Driverless Cars Are Here. How to Prime Your Nervous System for the Ride

5 MIN READ

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BY CORA COBURN

Autonomous vehicles may help us be more mobile as we age — but a new study suggests that even the most intrepid women among us are wary.

You step into the car, fasten your seatbelt, check your lipstick in the rearview mirror (if you're my mom), and turn to the driver's side to see… no one.

This may be your future. Or, honestly, your present. AI is becoming its own self-fulfilled inevitability, and autonomous vehicles are no exception. Waymo is now offering taxi services in **eleven American cities**, with more rollouts to come. According to a **Research and Markets report**, the market for self-driving cars is projected to increase to more than $103 billion by 2034 from $28.63 billion in 2025.

These driverless cars use sensors, including radar, high-definition cameras, and GPS, to mimic human perception of the environment. Combine that with machine learning that anticipates landmarks and makes decisions, and you have a car that can drive just as well as a human, according to advocates, if not better. Autonomous vehicles don't take their eyes off the road to sip too-hot coffee, or respond to a couldn't-wait outfit-consultation text message.

Studies see the potential for autonomous vehicles to increase fuel efficiency and car sharing and decrease congestion and crashes. But the real boon may be for longevity.

Mobility often declines with age. Even though people 65 and older hold about 21% of drivers licenses in the U.S. as of 2021, according to **Federal Highway**

Administration data, older adults are less likely to drive at night, or in bad weather. Many stop driving altogether. And that's a choice that has implications. Less freedom of movement is associated with **depression and other health outcomes** that suffice it to say are on none of our mood boards.

Enter: the self-driving car, the solution for older Americans who don't feel comfortable getting behind the wheel. Yet fears about safety continue. Women in general have less trust in autonomous vehicles than men, and headline-making AV crashes don't help the case for replacing drivers.

Driverless Cars Are Revving the Nervous System

A recent study published in **Applied Ergonomics** attempted to measure the intangible ick factor many women feel riding in self-driving cars. Study participants sat in the passenger's seat, either next to a driver (in the control rides) or a safety driver (in the autonomous vehicle rides). The safety driver didn't touch the wheel. The cars, however, weren't driven autonomously, exactly; they were driven remotely by a human. But the women didn't know that. Scientists measured three indicators of stress response: heart rate, heart rate variability, and skin conductive responses.

Interestingly, women who believed they were about to ride in autonomous vehicles showed *lower* stress at the start of the trip than before they rode in the manually driven cars. This suggests that the women who volunteered for the study didn't hate autonomous vehicles on principle (like, let's face it, some of us do).

But, unfortunately, that sense of calm didn't last, even for these adventurous volunteers. Stress measures for women on the perceived autonomous trip increased as the cars navigated the closed route, approaching three aggravating scenarios common in cities. These were: a construction site (ugh), a traffic light (sigh), and a slalom around an obstacle (uh-oh). And, if the women were more comfortable with AVs to

begin with? The stress responses the study recorded might actually be conservative compared to the general population.

What's Spiking Our Stress?

Bryant Walker Smith, a law professor at the University of South Carolina who studies emerging technologies, cited a few limitations of the study, including the slight delay between the remote operator's actions and the "autonomous" car's movement. "The authors reported a two-hundred-millisecond latency, which is the point that starts to feel uncanny," Smith explained. "If you have that lag, you're going to perceive a difference between the driving you expect and the driving that you see." Essentially, the women riding in the emote-operated cars may have been uncomfortably reminded of their last glitchy Zoom call.

Men weren't included in the research, but in theory they might've had a similar reaction. A recent *Nature* **study** looked at sex differences in visuomotor tracking and found that men are quicker to react physically to visual information about motion. In other words, they're likely just as keyed into these subtle movement differences as women, if not more.

Smith thought, too, that the presence of the safety driver might've been the opposite of soothing. "In the simulated automated ride, the person is just sitting there in a weird way with their hands right below the steering wheel, ready to grab it at any moment. This is just awkward," Smith said. That social discomfort could translate into stress data that has little to do with the car (supposedly) driving itself. He added, "You would find me most nervous in these moments with the weird zombie safety driver."

Tellingly, stress responses *decreased* over the course of the ride visibly driven by a human, despite the three anxious-making road conditions. The study was small, though, and the authors acknowledge the need for further research.

All of this means that those of us who don't (yet) have personal chauffeurs may be

weighing two uninspiring options as we age: facing an acute stress response, or staying home.

For some experts, this isn't a hard choice. Judson Brewer, a psychiatrist, neuroscientist, MD, and PhD, told Super Age: "If a stress response goes up acutely, it's not as much of a problem as if it goes up and stays up. It's chronic stress that's the problem."

Dr. Brewer, who is also the creator of the program "Going Beyond Anxiety" and the author of the bestselling book *Unwinding Anxiety*, added, "How many people sit around all day and worry? *That's* a prolonged stress response."

How to Ready (and Steady) Yourself For the Ride

In other words, the short-term stress of riding in an autonomous vehicle might be worth what's waiting on the other side. If you want to avail yourself of this novel get-around option, here are a few things you can do to prepare your body before buckling your seatbelt:

1. Know the risks. At least 90% of car crashes are caused by human error, meaning driverless cars could improve public health on the scale of the invention of penicillin, according to research in the **Proceedings of the National Academy of Sciences**. "We should be concerned about automated driving, but we should be terrified by human driving," explains Smith. He also made a distinction between the (oxymoronic) driving assistance models, like Tesla's, and truly autonomous vehicles. "A lot of the public incidents have involved not automated driving but driving assistance," Smith explains.

2. Get a gut-check on blame. According to a **Harvard Business School study**, people are more likely to blame autonomous vehicles for accidents than humans — perhaps unsurprisingly. It's easier to point a finger at a robot than a living, breathing person, equipped with the (all too relatable) capacity to feel guilt. But the public tends

to compare the robot driver to a “perfect,” error-free human. Driving includes risk. But driverless cars may actually be safer than cars driven by (yes, fallible) human beings.

3. Determine: different or dangerous? According to Dr. Brewer, “Our brains are typically going to respond to anything different as dangerous until proven otherwise.” He encourages riders to ask themselves: Is this actually unsafe, or simply something I’ve never done before? Even if you *do* have a stress response, it’s likely to go away after a couple of instances of exposure to the new thing, Dr. Brewer adds. Who knows, by the third or fourth ride you may be as bored by your autonomous vehicle trip as your old morning commute — only in your AV you can play Sudoku the entire ride.

4. Focus on the goal. Remind yourself *why* you’re taking an autonomous vehicle trip. Whether it’s to attend a friend’s birthday party or simply pick up groceries, Dr. Brewer says that bringing to mind the goal may help you open the door to that driverless car.

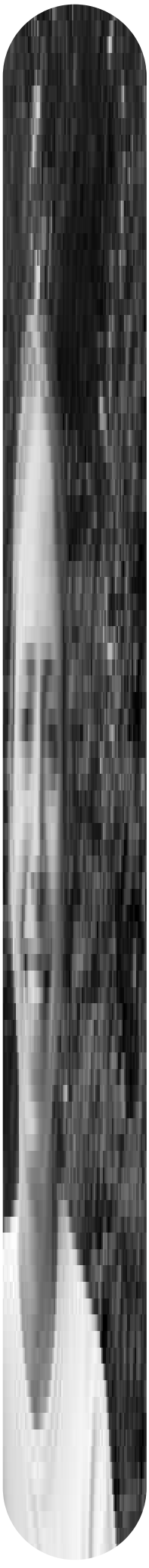
Ultimately, much of this work is up to the makers of driverless cars to educate the public on the safety statistics of their vehicles. Smith highlighted the **United Nation’s efforts** to create global standards. And the study in *Applied Ergonomics* advocates for real-time remote assistance and transparent interfaces with information on upcoming maneuvers (“slowing for obstacle,” for example, in a non-robot voice, please), so passengers won’t be surprised during the ride.

Regardless, getting around is crucial to healthy aging. And if that means arriving fashionably late in a car no one drove? Maybe it’s worth it.

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WRITTEN BY:



Cora Coburn