

# Protecting your circadian rhythm from the influence of technology



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Your circadian rhythm is an internal mechanism which regulates your sleep-wake cycles, and the physiological functions that occur around that 24-hour cycle, influenced by the hormone melatonin.

Melatonin has a role in regulating everything from sleep patterns, to appetite and metabolism. The melatonin signal regulates the circadian organisation of other important physiological functions, including the immune system, antioxidant defences and glucose regulation.

Melatonin is released during the 'biological' night, providing an internal signal that it's night time. The problem with the modern environment is that we've flipped the internal signalling for day and night – average indoor office lighting can be up to 200 times lower than natural daytime sunlight.

Natural daytime sunlight contains blue wavelength light, which suppresses melatonin production. The problem is that TVs, laptops, and smartphones all emit blue light. In 99% of people, exposure to blue light in the hours before bed suppresses melatonin onset, and shortens melatonin duration by 90%, decreasing your internal perception of how long you've been asleep.

Dysregulating melatonin in this way has negative downstream effects on energy, tiredness, appetite and overall health.

So what can you do?

Minimize evening light exposure: Use incandescent light bulbs. Avoid blue-light emitting devices, including TV, 90 minutes before bed. (For laptops, download f.lux, a program that automatically dims blue light at sunset).

Maximise morning light exposure. Get outdoors for 15 minutes in the morning, or use a blue light.

Have a serving of complex carbs, which can increase melatonin concentrations.

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