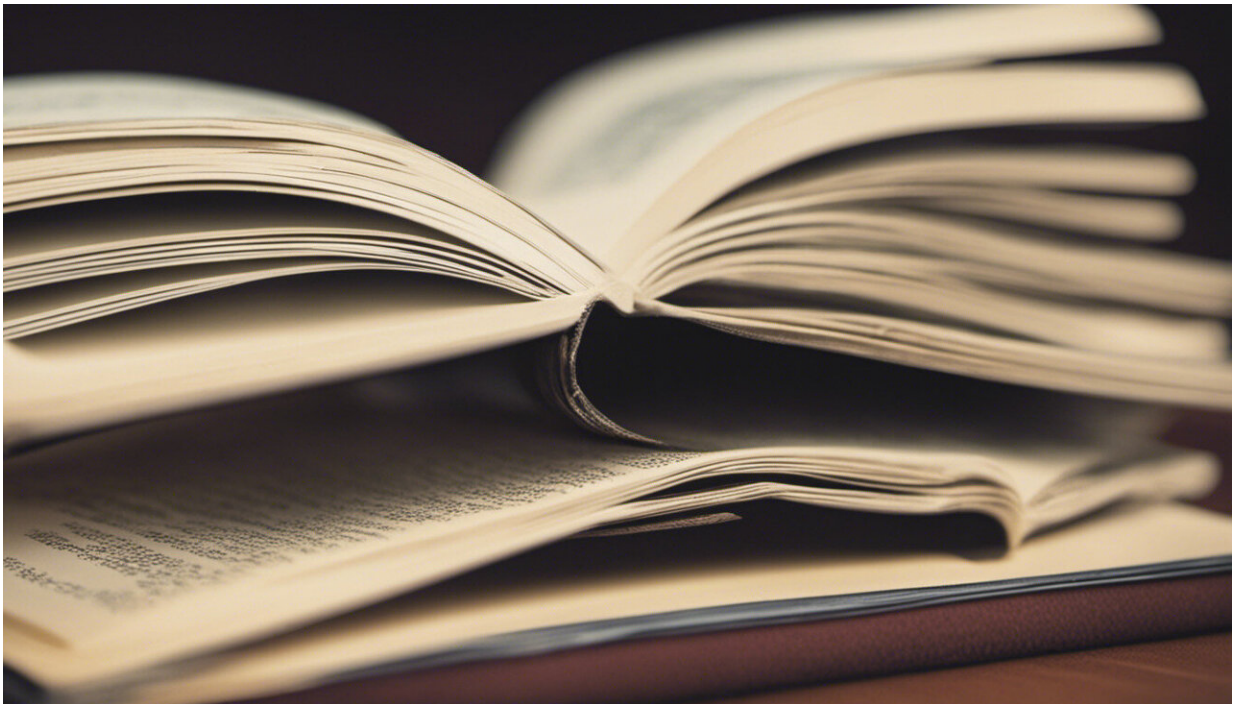


The true relationship between screens, books and nearsightedness

February 2 2023, by Conchi Lillo



Credit: AI-generated image ([disclaimer](#))

At one time or another we have surely heard or read that the excessive use of screens is causing an increase in cases of nearsightedness. Moreover, it is said that this relationship is direct, meaning that screens are responsible for the fact that more and more people around the world are nearsighted. Not surprisingly, there are also studies that conclude that

[children who spend more time in front of books or screens develop more nearsightedness than those who do not.](#)

And not only that. We have always assumed that nearsightedness and the use of glasses is directly related to performing tasks that require a special visual effort. Or to very studious people, or to avid life-long book readers.

Since we have recently replaced many of these tasks that involved reading paper with electronic screens, we have shifted the responsibility from one culprit to another.

However, this long-assumed direct relationship has not been scientifically proven. Although it is considered to be true because of the correlation/causation hypothesis, it is important to be careful with these parallels, since correlation does not always imply causation.

Tyler Vigen, a Harvard lawyer, does an excellent job of explaining this. On his website [Spurious Correlations](#), he has been carrying out a statistical experiment with arbitrary data obtained from different sources for years—data that when overlapped on graphs generates some of the most far-fetched correlations. For example, it can be deduced from the data that between 2000 and 2009 there was a correlation between the increase in per capita cheese consumption and deaths caused by becoming entangled in bedsheets. Sounds absurd, right?

What is certain is that the increase in cases of nearsightedness is real and cannot be entirely explained by genetic factors. Therefore, it is necessary to look at environmental factors.

Accomplices, but not the main culprit

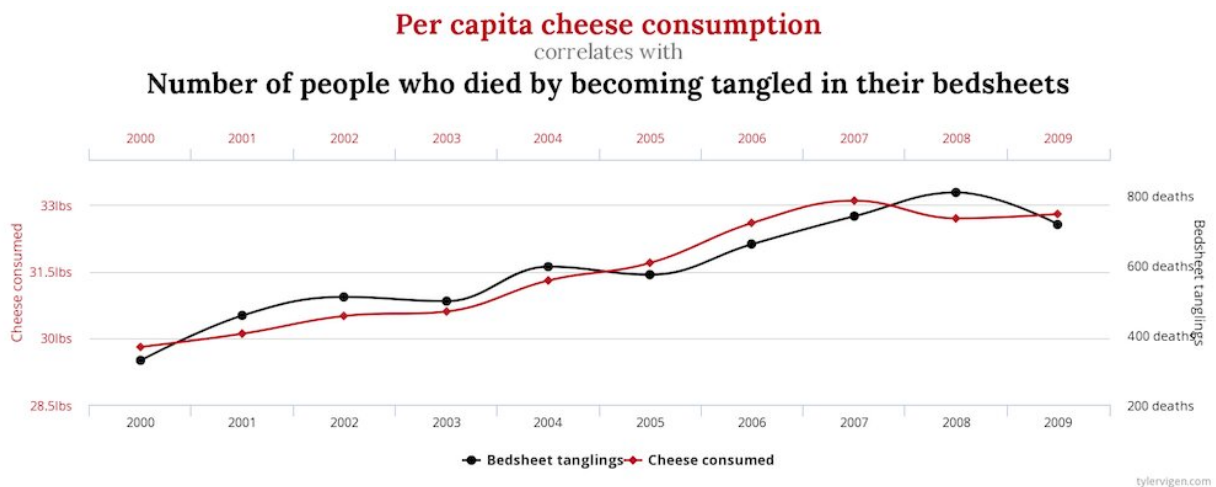
Are screens—or rather their excessive use—the cause of

nearsightedness? The latest studies suggest that they are not directly responsible.

Nearsightedness, which is the difficulty focusing on distant objects, occurs when the eyeball is too long relative to the focusing power of the eye's cornea and lens. This causes [light rays](#) to be directed to a point before the retina.

We are also nearsighted when the cornea, the lens or both are too curved for the length of our eyeball. In some cases, [all of these factors occur simultaneously](#).

These anomalies are corrected with lenses that transmit light information to the back of our eye.



Correlation between per capita cheese consumption and deaths by becoming entangled in bedsheets. Credit: [Tyler Vigen / Spurious Correlations](#), [CC BY](#)

The process by which an eye develops nearsightedness is not entirely

known, but we do know that for our vision to develop correctly we need to promote and [practice both near and distance vision](#).

In this [sense](#), it seems logical to suspect that ongoing exposure to screens from an early age at a time when the eye is still maturing may favor the development of vision of near objects, to the detriment of distance vision. However, there is not enough data to conclude that this causes nearsightedness to occur.

Eye fatigue

No one disputes that [excessive use of screens](#) causes "eye fatigue," also known as "computer syndrome," which causes redness, stinging and itchy eyes, dry eyes (or conversely, constant tearing), headache, etc. This occurs because when we look at a screen, we blink less (unconsciously), we stare at a specific point for a long time or from an inappropriate angle and we expose ourselves to the excessive brightness of these devices.

What can we do to fight it? Don't bother [with blue light filters](#)—which are unfairly blamed. The best recommendation to reduce the signs of eye fatigue is to blink frequently and take breaks [following the 20/20/20 rule](#). In other words, every 20 minutes, take a 20-second break and look at (and try to focus on) an object 20 feet (6 meters) away.

If you look through a window and with light, even better. Why with light? Because it is suspected that one of the possible culprits for the development of nearsightedness is a lack of light.

Lack of light

Indeed, it has been proven that children who read a lot, whether on paper

or on a digital screen are generally [less exposed to sunlight during the day](#). And, it has recently been [demonstrated](#) that there is a relationship between nearsightedness and a lack of sunlight.

It seems that [solar radiation](#) (especially high-energy radiation, such as blue and [violet light](#)) would stimulate [dopamine release by retinal amacrine cells](#) (another type of cell other than photoreceptors). This would inhibit the growth of the eye, avoiding the typical elongation that leads to nearsightedness.

There is also experimental evidence that shows that in different animal species, including monkeys, exposure to high-energy violet light could [protect against nearsightedness](#).

In short, all signs point to the fact that neither books nor electronic devices are directly to blame for the increase in nearsightedness around the world. They have only become accomplices in this phenomenon by keeping children away from sunlight.

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