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A-Level Psychology

Biological Psychology - Spec Cheat Sheet · Paper 1

Edexcel Psychology (9PS0) | **Paper 1** | **30 spec points**

Every specification point for **Biological Psychology**, in spec order - tick each one off as you revise. Codes match the official Edexcel specification. Nothing here is optional.

Topic overview

3	Biological psychology studies the mechanisms within the body and how they affect behaviour, with a focus on aggression. Individual differences and developmental psychology must be considered, for example aggression caused by accident and how environment can affect the function of brain structures.

3.1 Content

3.1.1	The central nervous system (CNS) and neurotransmitters in human behaviour, including the structure and role of the neuron, the function of neurotransmitters and synaptic transmission.
3.1.2	The effect of recreational drugs on the transmission process in the central nervous system.
3.1.3	The structure of the brain, different brain areas (e.g. the pre-frontal cortex) and brain functioning as an explanation of aggression as a human behaviour.
3.1.4	The role of evolution and natural selection to explain human behaviour, including aggression.
3.1.5	Biological explanation of aggression as an alternative to Freud's psychodynamic explanation, referring to the different parts of the personality (id, ego, superego), the importance of the unconscious, and catharsis.
3.1.6	The role of hormones (e.g. testosterone) to explain human behaviour such as aggression.
3.1.7	Individual differences: damage to the brain may be affected by individual differences in case studies of brain-damaged patients when it is assumed there are no individual differences; Freud's view of the personality shows it develops individual differences.
3.1.8	Developmental psychology: the role of evolution in human development; the role of hormones in human development.

3.2 Methods

3.2.1	Correlational research: the use of the correlational research method in psychology, including co-variables; types of correlation (positive, negative) including the use of scatter diagrams; issues surrounding the use of correlations in psychology, including issues with cause and effect and other variables.
3.2.2	Analysis of correlational data: analysis of, use of, and drawing conclusions from correlational studies, including scatter diagrams, using inferential statistical testing (Spearman's rho), issues of statistical significance, levels of measurement, and critical and observed values. The use of alternate, experimental and null hypotheses; the use of IV and DV in experiments and co-variables in correlations; the use of control groups, randomising to groups, sampling, levels of measurement (ordinal, interval, nominal) and reasons for using Spearman's rho.
3.2.3	Other biological research methods: brain-scanning techniques (CAT, PET and fMRI); the use of brain-scanning techniques to investigate human behaviour, e.g. aggression; one twin study and one adoption study, e.g. Gottesman and Shields (1966), Ludeke et al. (2013).

3.3 Studies

3.3.1	Classic study: Raine et al. (1997) Brain abnormalities in murderers indicated by positron emission tomography.
3.3.2	One contemporary study from the following - Li et al. (2013) Abnormal function of the posterior cingulate cortex in heroin addicted users during resting-state and drug-cue stimulation task.
3.3.3	One contemporary study from the following - Brendgen et al. (2005) Examining genetic and environmental effects on social aggression: a study of 6-year-old twins.
3.3.4	One contemporary study from the following - Van den Oever et al. (2008) Prefrontal cortex AMPA receptor plasticity is crucial for cue-induced relapse for heroin-seeking.

3.4 Key questions

3.4.1	One key question of relevance to today's society, discussed as a contemporary issue for society rather than as an academic argument.
3.4.2	Concepts, theories and/or research (as appropriate to the chosen key question) drawn from biological psychology as used in this specification. Suitable examples: how effective is drug therapy for treating addictions (e.g. methadone to treat heroin addiction); what are the implications for society if aggression is found to be caused by nature not nurture.

3.5 Practical investigation

3.5.1	One practical research exercise to gather data relevant to topics covered in biological psychology, adhering to ethical principles in both content and intention. Students must: design and conduct a correlational study; link the research to aggression or attitudes to drug use; include inferential statistical testing (Spearman's rho) and explain the significance of the result and the use of levels of significance, and use descriptive statistics (strength/direction) to explain the relationship; produce an abstract of the research method and a discussion section that includes conclusions; include research question/hypothesis, research method, sampling, ethical considerations, data-collection tools, data analysis, results and discussion; consider strengths and weaknesses of the correlational study and possible improvements. Suitable examples: a correlation into age and attitudes to drug use; a correlation to see if there is a relationship between height and a self-rating of aggressive tendencies.

3.6 Issues and debates

3.6.1	Ethics, e.g. studying aggression and how findings are used, and in the research itself such as issues of confidentiality and informed consent.
3.6.2	Practical issues in the design and implementation of research, e.g. issues in scanning and measuring the complexity of the brain.
3.6.3	Reductionism, e.g. focusing on aggression when studying the brain.
3.6.4	Comparisons of ways of explaining behaviour using different themes, e.g. causes of aggression comparing Freud's ideas and biological explanations.
3.6.5	Psychology as a science, e.g. synaptic transmission and brain-scanning techniques.
3.6.6	Culture and gender, e.g. hormonal differences between males and females possibly influencing behaviour such as aggression.
3.6.7	Nature-nurture, e.g. brain localisation in aggression and environmental influences in aggression.
3.6.8	An understanding of how psychological understanding has developed over time, e.g. development of scanning techniques up to fMRI and development of knowledge accordingly.
3.6.9	Issues of social control, e.g. using knowledge of brain function to control individuals.
3.6.10	The use of psychological knowledge within society, e.g. understanding causes of aggression in order to perhaps deal with them.
3.6.11	Issues related to socially sensitive research, e.g. confidentiality.