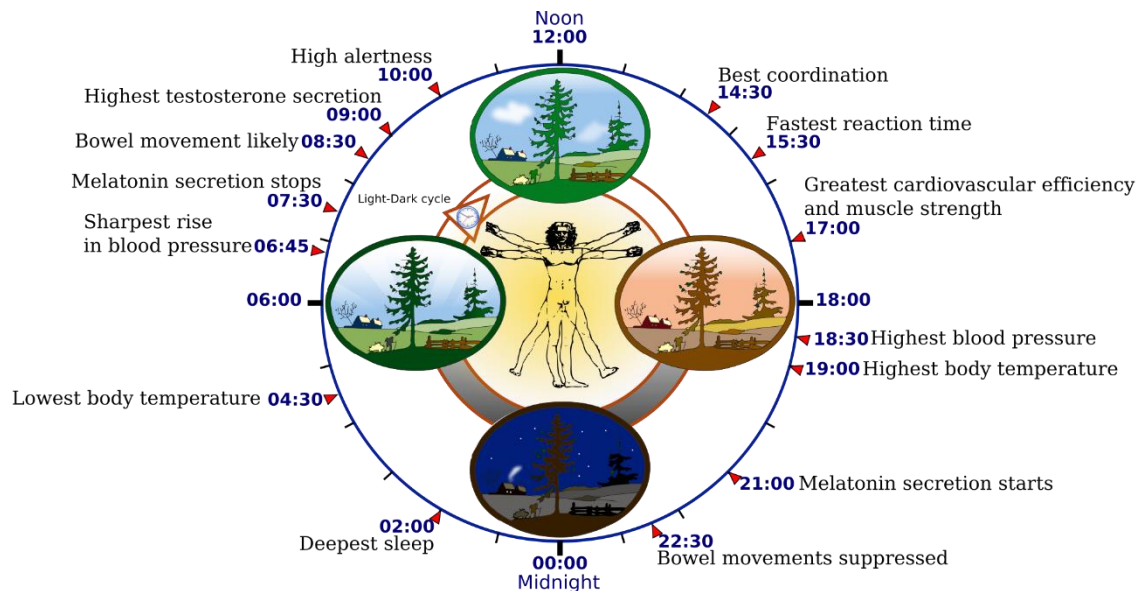


## Minimise Study Time Maximise Scores



### Exam/Study Tip # 6: Circadian Rhythms

A brief understanding of the circadian rhythm is required for upcoming tips.



A **circadian rhythm** is any biological process that displays a cycle of about 24 hours. Examples of circadian rhythms include:

- Sleeping patterns (and hence sleep quality)
- Body temperature
- Heart rate and blood pressure
- Alertness and cognitive performance
- Energy levels
- Eating patterns and mood
- Melatonin (sleep hormone) and cortisol (stress hormone) secretion

and many other important bodily functions. Improving your circadian rhythm has dramatically positive effects on your body and mood.

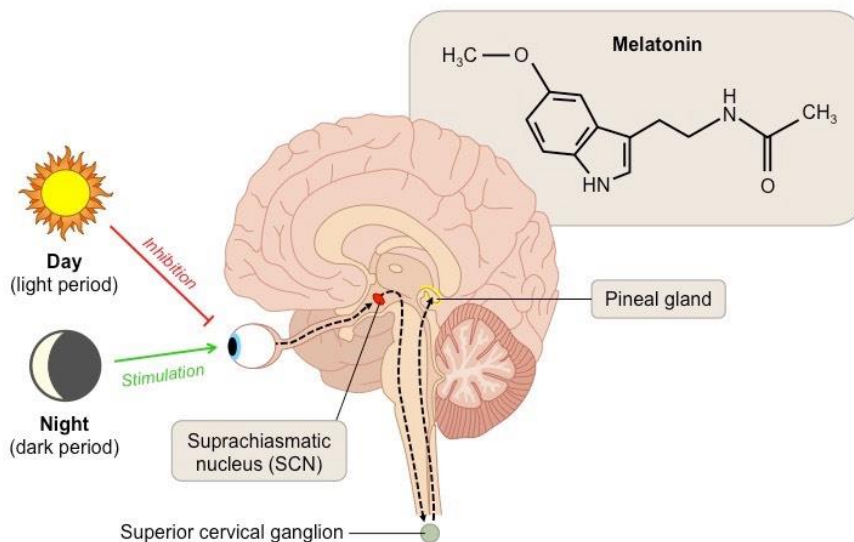
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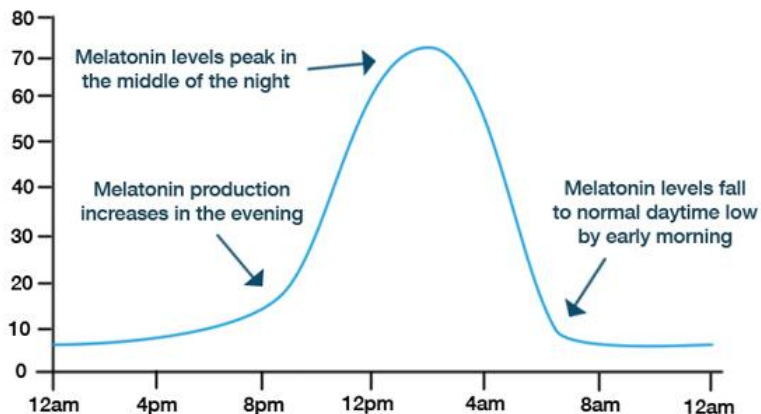


*The circadian rhythm of body temperature (the body temperature cycle)*

Circadian rhythms are controlled by internal body clocks. These body clocks are affected by environmental cues like temperature and the availability of food, and are **most strongly influenced** by the amount of light and darkness in an organism's environment.

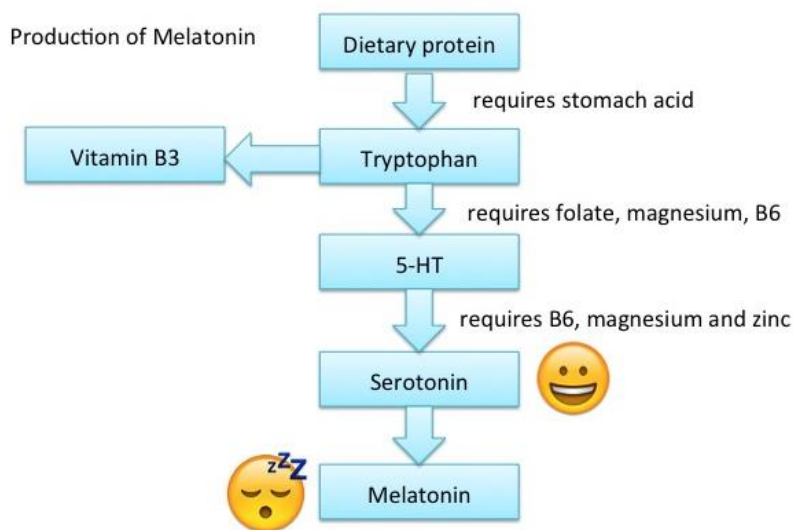
When the pineal gland in the brain detects the prolonged absence of light, it starts to secrete melatonin, otherwise known as the 'sleep hormone'. In the presence of the blue wavelengths in light, the production of melatonin stops. It is these changes in melatonin that regulate our sleep-wake cycle, which then influences the majority of circadian rhythms in our body.





**The circadian rhythm can be disrupted by:**

- Exposure to blue light at night. Blue light emitted by TV and computer screens, mobile phones etc. suppresses melatonin production, making it more difficult to fall asleep.
- Not receiving light in the morning.
- Exposure to light at abnormal times.
- Jet lag.
- Shift work.
- Lack of exercise.

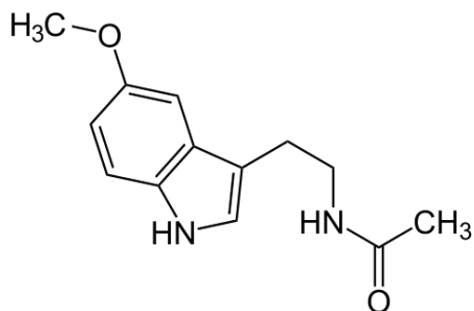


***Production of melatonin***

To produce melatonin, the body needs an adequate supply of:

- Magnesium
- Zinc
- Vitamin B6
- Tryptophan (an amino acid that must be supplied in our diet).

Foods rich in tryptophan include turkey, cos, spirulina, parmesan, mozzarella cheese, pork, beef, soybeans



**Zinc rich foods**

**Foods that naturally increase melatonin production include:**

Oats, bananas, barley, almonds, walnuts, tart cherries, salmon, turkey, warm milk, kale, dark chocolate, green tea and tropical fruits such as pineapple.



Regards,  
TSFX