L01 – Describe Biological Theories of Criminality

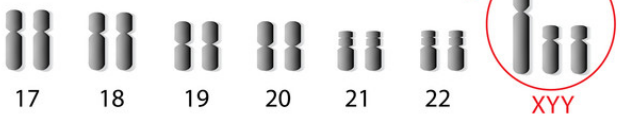
Assessment Criterion	Content	Amplification
AC1.1 Describe Biological Theories of Criminality	**Criminal Behaviour** • Genetic Theories • Physiological Theories	**You should have knowledge and understanding of:** ✓ Jacob's XYY Theory ✓ Twin and Adoption Studies ✓ Lombroso's Physiological Theory ✓ Sheldon's Type Theory

Biological theories focus on the idea that physical characteristics make some people more likely to commit crime than others. Such criminal tendencies can be genetic and therefore inherited. Hence, it could be said that the person is born bad.

The Nature-Nurture Debate - the debate about the role of biological influences (as opposed to environment) in criminality is an example of the nature-nurture debate.

GENETIC THEORIES

Chromosomes are structures found in all cell nuclei, they carry the DNA, which is the genetic information that all living things are based on. Humans have 22 pairs of **chromosomes** plus the two sex **chromosomes** (XX in females and XY in males) for a total of 46.



How Does This Theory Explain Crime?

Explain what a chromosome is and their role in determining sex

Explain what is meant by XYY theory

Strengths of This Theory

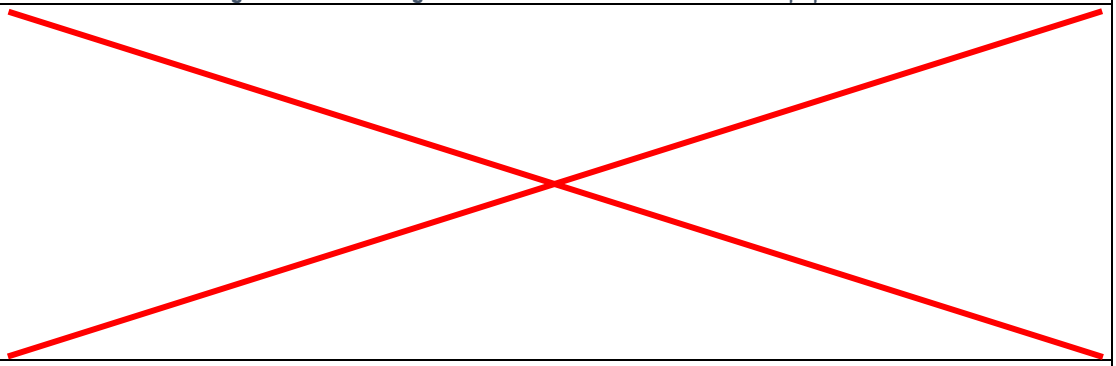
There is research which supports Jacob's XYY theory -

Case histories of famous criminal also support

Limitations of This Explanation

Case Studies Do NOT support this theory

Most people with genetic abnormalities do not offend

Exam Practice (adapted from Unit 2 Examination, May 2019)	
Scenario: The nature versus nurture debate concerns the extent to which each account for behaviours such as committing crime. The nature side focuses on inherited or genetic biological factors. The nurture aspect is concerned about acquired or learned characteristics that are influenced by external factors.	
(a) Explain how biological theories explain the causes of criminal behaviour. (6 Marks)	**Biological Theories of Criminality** suggest that crime may be influenced by **nature (genetics and biology)** rather than just **nurture (upbringing and environment)**. Some scientists believe **criminal traits can be inherited**, meaning a person's genes might make them more likely to commit crimes. Studies on twins and adoption show that criminal behaviour runs in families, suggesting a genetic link. **Brain structure** also plays a role, with research showing that some criminals have **differences in their prefrontal cortex**, the part of the brain that controls decision-making and emotions. **Neurochemical processes**, such as low serotonin or high testosterone levels, have been linked to aggression and impulsive behaviour.
(b) Describe **one** biological theory of criminality. (6 Marks)	Jacobs' theory suggests that criminality may be linked to a **chromosomal abnormality** known as **XYY syndrome**, where a male has an **extra Y chromosome**, resulting in **47 chromosomes instead of 46**. This condition occurs in **1 in 1,000 male births** and is associated with **distinct physical and mental traits**. Physically, XYY males tend to be **taller than average**, may have **poor muscle coordination**, and sometimes display **skeletal differences**. They may experience **learning difficulties, lower IQ, impulsivity, and increased aggression**, which some researchers argue could contribute to **violent or antisocial behaviour**. Jacobs et al. (1965) suggested that **XYY men are more aggressive than typical XY men**, and studies have found them to be **overrepresented in the prison population**, with **15 per 1,000 inmates** having the condition, against 5 in a thousand for a normal population.
(c) Evaluate the effectiveness of one biological theory in explaining criminality (6 Marks)	
(d) Explain two strengths of this theory in explaining criminality (4 Marks)	*__Jacobs et al.__ (1965) found that a significant number of **prisoners** had **XYY syndrome**, suggesting a possible link between this chromosomal abnormality and **criminal behaviour**. This supports the idea that the **extra Y chromosome** may contribute to **higher aggression and impulsivity**, traits often linked to violent crime. *Additionally, studies claim that several **notorious criminals** had XYY syndrome, with **John Wayne Gacy** often cited as an example. Gacy, a **serial killer**, reportedly fit the **physical and psychological profile** of XYY individuals, being **above-average height**, having **learning difficulties**, and displaying **violent tendencies**.
(e) Explain two weaknesses of this theory in explaining criminality (4 Marks)	*A major weakness of the **XYY theory** is that the evidence is **inconsistent**. Many case studies of violent criminals used to support the theory, such as **Richard Speck** and **Arthur Shawcross**, were later found to be **false positives**—these criminals **did not** have XYY syndrome, meaning they **cannot be used as evidence** for the link between XYY and aggression. *It's also important to remember that **XYY syndrome is fairly common** in the general population, and **most XYY men are not violent or criminal**. While the extra Y chromosome **may** play a small role in aggression, it **isn't the full explanation**, and other factors like **upbringing, environment, and personal choices** are also important in shaping behaviour.