

Publication**Acute effects of bright light exposure on cortisol levels****JournalArticle (Originalarbeit in einer wissenschaftlichen Zeitschrift)****ID** 1196682**Author(s)** Jung, Christopher M; Khalsa, Sat Bir S; Scheer, Frank A J L; Cajochen, Christian; Lockley, Steven W; Czeisler, Charles A; Wright, Kenneth P**Author(s) at UniBasel** [Cajochen, Christian](#) ;**Year** 2010**Title** Acute effects of bright light exposure on cortisol levels**Journal** Journal of biological rhythms**Volume** 25**Number** 3**Pages / Article-Number** 208-16**Keywords** circadian rhythm, biological clock, diurnal, circadian phase, adrenal gland

Multisynaptic neural and endocrine pathways from the suprachiasmatic nucleus of the hypothalamus have been hypothesized to communicate circadian and photic information to the adrenal glands. In humans, light exposure has been reported to have no effect, increase, or decrease cortisol levels. These inconsistent findings in humans may be related to differences among studies including the intensity (approximately 500 to 5500 lux), duration (15 min to 4 h), and circadian phase of light exposure. The authors assessed the influence of exposure to bright light on cortisol levels in humans during the rising and descending phases of the circadian rhythm of cortisol, that is, when cortisol levels are high. Twenty healthy men and women were studied using a within-subject research design. Subjects were studied in an environment free of time cues for 9 to 10 days. Subjects received a 6.7-h exposure of bright light (approximately 10,000 lux; equivalent to ambient light intensity just after sunrise or just before sunset) or dim light (approximately 3 lux; equivalent to candle light) during the biological night and morning. Bright light exposure significantly reduced plasma cortisol levels at both circadian phases studied, whereas dim light exposure had little effect on cortisol levels. The finding of an acute suppressive effect of bright light exposure on cortisol levels supports the existence of a mechanism by which photic information can acutely influence the human adrenal glands.

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