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RSL Fiber Systems Challenge

Introduction

From the beginning of time, the rising and setting of the sun has defined day and night on Earth. Humans use the light of the sun for vision, warmth, and production of vitamin D. But we also use the sunlight that enters our eyes to stimulate certain biological rhythms that repeat in a 24-hour cycle. To remain synchronized with the solar day, these so-called circadian rhythms require light of the right wavelength and for the right amount of time. Scientists have learned that light exposure can increase the quality of sleep, alleviate seasonal depression, improve the performance of night-shift workers and help weight gain in premature infants.

But gradually, humans have been turning the night into day, first with candles and oil and gas lamps, then with electric lamps. In some cities it is never really dark, even at night when stars are obscured by light pollution. What are the health effects of using artificial light in homes, schools and offices, radically changing both the duration and color of the light with which we are surrounded? Scientists are still learning how exposure to irregular patterns of light and dark can disrupt the circadian system, negatively affecting human health.