

Centuries of Sailors Weren't Wrong: Looking at the Horizon Stabilizes Posture

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Everybody who has been aboard a ship has heard the advice: if you feel unsteady, look at the horizon. For a study published in *Psychological Science*, a journal of the Association for Psychological Science, researchers measured how much people sway on land and at sea and found there's truth in that advice; people aboard a ship are steadier if they fix their eyes on the horizon.

Thomas A. Stoffregen of the University of Minnesota has been studying "body sway" for decades—how much people rock back and forth in different situations, and what this has to do with motion sickness. In just a normal situation, standing still, people move back and forth by about four centimeters every 12 to 15 seconds. Stoffregen and his coauthors, Anthony M. Mayo and Michael G. Wade, wanted to know how this changes when you're standing on a ship.

To study posture at sea, Stoffregen made contact with the U.S. consortium that runs scientific research ships. "I'm really an oddball for these folks, because they're studying oceanography, like hydrothermal vents. Here's this behavioral scientist, calling them up," he says. He boards a ship when it is travelling between different projects—for example, in this study, he rode on the research vessel Atlantis as it went between two points in the Gulf of California. "It had nothing to do with the fact that I like cruising near the tropics," he jokes. Since the ships are between scientific expeditions, he can sleep in one of the empty bunks normally reserved for ocean scientists, and crew members volunteer to take part in his study.

The study compared the same people standing on dry land—a dock in Guaymas, Mexico—and aboard the ship. In each experiment, the crew member stood comfortably on a force plate and focused on a target—either something about 16 inches in front of them, or a far-off point; a distant mountain when standing on land or the horizon when standing on the ship. On land, people were steadier when they looked at the close-up target and swayed more when they looked far away. On the ship, however, they were steadier when they looked at the horizon.

This is actually counterintuitive, Stoffregen says. When you're standing on a ship, you need to adjust to the ship's movement, or you'll fall over. So why would it help to look at the horizon and orient yourself to the Earth? He thinks it may help stabilize your body by helping you differentiate between sources of movement—the natural movement coming from your body and the movement caused by the ship.

Stoffregen thinks this motion of bodies may predict motion sickness. "It's the people who become wobbly who subsequently become motion sick," he says. He had originally hoped to study seasickness directly, but so far his subjects have all been seasoned crew members who are used to the ship's movement and don't get sick; his dream is to do his experiments aboard a ship full of undergraduate oceanography majors going to sea for the first time. "I'd give my right arm to get on one of those."