

## Sunlight & Sleep for Good Immunity

When we are outside, sunlight is absorbed through the skin and eyes. When absorbed through the skin, the natural vitamin D precursor that's present in the body (7-dehydrocholesterol) is converted to Vitamin D3, which boosts immunity. Additionally, microbes such as bacteria and fungus are destroyed by direct sunlight.

When sunlight is absorbed through the eyes, the light is converted into electrical impulses by photoreceptors. Those impulses will travel down the spinal cord to the superior cervical ganglia, from which neurons will travel back up to the pineal gland. The pineal gland transduces signals from the sympathetic nervous system into a hormonal signal. This hormonal signal regulates the circadian rhythms of sleep/awake. Melatonin, which is secreted by the pineal gland, is halted in the presence of light (very little melatonin is produced during the light of day), which helps to regulate the circadian rhythm. This rhythm helps to regulate all endocrine & hormonal functions (including reproductive hormones), as sleep cycles affect these.

When the circadian rhythm is regulated, adrenal hormones are highest in the morning, giving energy for our day. And at night (when it is dark) melatonin is secreted by the pineal gland, an extremely powerful antioxidant which protects each part of the cells as well as neurons. Melatonin plays a major role in cancer prevention, strengthening the immune system and may even slow down cellular aging. Keep this in mind when you're tempted to stay up late with artificial light, as this prevents the secretion of precious melatonin.

