ARE WE ON THE VERGE OF ELIMINATING JET LAG?

News / Airlines



New lighting plans on airlines are helping passengers adjust to new schedules. But how close are we to eliminating jet lag altogether?

When flight attendants start wheeling out dinner service on certain Singapore Airlines flights headed east, the cabin lighting dims to mimic candlelight. During dessert—though it's still light outside—the cabin lights up to look like sunset. By the next morning, a few hours before passengers have to wake up, the lights simulate sunrise.

In theory, by the time someone reaches a destination on the other side of the world, they'll feel much closer to being on local time.

"It turns out you can pretty heavily manipulate levels of melatonin in the body by exposing people to different wavelengths of light," says David Consensa, a project manager for Lumileds, a company that manufacturers the LED lights that are now used in the new Airbus A380 XWB—which Singapore and a handful of other airlines now own—and the Boeing 787 Dreamliner.

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Finnair

The lighting system installed in the Airbus allows for 16.7 million different combinations of full-spectrum lights that can simulate different times of day and different effects. Finnair mimics bright white Scandinavian skies and the northern lights. During a long-haul flight, the lights might change—slowly—10 times.

"When it's time to wake up, hitting people with a bit more blue light is what's going to block the body from making more melatonin," Consensa says.

Though Airbus couldn't point to specific studies about how much the lights can help reduce jet lag, a researcher in the field says the effects might work best on a shorter flight—say, San Francisco to New York. "In the laboratory—in the best circumstances you can possibly do—you can get a three- to four-hour change in timing after a single day," says Jamie Zeitzer, a professor at the Center for Sleep Sciences and Medicine at Stanford University. "That's with continuous light."

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Finnair

Exposure to brighter light at certain times during sleep can help someone begin to adjust to a new time period. "If you were traveling west to east, you would get light near the end of your normal sleep period, and if you're traveling east to west, it would be light at the beginning of your normal sleep period," says Zeitzer. "So if you were traveling west to east taking the red-eye, you would basically be getting light prior to landing."

Zeitzer's lab is studying an alternative that he thinks may ultimately be more effective—instead of continuous light, sending short flashes of light to the eye while someone sleeps. "When you give continuous light, the photoreceptors in your eye become adapted to the light," he says. "So if you're in front of the light for a couple of hours, after the first minute or so, the eye is really desensitized." By alternating light with darkness, the impact of the light becomes greater.

Of course, flashing lights would be pretty annoying for anyone who's still awake—so a doctoral student at Stanford is spinning off the research into a new mask that people could wear on their own, with a startup called LumosTech.

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Airbus

There might be other reasons why individual lighting would be better on a plane. "One of the issues is that people come from different time zones," says Zeitzer. "So it may be disruptive if it's in the general lighting. Even if, say, everyone's leaving from LAX, they may have just arrived from Hong Kong, they may live in L.A., or they may have just flown back from D.C."

Zeitzer's hoping his flashing light method may improve to the point where people could seamlessly change between much more distant time zones, such as San Francisco to Istanbul. "The holy grail is to be able to change people's timing by much larger amounts," he says. "It's something that we can do in mice. It's something that we can do in flies—in all sorts of other organisms, we can change circadian timing to a much greater degree."

In a year, he says, he'll have a better sense of how much the flashing light system can improve. If it works, it can help more than travelers. "It could also help shift workers with 12-hour changes, which is just not possible at this point," he says.

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