Title: Aggression

Specification: Neural and hormonal mechanisms in aggression, including the roles of the limbic system, serotonin and testosterone. Genetic factors in aggression, including the MAOA gene.

Q1 MCQ: Which of the following is not part of the limbic system?

| A | Hippocampus |
| B | Amygdala |
| C | Parietal Lobe |
| D | Hypothalamus |

Q2 MCQ: Which of these hormones is not associated with aggression?

| A | Dopamine |
| B | Serotonin |
| C | Testosterone |
| D | Ghrelin |

Q3 Fill in the blanks

The **limbic** system connects to the **cingulate gyrus** and the **prefrontal** cortex. These areas are involved in focusing attention on emotionally significant events, forward planning and the anticipation of **rewards**. These areas control how we respond to **threatening** events or stimuli and play an important role in aggressive behaviour.

The hypothalamus regulates emotional responses, and the **amygdala** attaches emotional significance to sensory information. Any damage to these areas could cause an inappropriate aggressive response.

Signals are passed from the lower systems of the prefrontal cortex (where our feelings are regulated) to higher systems (where feeling are monitored and interpreted), which then triggers a **physical** response. If the prefrontal cortex is damaged then this reduces the inhibiting effect of the amygdala, leading to more aggression.

Key terms: **Threatening, Physical, Prefrontal, Amygdala, Inhibiting, Reward, Limbic**

Q4 Evaluate the role of neural and hormonal mechanisms in aggression

Identify an issue/debate/methodological consideration that you could use to develop each of the following evaluation points.

Key Issues/Debates/Methodological Considerations include: **Beta Bias, Cause and Effect, Generalisability**

A **Kluver and Bucy (1939)** removed the main areas of the limbic system from rhesus monkeys. They found that the monkeys displayed an absence of emotional, motor and vocal reactions normally associated with stimuli or situations eliciting fear and
anger. Lesioned monkeys also lost the social understanding of group hierarchies and would try to fight the more dominant and larger members of the group.

One of the main issues with this is that animal research is difficult to generalise to human; Barnet said that animal research is ‘outdated and oversimplified’. Although we may have a similar physiology, it is difficult to establish whether the processes in regulating aggression are the same and so the studies can be criticised for lack generalisability.

Mann et al. (1990) administered the drug dexfenfluramine (which lowers levels of serotonin) to 35 healthy adults. The researchers then used a questionnaire to assess hostility and aggression levels, which rose following administration of dexfenfluramine amongst males, but interestingly not amongst females.

The research by Mann et al. (1990) demonstrates the issue of beta bias that is inherent in neural explanations of aggression and shows that males and females may not be subject to the same physiological factors when explaining aggression. It does not address the issue that men and women could have different physiological processes in regulating aggression.

Ferrari et al. (2003) allowed adult male rats to fight with another rat, at a specific time for ten days. On the eleventh day, the rats weren’t allowed to fight. However, researchers found that the rats’ dopamine levels had raised by 65%, and serotonin levels were reduced by 35%. Despite the fact that the rats were not fighting, the experience had appeared to change the rats’ brain chemistry.

This research raises the issue of cause and effect, as this study suggests that serotonin could be the result of aggressive behaviour rather than the cause. This demonstrates the complex role that serotonin has in aggressive behaviour.

Q5 Apply your knowledge (AO2)

A psychologist was interested in why people commit aggressive criminal offences. She decided to examine the brains of 30 criminals who had been convicted of assault and compare them to a control group. She used an MRI scan to do this and discovered interesting abnormalities. Using your knowledge of the role of neural and hormonal mechanisms in aggression, explain what abnormalities you think the psychologist is likely to find.

The psychologist may find that areas of the limbic system in the criminals’ brains are different to the control group. For instance, Wong et al. (1997) found that the amygdala was smaller in violent criminals, which is the area that is responsible for attaching emotional meaning to stimuli.

The psychologist may also find that there is damage to the prefrontal cortex in the criminals which would reduce the inhibiting effect of the amygdala resulting in higher levels of aggression.
**Title: Aggression**

*Specification: The ethological explanation of aggression, including reference to innate releasing mechanisms and fixed action patterns. Evolutionary explanations of human aggression.*

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**Q1 Match them up**

Match the key terms on the left with the definitions on the right.

<table>
<thead>
<tr>
<th>KEY TERM</th>
<th>DEFINITION</th>
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<tbody>
<tr>
<td>Ethology</td>
<td>An inbuilt biological mechanism which is activated in response to certain stimuli.</td>
</tr>
<tr>
<td>Innate Releasing Mechanism</td>
<td>The study of animal behavior in its natural environment.</td>
</tr>
<tr>
<td>Fixed Action Patterns</td>
<td>Behaviour that enables the survival of a species.</td>
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<tr>
<td>Adaptive</td>
<td>The aggressive behavioral response to the IRM being activated.</td>
</tr>
</tbody>
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**Q2 Spot the mistakes**

The following points contain nine mistakes. Can you highlight all nine mistakes and state why they are incorrect?

According to ethologists, aggression has an adaptive function and can be found in all species. **Social Evolutionary psychologists argue that aggressive behaviour is beneficial for an organism and aids survival.** Aggressive behaviour could be used to protect resources such as money, land and food, and can establish dominance hierarchies which allow access to resources. **(3 mistakes)**

Lorenz (1966) proposed that aggression in animals is often ritualistic, which he argued is less dangerous than direct aggression; as symbolic aggression would help ensure that the organism was not harmed. If the organism sustained an injury as a result of aggressive behaviours, this could impair their ability to reproduce or even result in death. **Therefore, ritualistic aggression such as ‘teeth baring’ would have the effect of annoying deterring an opponent, with less danger of being harmed.** **(3 mistakes)**

Ethological theory suggests that all animals have a built-in cognitive biological mechanism, a **Fixed Action Pattern Innate Releasing Mechanism,** that if exposed to specific stimuli such as facial expressions, will cause the release of an automatic behavioural response, known as an **Innate Releasing Mechanism Fixed Action Pattern.** **(3 mistakes)**
Q3  **Complete the evaluation**

For each of these points, complete the sentences describing what they found and whether the results **support or refute** the ethological theory of aggression.

**Goodall (2010)** studied chimpanzee behaviour for over fifty years and noticed that...  
Groups of chimpanzees would start a war against neighbouring groups of chimpanzees, and would kill all members of that group. She suggested that this gang behaviour from chimpanzees is hard to explain with ethological theory, as the risk of injury to the attacking group is high and thus does not appear to be an adaptive behaviour, providing evidence against ethological theories of aggression.

When studying stickleback fish, **Tinbergen (1951)** discovered...  
That during the mating season, the male stickleback fish developed a red spot on their underside. Tinbergen showed the male sticklebacks a wooden model; if the wooden model had a red spot, then the male stickleback would attack. However, they did not react if the model had no red spot. This provides support for ethological theory, as the red spot on their underside was acting as an innate releasing mechanism and when one stickleback observed another stickleback with this red spot they would initiate the aggressive attack behaviour which is an example of a fixed action pattern.

**Nisbett (1996)** carried out cross cultural research and found...  
That when South American white males were insulted, they were more likely to respond aggressively than white North American males. This research provides evidence against ethological theory, as it shows that there are cultural variations in how males respond to aggressive stimuli, suggesting that the ethological explanation of aggression is not a universal explanation.

Q4  **Apply your knowledge** (AO2)

Sarah has a pet dog who is beagle. Alfie spends most evenings snuggled on the sofa with her cat. One day she decided to get another dog to keep Alfie company and bought a Labrador puppy. However, when she got the new puppy home the cat kept running away from him and the puppy would not stop chasing him. Sarah could not understand why only one of her dogs got on with her cat. Using your knowledge of ethological explanations of aggression, explain why this pattern of behaviour might occur.

Sarah’s new puppy may have been chasing the cat due to his innate releasing mechanism (IRM) being activated when the cat runs away. When he sees the cat running away, it acts as an external stimulus which activates this IRM resulting in the chasing behaviour, the fixed action pattern (FAP) which is the dog’s instinctual behaviour. Her beagle, Alfie, may not do this as the cat does not run away from him and so his IRM is not activated. Research suggests that it is not an FAP but a modal action pattern which varies from one individual in a species to another. For example, Alfie may not chase her cat as he has been trained not to or because he has been selectively bred not to.
Title: Aggression

Specification: Social psychological explanations of human aggression, including the frustration-aggression hypothesis, social learning theory as applied to human aggression, and de-individuation.

Q1 MCQ: According to the Psychodynamic Approach, which of the following defences mechanisms is used in the catharsis of aggression?

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<tr>
<td>A</td>
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<td>B</td>
<td>Repression</td>
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<td>C</td>
<td>Sublimation</td>
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<td>D</td>
<td>Projection</td>
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Q2 Complete the boxes showing Berkowitz’s (1969) cues for arousal.

Berkowitz (1969) proposed a revised frustration-aggression hypothesis, where he argued that frustration doesn’t always lead to aggression. He stated that aggression would only occur in the presence of certain cues.

Extension: Add examples to Berkowitz’s theory to illustrate your diagram.

Q3 Evaluation of the frustration-aggression hypothesis

For each of these points, state whether they are a strength of limitation of the frustration-hypothesis and justify your answer.

A Berkowitz (1967) conducted a study with three conditions; one with an aggressive cue, a gun; one with a...
non-aggressive cue, a badminton racket; and one with no cue at all. Berkowitz found those participants who were in the presence of the aggressive cue gave higher levels of shocks than the other two groups.

| B | Russell Green (1968) asked participants to complete a jigsaw puzzle in one of three conditions. Condition one had an unattainable time limit to complete the jigsaw; in another condition, the jigsaw was impossible to complete, and in a third condition, a confederate made derogatory remarks to the students as they failed to complete the study. Participants then had the opportunity to give shocks to the confederate if he answered incorrectly on another task. The group who had experienced insults from the confederate gave the highest level of shocks. | the idea that the presence of an aggressive cue can lead to aggressive behaviour. |
| C | Much of the supporting research behind the frustration-aggression hypothesis was conducted in controlled laboratory environments. It is difficult to say whether a participant would react in the same way to aggressive external stimuli as they would in these controlled scenarios. | Strength – this also supports Berkowitz’s theory, in particular, the idea that frustration (caused by the experimenter) leads to aggressive behaviour (as demonstrated by the level of shocks). |
| D | The frustration-aggression hypothesis has important real-world application. If the presence of aggressive cues such as guns can cause more aggressive behaviour, then this has implications for gun laws, for example. | Limitation – the results of laboratory studies typically lack ecological validity, and we are unable to conclude if the frustration-aggression hypothesis can explain everyday aggression. |

Q4 Apply your knowledge

Andy loves playing football with his local 5-a-side team on a Sunday morning, as he has a very stressful job during the week. He is quite a competitive player and is annoyed when the referee makes a bad decision. One day Andy was tackled badly, but the referee did not issue a red card to the other player. Andy was very angry, and when he continued to play, he kicked another player deliberately. Using your knowledge of the frustration-aggression hypothesis, explain why Andy plays football and why he kicked the other player.

The frustration-aggression hypothesis states that the only way to reduce aggression is to engage in an activity which acts as a cathartic release. Andy may be using sport as a way of releasing his built-up frustrations from his stressful job, as he wouldn’t be able to do this at work (sublimation). External factors that prevent us from reaching a goal cause frustration which can then build up and lead to aggressive behaviour. In Andy’s case, he is prevented from playing the football game by a bad tackle which goes unpunished by the referee. This leads to Andy being frustrated and releasing his aggression onto another player later on (displacement).