

The Hidden Harms of Modern Lighting

Analysis by [A Midwestern Doctor](#)

October 23, 2026

STORY AT-A-GLANCE

- › Sunlight is one of the most important things for our health (e.g., in a 20-year Swedish observational cohort, sun avoidance was associated with higher all-cause mortality), yet all we ever hear is how important it is to avoid it
- › Energy efficient light bulbs emit a narrow, blue-heavy spectrum that disrupts sleep and metabolism, while lacking the infrared our mitochondria depend upon
- › Decades of forgotten research (now being confirmed by modern studies) suggest unnatural light may contribute to a range of physical and behavioral problems
- › The eyes and the blood conduct light throughout the body, and when this process is disrupted (e.g., by glasses), this may have health consequences — an idea that remains outside mainstream medicine
- › In 2022, incandescent bulbs were effectively banned because their infrared was scored as “waste.” A Senate bill now aims to bring them back

Over the years, I have become convinced sunlight is one of the most essential nutrients for the body. Unfortunately, since no one has a financial interest in promoting sunlight (and it hence has no lobbyists), almost everything we hear instead focuses on why it's terrible for us.

For example, dermatology transformed itself from one of the least desirable specialties in medicine into one of the highest paying ones by rebranding its members as cancer fighters, which required scaring everyone senseless about the sun (while omitting the

harms associated with a lack of sun exposure).

Despite the billions now spent each year on skin cancer, the total death rate from it remains almost entirely unchanged (all of which is discussed here).

A similar story has played out with the light inside our homes. In 2022, the federal government effectively banned the incandescent bulb on the grounds most of its output is “wasted” as infrared, even though a rapidly growing body of research shows our bodies depend upon that infrared. In this article, I will review the forgotten research on why natural light matters so much, what our modern bulbs are doing to us, and the bill in Congress which could give us the choice back.

The Importance of Sunlight

Prior to dermatology's war on the sun, the value of sunlight was widely recognized in medicine. For example, in the early 1900s, heliotherapy (sunbathing) was used with great success for treating many otherwise incurable conditions such as the 1918 influenza¹ and tuberculosis.² The existing data in turn shows sunlight provides an immense degree of benefit:

- A large observational study reported that high solar UVB exposure was associated with roughly half the risk of breast and prostate cancer.³
- A 20-year observational study of 29,518 women found that avoiding the sun was associated with 60% higher all-cause mortality, with the greatest benefit of regular sun exposure being a reduced risk of dying from heart disease.⁴
- Likewise, in a 2024 analysis of the UK Biobank, both measures of UV exposure that were examined were associated with a lower risk of dying from any cause, from cardiovascular disease and from cancer,⁵ and when 88,905 participants wore light sensors for a week, those with brighter days and those with darker nights were each less likely to die over the following 8 years.⁶

- Sunlight is critical for mental health, and many workers (especially night shift workers in hospitals) suffer immensely without it.⁷

Note: I really got this point once, where after a long period of hospital night shifts under fluorescent lights, I noticed I was becoming clinically depressed (which has never otherwise happened to me). I went home and bathed under a full spectrum bulb, at which point I almost instantly felt better.

Typically, sunlight's benefits are attributed to vitamin D. However, I have long suspected that many of the benefits of vitamin D are not due to the vitamin itself but rather that its elevation indicates the body is having regular sunlight exposure. For example, when 24 healthy volunteers were exposed to UVA (which does not produce vitamin D) at a dose equivalent to about 30 minutes of summer sun, their arteries dilated and their blood pressure dropped, as nitric oxide stored in the skin was released into the circulation.⁸

Similarly, a meta-analysis found that spending an hour or more a day in the summer sun was associated with a 16% lower risk of breast cancer, whereas simply living somewhere with more ambient UV was not.⁹

The Incandescent Bulb Ban

Natural light contains a wide range of frequencies, whereas artificial light tends to have a much narrower range which differs greatly from what biology evolved to handle. This is easiest to see by comparing bulbs. A standard white LED emits a sharp spike of blue at around 450nm, a broader hump of yellow, and almost nothing past 700nm. An incandescent bulb, like the sun, emits a smooth curve that keeps rising through the red and continues past 2000nm, so most of what it produces is infrared we cannot see.¹⁰

In 2007, Congress passed a law which, if the Department of Energy did not finish its own lighting standards in time, required it to prohibit the sale of any general purpose bulb producing less than 45 lumens per watt. In 2022, the Biden administration put that prohibition into effect, and in 2024 finalized a second rule which raises the minimum to

roughly 120 lumens per watt in 2028.¹¹ As incandescent bulbs produce 10-18 lumens per watt,¹² this was a ban, and the 2028 standard will eliminate almost everything besides LEDs.

The problem is what a lumen is. It does not measure light, but rather how bright light appears, using a curve adopted in 1924 that weighs each wavelength by how strongly it registers in our daytime vision. Green and yellow hence count the most, blue and deep red count for very little, and ultraviolet and infrared count for almost nothing.

Decades after it was adopted, a separate set of light-sensing cells was discovered in the retina which set the body's clock rather than form images, and respond most strongly to blue light around 480nm (which the lumen curve counts at roughly one-seventh the value of green). So under this standard, a bulb that puts most of its energy into infrared is wasting it, while the blue spike in an LED registers as a minor part of its output despite being the part the body's clock reacts to the most.

In 2023, 248 scientists who had collectively published 2,697 papers on light and the circadian clock reached a consensus that the blue-enriched LEDs replacing our older bulbs disrupt circadian rhythms, that this disruption raises the risk of breast cancer, obesity, diabetes and sleep disorders, and that LED bulbs with a high blue content should carry a label warning they “may be harmful if used at night.”¹³

Similarly, when 52 household bulbs were recently measured, cool white LEDs and compact fluorescents were each estimated to suppress melatonin by about 12%, warm white LEDs by 3.6%, and incandescent bulbs by 1.5%,¹⁴ while a study of actual homes found those lit with energy efficient bulbs had nearly double the circadian-active light in the evening of those still using incandescents, and that nearly half of all homes were bright enough to suppress melatonin by 50%.¹⁵ This helps explain the modern insomnia epidemic.

Note: in 2016, the American Medical Association warned against the blue-rich LED street lights most cities were installing, as they are at least five times more powerful at suppressing melatonin than the (orange) sodium lamps they replaced, create a glare

that worsens nighttime vision for drivers, can damage the retina, and disorient nocturnal wildlife.¹⁶

The lost light is also highly consequential. Glen Jeffery's team at University College London has spent years showing that deep red and infrared light (670-900nm) increases mitochondrial energy production, whereas the 420-450nm blue which dominates LEDs suppresses it. In 2024, they showed that shining 670nm red light on people's backs for 15 minutes reduced the blood sugar spike from a glucose drink by around 27%.¹⁷

Then, in 2026, in a London office building lit entirely by LEDs (and with windows coated to reflect infrared), they placed ordinary 60 watt incandescent desk lamps around the benches of 11 workers for two weeks, while 11 others served as controls. The color contrast vision of every worker near the lamps improved (by roughly 25%), nothing changed in the controls, and the improvement lasted for two months after the lamps were taken away.

The authors noted that incandescent bulbs are being phased out on the basis of a standard which only considers visible light, and that their attempts to recreate the missing spectrum with infrared LEDs had limited success.¹⁸

In 2025, Senator Mike Lee of Utah, who chairs the Senate Energy and Natural Resources Committee, introduced the LIT Act (S. 1568) to undo this. It removes general purpose light bulbs from the Department of Energy's efficiency program, cancels the 2022 and 2024 rules, and prevents the agency from writing new ones, while leaving LEDs on the shelf for anyone who wants them.

In September 2026, the bill finally received a hearing,¹⁹ where the Department of Energy testified in support of it, the ranking Democrat defended the ban on the grounds it "is supported by industry" (and submitted a letter from the lighting industry's two trade groups, who do not want to compete with incandescent bulbs), and Senator Lee said the ban harms consumers "not just for economic reasons, not just for aesthetic reasons, but for a whole host of reasons."

John Ott

Much of what we are now learning was first observed decades ago by John Ott, a pioneer of time-lapse photography (e.g., Disney hired him) who realized the plants he filmed were reacting to the light he filmed them with, and then discovered similar effects in animals and humans.²⁰

Much of his work was predicated on recognizing that UV for the most part does not pass through glass. Some of his most interesting findings, presented in his 1973 book, *Health and Light: The Effects of Natural and Artificial Light on Man and Other Living Things*, were:

- **Plants** — Amplifying the UV in sunlight (by placing aluminum under squash plants) increased their yield five-fold and eliminated both viral and insect infestations, while tomato plants dying from a contagious virus recovered and bore fruit once they received unfiltered sunlight.
- **Fertility** — In a 5-year study with over 2000 chinchilla breeders, standard incandescent bulbs yielded litters that were 60-75% male, whereas “daylight” incandescent bulbs reversed this to 60-75% female. Similarly, placing a cathode ray color TV near his breeding program caused rats to go from 8-12 young per litter to 1-2.
- **Animal health** — 97% of mice born under natural UV light survived to maturity versus 61% under pink fluorescent lights, and cancer-prone mice under pink light died in 7.5 months on average, while as the light was improved, their lifespan progressively lengthened (up to 16.1 months).

Additionally, male mice kept under dark blue fluorescent light became obese, much as in 2025, mice exposed to the 420-450nm blue light which dominates LED bulbs were found to gain weight rapidly,²¹ while in 2019, fruit flies raised under white LEDs lived half as long as those kept in darkness (a loss which almost entirely disappeared once a yellow filter removed the blue).²²

- **Cavities** — Hamsters fed a cavity provoking diet averaged 2.2 cavities under fluorescent light with UV added, versus 10.9 under cool white fluorescents.²³
- **Behavior** — Male rats (which are normally removed before a litter is born so they will not eat it) instead cared for their young under natural light, minks became vicious under pink light but docile enough to handle with bare hands under blue, and a radio station developed severe personnel problems two months after pink fluorescents were installed to “brighten the mood,” all of which resolved within a week of the bulbs being replaced.
- **Schools** — In a 1973 Chicago pilot study, first graders under standard cool white fluorescents demonstrated nervous fatigue, irritability, fidgeting and frequent lapses of attention, whereas within a week of full spectrum lighting being installed, they settled down and paid attention (e.g., one boy who had been in constant motion taught himself to read), and were later found by their dentists to have one-third the number of cavities. Similar results were then obtained in California.²⁴
- **Glasses** — After developing severe hip arthritis that nothing (including sunbathing) helped, Ott's glasses broke, and he noticed an immediate and progressive improvement that was later confirmed by x-ray, leading him to suspect a primary route of light into the body was the eyes (as he had worn sunglasses while sunbathing). Others who followed his regimen of getting natural light to the eyes (without glasses or windows in the way) saw hay fever, Graves' eye disease, diabetic eye damage and recurrent skin cancers improve.

While Ott's belief that glasses deprive the eyes of wavelengths they need never gained traction in medicine, ophthalmology recently arrived at a version of it. Japanese researchers found that violet light (360-400nm, right at the edge of UV) suppresses the progression of nearsightedness, and that children who wore eyeglasses (which block it) had their eyes elongate faster than children wearing contact lenses which let it through.²⁵

They traced this to a violet-sensitive photoreceptor in the retina,²⁶ and when they measured violet light around Tokyo, found it was abundant outdoors and essentially absent indoors, as windows, eyeglasses and modern lighting all filter it out.²⁷

Mitogenic Radiation

A long-standing proposition within biophysics is that cells emit very faint photons (predominantly within the ultraviolet spectrum) that they use to control growth and communicate with each other. In 1923, Alexander Gurwitsch discovered that living cells gave off extremely faint emissions which triggered the cells around them to divide, leading him to name it mitogenic radiation (MGR), and after realizing that ordinary glass but not quartz glass blocked it, he concluded it was ultraviolet. Gurwitsch and those who followed him found that:

- Once biological substances (e.g., blood) were exposed to MGR, they would then emit it, and this “secondary MGR” could significantly exceed the energy initially received.
- Yeast responded to the UV from living tissue at intensities orders of magnitude lower than they did to UV from a lamp, and responded far better to a lamp emitting a mix of wavelengths than to one emitting a single spectral line.²⁸
- Blood typically emitted MGR, but in cancer it did not, which was traced to a peptide that quenched it. In animals, this “cancer quencher” appeared long before a tumor could be felt and disappeared within days of the tumor being removed. In the clinics which used it to screen newly admitted patients, both its sensitivity and specificity exceeded 95%.²⁹ Unfortunately, no diagnostic test based on this method exists or is approved today.
- A dissected optic nerve was found to radiate MGR throughout the optic tract when the eye was exposed to unfiltered sunlight. More recently, isolated rat eyes exposed to light were shown to re-emit photons afterwards,³⁰ while light shone on one end of

a nerve root increased photon activity at the other end (something a nerve conduction blocker prevented).³¹

Within 25 years, over 700 papers had been published on MGR by more than a hundred researchers (fewer than 3% of which failed to find the effect) and Gurwitsch had been nominated for the Nobel Prize 11 times. The research then stopped, as it was interrupted in Europe by World War II, increasingly dismissed in the West as “Soviet science,” and in 1948 persecuted within the USSR alongside genetics.³²

Sadly, very few know of it now, even within regenerative medicine, where many regenerative therapies may involve related mechanisms.

Blood Conducts Light

One of the oldest approaches to bringing light inside the body is to extract blood, expose it to ultraviolet light, and transfuse it back in (ultraviolet blood irradiation).

My clinical observations have led me to suspect that blood itself conducts light. I believe this is due to the secondary emissions Gurwitsch's school observed, and to the porphyrins (e.g., hemoglobin, which is structurally related to the chlorophyll plants use to capture sunlight) that function as semiconductors throughout the body.

Jeffery's group has independently arrived at similar points, as they attribute the harm from LED blue light to it being absorbed by porphyrins in the mitochondria, and have repeatedly found that light applied to one part of the body changes what happens elsewhere (e.g., red light on the back lowering blood sugar, or in an animal model of Parkinson's disease, light directed at the abdomen or legs protecting the brain³³).

Sunlight also moves the blood. As Gerald Pollack showed, when water contacts a charged surface and absorbs energy, it forms a liquid crystalline layer which spontaneously pumps fluid through any tube it lines (discussed further here), and

infrared (which LEDs lack) is the most effective part of the spectrum at building it.³⁴ Sunlight additionally releases nitric oxide (which dilates blood vessels)³⁵ and catalyzes the synthesis of the cholesterol sulfate that layer is assembled upon.³⁶

All of this helps explain why the eyes (by far the most transparent part of the body) are so important, why glasses can be so problematic, and why a localized light therapy can rapidly have systemic effects.

Conversely, many with chronic illness lose the ability to tolerate the sun, which I believe happens when either the microcirculation at the skin's surface is impaired (typically from a poor zeta potential) so that fluids there overheat rather than carry the light inward, or the mitochondria can no longer convert the light they receive into energy.

General Wellness Measures

- Start your day with sunlight, as this is one of the most useful habits for supporting healthy sleep.
- Sunbathe around noon (as this is when the healthiest UV is present) and stop once your skin shows the initial signs of excessive exposure (e.g., white skin becomes slightly pink). If you burn easily, correcting the dietary issues which impair the body's ability to handle sunlight often dramatically increases your tolerance to it.
- Get natural light to your eyes throughout the day without glasses, sunglasses or windows in the way, as glass filters out much of the ultraviolet and violet light they need.

Note: while some individuals benefit from sungazing, the scientific literature contains many cases of people who damaged or lost their sight from it, so I believe it is much better to simply get the eyes healthy natural light exposure throughout the day.

- Minimize blue-rich light at night. When those 52 bulbs were measured, warm white LEDs suppressed melatonin far less than cool white ones, and incandescents the least of all.

- Vitamin D supplementation can be very beneficial, but in almost all cases, raising your vitamin D through appropriate sunlight exposure provides significantly greater benefits.

Conclusion

One of my longstanding beliefs is that whenever a cheap and widely available therapy exists (e.g., DMSO), the medical system is incentivized to bury it, as lucrative markets emerge once its benefits are no longer there.

Natural light is one of the clearest examples of this. Despite over a century of research supporting it, a wide range of medical devices which work by putting specific wavelengths of light into the body, and most importantly, people simply feeling better in natural light, its importance has been almost completely dismissed by the medical profession, and we have instead been subjected to ever increasing amounts of unhealthy light (often without any say in the matter).

Given how long this has gone on, I find it almost unbelievable that there is finally the political will to let us move back towards a healthier form of light. I am hence immensely grateful to Senator Lee for being willing to take this issue on, and I sincerely hope each of you will take a few minutes to ask your Senators³⁷ to support S. 1568 and your Representative³⁸ to support its House companion (H.R. 3341).

Author's note: This is an abridged version of [a comprehensive article](#) about the hidden harms of modern lighting, and the forgotten science showing our cells communicate with light. Additionally, a companion article on the health benefits of ultraviolet blood irradiation can be read [here](#).

A Note from Dr. Mercola About the Author

A Midwestern Doctor (AMD) is a board-certified physician from the Midwest and a longtime reader of Mercola.com. I appreciate their exceptional insight on a wide range of topics and I'm grateful to share them. I also respect AMD's desire to remain

anonymous since AMD is still on the front lines treating patients. To find more of AMD's work, be sure to check out [The Forgotten Side of Medicine](#) on Substack.

This article is for informational purposes only and does not constitute medical advice. Consult a qualified healthcare provider before making changes to your health regimen. Ultraviolet radiation is an established cause of skin cancer; sun exposure recommendations here are general wellness guidance and are not a substitute for individual medical advice.

Sources and References

- ¹ Am J Public Health. 2009 Oct;99(Suppl 2):S236-S242
- ² J R Coll Physicians Edinb. 2017 Sep;47(3):276-280
- ³ Ann Epidemiol. 2009 Jul;19(7):468-83
- ⁴ J Intern Med. 2016 Oct;280(4):375-87
- ⁵ Health Place. 2024 Sep;89:103328
- ⁶ Proc Natl Acad Sci U S A. 2024 Oct 22;121(43):e2405924121
- ⁷ Risk Manag Healthc Policy. 2023 Jun 14;16:1049-1057
- ⁸ J Invest Dermatol. 2014 Jul;134(7):1839-1846
- ⁹ Environ Health Perspect. 2020 Jan;128(1):016002
- ^{10, 18} Sci Rep. 2026 Jan 23;16:3061
- ¹¹ E&E News by POLITICO, May 5, 2025
- ¹² Inside Lighting, June 9, 2025
- ¹³ Front Photonics. 2023 Oct 4;4:1272934
- ¹⁴ Sci Rep. 2026;16(1):2850
- ¹⁵ Sci Rep. 2020 Nov 5;10:19110
- ¹⁶ AMA CSAPH Report 2-A-16, Human and Environmental Effects of Light Emitting Diode (LED) Community Lighting, 2016
- ¹⁷ J Biophotonics. 2024 May;17(5):e202300521
- ¹⁹ S.1568, 119th Congress, LIT Act of 2025, introduced May 1, 2025
- ²⁰ Ott, John Nash. Health and Light: The Effects of Natural and Artificial Light on Man and Other Living Things. 1973
- ²¹ Sci Rep. 2025 Feb 18;15:5927
- ²² NPJ Aging Mech Dis. 2019;5:8
- ²³ Arch Oral Biol. 1971;16:1427-32
- ²⁴ Except Educ Q. 1983;4(2):75-89
- ²⁵ EBioMedicine. 2017 Feb;15:210-219
- ²⁶ J Clin Med. 2021 Nov 22;10(22):5462
- ²⁷ Int J Environ Res Public Health. 2025 Mar 17;22(3):444

- ^{28, 29, 32} J Biomed Photonics Eng. 2018 Dec 31;4(4):040201
- ³⁰ Brain Res. 2011 Jan 19;1369:1-9
- ³¹ Photochem Photobiol Sci. 2010 Mar;9(3):315-22
- ³³ Eur J Neurosci. 2023 May;57(9):1611-1624
- ³⁴ Pollack, Gerald H. The Fourth Phase of Water: Beyond Solid, Liquid, and Vapor. Ebner and Sons, 2013
- ³⁵ Sci Rep. 2017 Sep 11;7:11105
- ³⁶ Theor Biol Med Model. 2015 May 27;12:9
- ³⁷ U.S. Senate, Senators Contact
- ³⁸ U.S. House of Representatives, Directory