DO YOU HAVE DARKNESS DEFICIENCY?

Darkness Deficiency is a term defined in the scientific literature that relates to the overabundance of artificial light at night in one's environment, disrupting the circadian rhythm balance of hormones, such as melatonin.

Directions: Answer each question using your typical daily routine as a reference of what you are doing or have done *over the past month*.

HOME

Are you in well-lit rooms in your home between dusk and dawn?
Weekly: 5 or more days (2 points) / 2-4 days (1 point) / 0-1 day (0 points)

Are you on your computer, iPad, or other electronic devices after 7 PM without any blue-light blocking filter?
Weekly: 5 or more days (2 points) / 2-4 days (1 point) / 0-1 day (0 points)

Do you watch television in the evening after 7 PM?
Weekly: 5 or more days (2 points) / 2-4 days (1 point) / 0-1 day (0 points)

BEDROOM (OR WHERE YOU SLEEP)

Are you using your smartphone or another electronic device (s) while in bed before going to sleep?
Weekly: 5 or more days (2 points) / 2-4 days (1 point) / 0-1 day (0 points)

Do you read books in bed before going to sleep?
Weekly: 5 or more days (2 points) / 2-4 days (1 point) / 0-1 day (0 points)

Do you keep lights in your bedroom on when you are sleeping, even just a night light?
Weekly: 5 or more days (2 points) / 2-4 days (1 point) / 0-1 day (0 points)

Do you have an LED alarm clock next to your bed?
Weekly: 5 or more days (2 points) / 2-4 days (1 point) / 0-1 day (0 points)

Do you have appliances in your bedroom that emit light throughout the night (e.g., smoke alarm, air filter)?
Weekly: 5 or more days (2 points) / 2-4 days (1 point) / 0-1 day (0 points)

Does your bedroom get light from outside at night (e.g., streetlights, moonlight)?
Weekly: 5 or more days (2 points) / 2-4 days (1 point) / 0-1 day (0 points)

WORK & OTHER ACTIVITIES

Do you drive or travel after 7 PM in an airplane, train, or bus for extended periods (over 45 mins)?
Weekly: 5 or more days (2 points) / 2-4 days (1 point) / 0-1 day (0 points)

Do you do shift work (i.e., working in the evening, sleeping during the day)?
Weekly: 5 or more days (2 points) / 2-4 days (1 point) / 0-1 day (0 points)

Do you spend more than 2 hours in well-lit areas after 7 PM (e.g., a shopping mall, sporting events, gym)?
Weekly: 5 or more days (2 points) / 2-4 days (1 point) / 0-1 day (0 points)

Overall Scoring:

Highly Darkness Deficient:	19-24
Somewhat Darkness Deficient:	13-18
Only Mildly Darkness Deficient:	7-12
Darkness Sufficient:	1-6

What you can do to become "darkness sufficient":

- Ensure your sleeping room is entirely dark (use heavy blinds or curtains) or use an eye mask while sleeping
- Wear blue-light-blocking glasses if on devices in the evening
- Turn off, or at least minimize, artificial lighting 3 hours before bedtime
- Use blue-light blocking screens on devices (available as apps)
- Choose red light when possible
- Choose lighting that can be dimmed (either automatically on a timer or manually)
- Cover up or unplug brightly lit appliances
- Keep a regular sleep-wake schedule that shifts slightly with the seasons

What lights are acceptable at night:

- Fire in fireplace
- Candles
- Red lights (red rather than blue-enriched bulbs)
- Salt lamps

References:

1. Minich DM, Henning M, Darley C, Fahoum M, Schuler CB, Frame J. Is Melatonin the "Next Vitamin D"?: A Review of Emerging Science, Clinical Uses, Safety, and Dietary Supplements. Nutrients. 2022 Sep 22;14(19):3934. doi: 10.3390/nu14193934. PMID: 36235587; PMCID: PMC9571539.
2. Gooley JJ, Chamberlain K, Smith KA, Khalsa SB, Rajaratnam SM, Van Reen E, Zeitzer JM, Czeisler CA, Lockley SW. Exposure to room light before bedtime suppresses melatonin onset and shortens melatonin duration in humans. J Clin Endocrinol Metab. 2011 Mar;96(3):E463-72. doi: 10.1210/jc.2010-2098. Epub 2010 Dec 30. PMID: 21193540; PMCID: PMC3047226.
3. Brown TM, Brainard GC, Cajochen C, Czeisler CA, Hanifin JP, et al. Recommendations for daytime, evening, and nighttime indoor light exposure to best support physiology, sleep, and wakefulness in healthy adults. PLOS Biology 2022:20(3).
4. Stothard ER, McHill AW, Depner CM, Birks BR, Moehlman TM, Ritchie HK, Guzzetti JR, Chinoy ED, LeBourgeois MK, Axelsson J, Wright KP Jr. Circadian Entrainment to the Natural Light-Dark Cycle across Seasons and the Weekend. Curr Biol. 2017 Feb 20;27(4):508-513. doi: 10.1016/j.cub.2016.12.041. Epub 2017 Feb 2. PMID: 28162893; PMCID: PMC5335920.