15.1 Biological Explanations of Aggression: Neural and Hormonal Mechanisms: Test Pack

AQA 7182 · about 15 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions.

1 Outline the role of the amygdala in aggressive responses, referring to neural mechanisms of aggression and the limbic system in the brain.

(Total for Question 1 is 2 marks)

2 Identify one ethical issue raised by human hormonal manipulation studies of aggression (for example trials administering testosterone), and suggest how researchers can address this issue.

(Total for Question 2 is 2 marks)

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3 Explain how the orbitofrontal cortex (OFC) interacts with the limbic system to regulate aggressive impulses, including the effect of OFC damage.

(Total for Question 3 is 3 marks)

4 Outline one quasi-experimental piece of evidence that links testosterone to aggressive behaviour in humans and explain one limitation of interpreting such quasi-experimental findings.

(Total for Question 4 is 4 marks)

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Mark scheme · 15.1 Biological Explanations of Aggression: Neural and Hormonal Mechanisms: Test Pack

Question 1

states that the amygdala is part of the limbic system and is involved in processing emotions such as fear and anger oe **B1**

states that increased amygdala activity is associated with heightened threat detection and can trigger aggressive responses oe **B1**

Answer: The amygdala is a limbic system structure involved in processing emotions such as fear and anger; increased amygdala activity is linked to stronger threat responses and can trigger aggression.

Question 2

identifies an ethical issue, e.g. risk of causing psychological or behavioural harm by increasing aggression through hormone administration oe **B1**

suggests a way to address it, e.g. rigorous screening, careful informed consent, close monitoring, and stopping rules with support available for participants oe **B1**

Answer: An ethical issue is the risk of inducing harmful increases in aggression through hormone administration; researchers can address this by careful screening, full informed consent, close monitoring, predefined stopping criteria and provision of support to participants.

Question 3

states that the OFC is involved in impulse control and social decision making oe **M1**

explains that the OFC exerts top down inhibitory control over limbic structures such as the amygdala, helping to suppress aggressive impulses oe **A1**

notes that damage or reduced activity in the OFC is linked to poorer inhibition and increased impulsive aggression oe **A1**

Answer: The OFC supports impulse control and social decision making and exerts top down inhibition over limbic areas like the amygdala to suppress aggressive impulses; damage or reduced OFC activity impairs this inhibition and is linked to increased impulsive aggression.

Question 4

identifies a quasi-experimental example, for instance studies of changes in testosterone following competitions that show winners' testosterone increases are linked to increases in dominance or aggression-related behaviours oe **M1**

explains the quasi-experimental nature: testosterone changes are measured in naturalistic situations where participants are not randomly assigned to hormone levels oe **A1**

identifies a limitation such as lack of random assignment, so causal conclusions are limited and confounding variables (e.g. prior aggression, social status) may explain results oe **M1**

explains the limitation in context, noting this weakens claims that testosterone alone causes observed increases in aggressive or dominant behaviour oe **A1**

Answer: Quasi-experimental studies, such as those measuring testosterone changes after competitive wins and linking increased testosterone to greater dominance or aggression-related actions, suggest an association in natural contexts. However, because participants are not randomly assigned to hormone levels and contexts vary, confounding variables may explain the effect, limiting causal interpretation of testosterone as the sole cause of increased aggression.

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