BLOA possible questions (SAQ)

Animal research

Discuss the value of animal models in the study of the brain and behavior

Animal models allow us to study, or get close to studying human behavior and the human brain without actually using humans. It is seen as slightly more ethical.
We share around 99% of our DNA with rats - hence can be helpful

For	Against
Can experiment new treatments before clinic	Unethical
Similar structure: cell complexity (fear conditioning…)	Not as close as we think in humans
Lifespan and breeding cycles	Environmental differences (labs are very controlled)
Animals can benefit as well (if e.g. vaccine works on animals too)	Does Not take into account cognitive/sociocultural factors
Has led to important developments. Proves worthy (e.g. Alzheimers)	Metabolic differences
Cheaper than with humans	Could be misleading
We have a policy of 3rs (reduce, replace, refine)	Animals lives are short and painful

Rogers and Kesner - Brain and behavior
Critical thinking - *What are the strengths and limitations of animal models? The problem of operationalizing variables based on human behaviour; genetic and physiological similarity and differences; use human research to support animal models - e.g. Marmot's Whitehall study to support Sapolsky's baboon hierarchies*

Rogers and Kesner:

Role of study: to determine the role of acetylcholine in the formation in spatial memory (memory formation and retrieval). They had 30 rats acclimate to a maze where they placed food into one of the corners. Once rats were familiar (and not scared) w maze they study began.

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2. Study is able to establish a cause and effect relationship although it is true that it is a reductionist approach to the study of memory
3. This research could, in the future, lead to developments in psychology on humans such as treatments for people with dementia or alzheimers
4. To what extent are these findings generalizable?

Discuss ethical considerations in the study of the brain and behaviour.

Ethical consideration/s: Undue stress and harm (killed at end, not a great life), informed consent (had not a say)
Rogers and Kesner

This is only for CLOA: cannot be done for BLOA
Study: HM - Brenda Milner

One ethical consideration in the biological approach is informed consent. Informed consent means that before someone agrees to participate in a study, the researcher must explain the purpose and procedure of the study. In addition, the researcher must explain the person's rights – including the right to withdraw and that all data will be kept anonymous. Any potential negative effects of participation must be explained.

The biological approach has some special problems with regard to informed consent. First, the biological approach uses animals which cannot actually give consent. In addition, biological researchers often do studies of people who have mental illness or brain damage. It could be argued that these participants may not be able to understand what they are agreeing to. Finally, often biological research is rather complex and may not be understood by the average person, making "informed consent" difficult.

One study that raises questions about informed consent is the study of HM by Milner. HM had severe amnesia as a result of an operation which was done to stop epileptic seizures. HM had both retrograde amnesia (he couldn't remember what happened before the operation) and he had anterograde amnesia (he couldn't create new memories). Milner carried out a case study and found that the hippocampus plays a key role in the transfer of episodic and semantic memories from short-term to long-term memory.

As HM could not remember giving consent, this study is ethically problematic. HM was asked to give consent throughout the experiment, but it is not clear that he really understood what was happening or who Milner actually was. Originally consent was given by HM's mother and then later by his caretakers. However, there is a concern that HM may not have been able to take advantage of his right to withdraw either because he did not understand or he forgot.

Informed consent is important so that researchers do not take advantage of participants. Many of the types of participants used in biological research make obtaining informed consent difficult.

BLOA possible questions (SAQ)

Two weeks after participating in the experiment the participants were asked to come back and their memory for specific details of the story were tested. The test was a recognition task that consisted of a series of questions about the slides with three options for them to choose from. For example, what was the job of the father of the boy in the story? A. A janitor B. A lab technician C. A surgeon.

The researchers then did a follow-up study. In the follow-up study the above procedure was repeated, but this time the participants in the "traumatic story" condition were injected with a beta-blocker called propranolol. This is a drug which is used to treat heart disease because the beta-blockers block target cells for the hormone so that the heart will pump more slowly and efficiently. However, in this study it was used to prevent activation of the amygdala.

Results

In the original version of the experiment the researchers found that the participants who had heard the more emotionally arousing story demonstrated better recall of specific details of the story. They could also recall more details from the slides.

In the follow-up study they found that those that had received the beta-blocker did no better than the group that had heard the "mundane" story. They therefore concluded that the amygdala plays a significant role in the creation of memories linked to emotional arousal.

Discuss the potential role of pheromones in human behaviour.

Study: Wedekind 1995

Pheromones are chemical substances produced and released into the environment by an animal affecting the behaviour or physiology of others of its own species. There are two types of pheromones that are agreed on by psychologists, one of which is primary pheromones and the other is signalling pheromones. Primary pheromones are causing slow and long-term physiological effects such as hormones effects. Signalling pheromones are released by an animal for the purpose of arousing mating behaviours in a rapid way of transferring.

Wedekind et al have carried out a lab experiment investigating the role of MHC, a set of genes that are responsible for the immune system, on human mate selection. The sample had a wide sample range of MHC. The male participants were asked to sleep in a t-shirt that was handed from the investigators for two nights and conserve the t-shirts in a plastic bag during the day. The male participants were asked to use perfume-free detergent and soap as well as that they are not allowed to use any perfumes or deodorants, smoking, drinking alcohol, absorb spicy food or to have sexual activities during the experiment. The female participants were asked to smell 7 t-shirts that were put into individual boxes through the holes. Between the 7 t-shirts, there is a control which was not worn by anyone before and three from a man who has similar MHC with females and three from men who have a huge difference in between their MHC and the females do. The women were asked to score