13.4 Biological and Psychological Explanations for Obesity: Test Pack

AQA 7182 · about 15 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions.

1 Identify one behavioural explanation for overeating and briefly explain how it could contribute to obesity in an everyday context.

(Total for Question 1 is 2 marks)

2 Outline the role of the FTO gene as a genetic explanation for obesity, in the context of eating behaviour research.

(Total for Question 2 is 3 marks)

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3 Identify two practical applications of neural or psychological explanations of obesity for treatment or public health, and give a brief comment on one potential drawback of each application.

(Total for Question 3 is 3 marks)

4 Identify two ethical issues researchers must consider when investigating the biological bases of obesity using twin or family studies, and briefly explain how each issue could be addressed.

(Total for Question 4 is 4 marks)

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Mark scheme · 13.4 Biological and Psychological Explanations for Obesity: Test Pack

Question 1

identifies a behavioural explanation, e.g. operant conditioning via reinforcement of eating behaviour oe — **M1**

explains how reinforcement could lead to overeating, e.g. eating high-calorie foods is rewarding so the behaviour is repeated and becomes habitual, increasing calorie intake and weight oe — **A1**

Answer: Operant conditioning: high-calorie foods provide immediate reward (pleasure), reinforcing eating behaviour; repeated reward makes overeating habitual, increasing calorie intake and contributing to obesity.

Question 2

states that variations (polymorphisms) in the FTO gene are associated with higher body mass index (BMI) or greater risk of obesity oe — **M1**

mentions that FTO variants are linked to increased appetite or food intake, especially energy-dense foods oe — **M1**

explains that the gene may influence regulation of hunger and satiety, so people with risk variants are more likely to overeat oe — **A1**

Answer: Certain polymorphisms of the FTO gene are associated with higher BMI and increased risk of obesity; these variants are linked to greater appetite and tendency to consume energy-dense foods, which suggests the gene affects hunger and satiety regulation leading to overeating.

Question 3

identifies one application, e.g. developing drugs targeting leptin pathways or ghrelin antagonists, or bariatric surgery guided by biological knowledge oe — **M1**

identifies a second application, e.g. psychological interventions such as cognitive-behavioural therapy to reduce restraint-disinhibition cycles, or public-health campaigns to change norms and reduce portion sizes oe — **M1**

gives a drawback for each, e.g. biological treatments can have side effects and may not address behaviour; psychological/public-health interventions may be slow to change behaviour and require sustained funding oe — **A1**

Answer: Applications: (1) Biological treatments like drugs targeting leptin/ghrelin pathways or surgical approaches can reduce appetite or absorption, but they may have side effects and do not tackle environmental drivers of overeating. (2) Psychological and public-health interventions, for example CBT to reduce dieting-disinhibition cycles and campaigns to change portion norms, can address behaviour but may be slow, require long-term resources and have variable uptake.

Question 4

identifies a genuine ethical issue, e.g. confidentiality and genetic privacy oe — **M1**

explains how to address it, e.g. anonymise genetic/weight data and obtain informed consent for genetic information sharing oe — **A1**

identifies a second ethical issue, e.g. potential psychological harm or stigma from labelling individuals/families as genetically predisposed to obesity oe — **M1**

explains how to address it, e.g. careful debriefing, counselling referrals, and sensitive reporting that avoids deterministic language oe — **A1**

Answer: Confidentiality/genetic privacy: protect and anonymise data, obtain explicit informed consent for genetic information use. Risk of stigma or psychological harm: provide careful debriefing, avoid deterministic language in reports, offer support or referrals if participants worry about implications.

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