

Essay Title: Outline and evaluate ultradian and infradian rhythms. (16 marks)

Biological rhythms are cyclical changes in the way that biological processes determine behaviour. Ultradian rhythms last less than 24 hours and can be found in the pattern of human sleep. This cycle alternates between REM (rapid eye movement) and NREM (non-rapid movement) sleep and consists of five stages. The cycle starts at light sleep, progressing to deep sleep then into REM sleep, where brain waves speed up and dreaming occurs. This repeats itself about every 90 minutes throughout the night.

A clear paragraph that explains ultradian rhythms with reference to a specific example.

The problem with studying sleep cycles is the differences observed in people that make investigating patterns difficult. Tucker et al. found significant differences between participants in terms of the duration of each stage, particularly stages 3 and 4 (just before REM sleep). This study was carried out in a controlled lab setting, which meant the differences in the sleep patterns could not be attributed to situational factors, but only to biological differences between participants. This means that a range of factors contribute to ultradian rhythms and these should be considered in research.

An effective evaluation point that outlines the difficulties of investigating biological rhythms. An example of the further research that could be conducted would improve this point.

Additionally, the way in which such research is conducted may tell us little about ultradian rhythms in humans. When investigating sleep patterns, participants must be subjected to a specific level of control and be attached to monitors that measure such rhythms. This may be invasive for the participant, leading them to sleep in a way that does not represent their ordinary sleep cycle. This makes investigating ultradian rhythms, such as the sleep cycle, extremely difficult due to the risk of false conclusions being drawn.

An accurate and effective evaluation point that questions the validity of research in this area.

Another important biological rhythm is infradian rhythms that last longer than 24 hours and can be weekly, monthly or annually. A monthly infradian rhythm is the female menstrual cycle which is regulated by hormones that either promote ovulation or stimulate the uterus for fertilisation. Ovulation occurs roughly halfway through the cycle, when oestrogen levels peak, and usually lasts for 16-32 hours. After the ovulatory phase, progesterone levels increase in preparation for the possible implantation of an embryo in the uterus.

A sound outline of infradian rhythms is presented with specialist terminology used to explore a specific example.

There is research to suggest that infradian rhythms such as the menstrual cycle are important regulators of behaviour as well as biological processes. Penton-Volk et al. found that woman expressed a preference for feminised faces at the least fertile stage of their menstrual cycle, and for a more masculine face at their most fertile point. These findings indicate that women's sexual behaviour is motivated by their infradian rhythms, highlighting the importance of studying them before drawing conclusions about ostensibly social behaviours.

However, it is claimed that exogenous cues can control the cycles that are normally governed by endogenous factors. Russell et al. found that female menstrual cycles became synchronised with other females through odour exposure. This suggests that the synchronisation of menstrual cycles can be affected by pheromones, which have an effect on people nearby rather than on the person producing them. These findings indicate that external factors must be taken into consideration when investigating infradian rhythms and that perhaps a more holistic approach should be taken as opposed to a reductionist approach that considers only endogenous influences would be preferable.

[517 Words]

Effective use of research to support the importance of investigating biological rhythms. The answer demonstrates an advanced understanding of infradian rhythms through the elaboration of research findings and their implications.

A good evaluation point which demonstrates knowledge of wider issues in psychology. However, the idea of reductionism should be more explicit with reference to the particular type of reductionism.

Examiner style comments: **Mark Band 4**

This is an effective essay that demonstrates a sound knowledge of ultradian and infradian rhythms. Evaluation is thorough, and a range of research findings are made relevant to how they support or challenge ultradian/infradian rhythms. The answer is structured well and demonstrates effective use of specialist terminology throughout.