and there will be no controls. It may be the norm for everyone to receive neurotechnology in their brain to improve themselves in some way – even if they are healthy. There could be potentially fatal consequences. Therefore, it should only be used for medical purposes and people with diseases.
5. There should be a set list of disease to which neurotechnology can be used. There should be legal restrictions and laws for its use. It should be illegal to be placed in anyone who is healthy and purely wants it for a selfish reason to enhance their cognitive abilities. Neurotechnology should be promoted for people who fit a criteria. For example, people with a certain brain disease should be screened for it if it will be of benefit to them.

**11. Have you used neurostimulation and if so, with what consequences? Please describe your experience.**

**12. If you have not used neurostimulation before, under what circumstances would you do so?**

**13. Under what circumstances do you think it might be acceptable to use neurostimulation in non-medical context (that is to say, not for the treatment of a disease or disability)?**

**14. Are there any particular ethical or social issues associated with neurostimulation?**

**15. What would robust and effective regulation of research in this area look like? Is more or less regulation needed? Please justify your response.**

Answers:

11. I have not used neurostimulation.

12. I would have it if it would improve my quality of life if i had a neuro disease/condition. If the doctors recommended it then i would go for it.

13. I don't think it should be used in any other circumstances. Only if the person has an illness/disability.

14. Yes, such as it needs to be well regulated and under control for its uses. People may start using it for non-medical purposes. There is the idea of playing God and interfering too much. We also don't know what the future implications are and side effects 20 years from when it was implanted. However, if the benefits outweighs the risk then the patient should have it.

15. There needs to be laws put in place as to what patients can receive this treatment. Patients will need to be educated well. I don't think any more regulation is needed as to other developments and research.

**16. Under what circumstances would you use neural stem cell therapy?**

**17. What do you think of the risks and benefits of neural stem cell therapy?**

**18. Are there any particular ethical or social issues associated with neural stem cell therapy?**

**19. How do you feel about neural stem cell therapy being used for non-medical purposes one day, for example for human enhancement?**

**20. What would robust and effective regulation of research in this area look like? Is more or less regulation needed? Please justify your response.**

Answers:

16. I would use neural stem cell therapy if i had a neurological condition where using stem cells would improve/treat my disease.

17. I think the benefits of neural stem therapy definitely outweigh the risks. If the disease can be treated (such as with Parkinson's, where replacing the dopaminergic neurons would improve/treat the condition vastly) then it should be used. Quality of life will be improved, the person will still be able to work and gain their independence back. Plus, their family will benefit too because their loved one is improving and being treated.

Risks are we don't know what the side effects are.

18. Some people have issues in that using embryos is killing the baby (however, i disagree with this). However, if they were affected by a neurological disease then they would want any treatment possible, even if it was using cells from an embryo (which hasn't even differentiated its cells at that stage yet for a fetus to be formed)The role of playing God. Some people think that if it was legal stem cells would be used for many things and it will have no control.

19. I don't think neural stem cell should be used for non-medical purposes – only be used to treat medical conditions.

20. There would need to be set rules and regulations. People need to be well informed. I think more regulation is needed if embryos are being used, jsut because some people think it is a living person at that stage.