15.1 Biological Explanations of Aggression: Neural and Hormonal Mechanisms: 10-minute Pack

AQA 7182 · about 10 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions.

1 Outline one reason why animal studies of testosterone and aggression may not generalise fully to humans, referring to biological or ethical differences.

(Total for Question 1 is 2 marks)

2 Explain one methodological difference between correlational hormone studies and experimental manipulations of neural function, and state one implication of that difference for causal inference about aggression.

(Total for Question 2 is 4 marks)

3 Outline the role of serotonin in inhibiting aggression via cortical control, and explain how low serotonin is linked to impulsive aggressive behaviour.

(Total for Question 3 is 3 marks)

© Revision Library | revisionlibrary.co.uk

Mark scheme · 15.1 Biological Explanations of Aggression: Neural and Hormonal Mechanisms: 10-minute Pack

Question 1

states a limitation, e.g. differences in social complexity between humans and animals, or different hormonal regulation across species oe — **B1**

explains why this matters, for example human aggression is influenced by complex cognition and culture which animal models do not capture, reducing external validity oe — **B1**

Answer: Animal study findings may not generalise because humans have more complex social cognition and cultural influences on aggression and because hormonal systems can differ across species; this reduces the external validity of animal evidence for human aggression.

Question 2

identifies a methodological difference, e.g. correlational hormone studies measure natural variation in hormone levels without manipulation, whereas experimental neural manipulations (e.g. transcranial magnetic stimulation or lesion studies in animals) involve active manipulation of brain activity oe — **M1**

explains why this difference matters: experimental manipulation allows stronger causal inference because researchers control the independent variable and use randomisation or counterbalancing, while correlational studies cannot rule out reverse causation or confounds oe — **A1**

states an implication for causal inference, e.g. correlational hormone studies cannot establish that hormones cause aggression, only that they are associated, while well-controlled experiments provide stronger evidence of causation oe — **M1**

applies this implication to aggression research, noting ethical limits on experimental manipulation in humans may constrain how far causation can be established directly in people oe — **A1**

Answer: Correlational hormone studies measure natural hormone variation without manipulation, whereas experimental neural manipulations actively alter brain activity. This matters because experiments allow stronger causal inference by controlling the independent variable, while correlational studies cannot rule out reverse causation or confounding, so they only show association; ethical limits on human experiments further constrain causal claims about aggression in people.

Question 3

states that serotonin is a neurotransmitter involved in mood regulation and behavioural inhibition oe — **M1**

explains that adequate serotonin supports functioning of prefrontal regions such as the OFC, which inhibit aggressive impulses from the limbic system oe — **A1**

states that low serotonin levels are associated with reduced impulse control and increased impulsive or reactive aggression oe — **A1**

Answer: Serotonin is a neurotransmitter linked to mood and behavioural inhibition; sufficient serotonin supports prefrontal control, including the OFC, which inhibits limbic aggressive impulses, whereas low serotonin is associated with poorer impulse control and increased impulsive aggression.

© Revision Library | revisionlibrary.co.uk