



**‘Neuroscience has many positive applications in contemporary society; however the ethical implications are debatable’. Discuss.**

### **Introduction**

Neuroscience is a rapidly growing area of research due to improvements to technology and a desire to know about the brain and how it influences our personality.

However there is an issue about whether the information gained is acceptable in terms of ethical implications, meaning that due to the condition of the people involved in research and also because of how this new evidence is being used there is a debate about whether there could be potentially harmful repercussions.

### **Ethical issues surrounding consent**

Capacity for consent is an issue because the participants that are involved in neurological research have an impaired capacity to give fully informed consent.

There is an issue of changing capacity to consent because neurological diseases can rapidly deteriorate, this potentially means that it is impossible to gain full valid consent because a person’s want for being involved in the research may change at some point and once they are involved in the research they may feel they cannot withdraw from the study.

There are 850,000 people living in the UK with dementia, meaning that it could be considered to be unethical to not conduct this research as there is a real need for a cure to be found.

It would be economically beneficial for a cure to be found as it costs the government £26 billion a year to fund the treatment for Alzheimer’s disease.

There are ethical guidelines in place by the charity Alzheimer UK to ensure that as little harm as possible comes to the participants.

### **Ethics of using neuroscience in court**

There could be ethical implications of using neuroscience as evidence in court for explanations of criminal behaviour, such as using PET scans as justification for why they committed murder.

There has been a rise in the number of cases using this evidence to potentially gain reduced sentences, such as in the Peter Jordan Chiesa case where he was convicted for the lesser offence of second degree murder for killing 2 of his neighbours, as he had evidence showing damage to his prefrontal cortex, temporal lobes and cerebellum.



There is worry that juries are being swayed by this evidence because it is scientific making them believe that it is credible even though this evidence does not fully establish cause and effect as there is no way to know whether these changes occurred before, during or after the crime was committed.

The authors of the bioethics report concluded that the gradual introduction of neuro-scientific evidence and concepts after they are validated, well understood and interpreted accurately could potentially be highly valuable.

### **Ethics of cognitive enhancers**

There is concern that the increased research into neuroscience has promoted a rise in neural modification and cognitive enhancers.

Research into the long term side effects of these drugs is limited. The drug Ritalin has been associated with mental health problems meaning that people are disturbing the system of their brains in ways that has never been done before.

Battleday (2015) who has reviewed the evidence into modafinil concluded that it could improve decision making and problem solving. As well as this, there were few side effects and no addictive qualities.

Strict regulations and vast quantities of research needs to take place to ensure that people's safety is maintained and if the side effects are so great then the drugs need to stop being so readily available especially to students whose brains are still developing.

### **Conclusion**

The benefits of neuroscience research outweigh the ethical implications because the research increases the possibility of a cure for neurological disease such as dementia and Alzheimer's being discovered.

Ethical implications of neuroscience evidence being used in the legal system and the development of neural modifiers are worrying, meaning that until the correct procedures are in place to control these areas, these domains need to be effectively restricted.