Studies for the Biological level of analysis

Below are some summarised studies that are useful for the biological level of analysis in psychology. The highlighted section tells you the researcher/s, year and exam questions of the IB curriculum that can be answered with that study. Below that is the details which are heavily summarised in order for it to be easily remembered.

Newcomer et al. (1999) - There are biological correlates of behaviour **AND** function of hormone on behaviour

- Experiment on cortisol (stress hormone) on verbal declarative memory
- Group 1 had 160mg per day 4 days
- Group 2 had 40mg per day 4 days
- Group 3 had placebo
- Listened to prose and had to recall it as a test
- Group 1 worst performance showing an increase in cortisol has a negative effect on memory

Rozenweig and Bennet (1972) - animal research can provide insight into human behaviour **AND** effects of environment on physiological process

- Brain plasticity of rats
- Group 1 placed in enriched environment
- Group 2 placed in deprived environment
- 30-60 days and then killed
- Group 1 showed thicker cortex with more neurons
- Brain grows if stimulated

Bouchard et al. (1990) - Human behaviour is, to some extent, genetically caused **AND** extent to which genetic inheritance influences human behaviours

- Minnesota twin study (longitudinal)
- Investigating role of genes in IQ
- MZ twins reared apart (MZA) and MZ reared together (MZT)
- MZT had a concordance of 86%
- MZA had a concordance 76%
- Limitation of environmental factors

Harlow (1868) - Localization of function in brain **AND** ethical considerations in research into influences on behaviour

- In 1848 Phineas Gage had an accident whilst working on the railroad
- Pole went through his cheekbone and out through the top of his head (**frontal lobe**)
- Stayed awake and made full physical recovery
- Memory and speech were not affected however he started using obscene language
- Found that frontal lobes play a major role in behaviour and character.

Kasamatsu and Hirai (1999) - Neurotransmitters on human behaviour

- Obtained a group of monks and sent them on a 72-hour pilgrimage
- No food, water or speaking
- After 48 hours they developed hallucinations
- Blood test before and immediately after hallucinations
- High levels of serotonin were found
- Deprivation caused serotonin and changed the way monks experienced the world