

Motion Sickness: It's All In Your Head



You may know the feeling: as you start a long car trip, you feel nauseated, maybe to the point of vomiting. You may also have a headache, loss of appetite, upset stomach and a generally sick feeling. You're car sick, and it's no fun. Motion sickness can take place just about anywhere; people get seasick, airsick and yes, even space sick. When astronauts face motion sickness, especially at critical points in a mission, it can jeopardize an operation, so they have to be able to cope. But how?

One of the keys to solving a problem is knowing what caused it, and that's part of mystery. Nobody is exactly sure how motion sickness is caused, because it's experienced so differently in patients. Scientists do know that micro gravity seems to **accentuate** motion sickness. A person's orientation and head movements, shifting of body fluids, such as blood and cerebrospinal fluid; and changes in the balance organs of the **vestibular system** (inner ear) play a role.

Mercury and Gemini space flight astronauts did not experience space motion sickness, and scientists attribute this to the design of the space capsules. Mobility and peripheral vision was restricted, so the astronauts didn't encounter **spatial disorientation** during flight.

It was with the Apollo and Skylab missions that space motion sickness first surfaced; when astronauts started moving about with greater freedom. In the current Space Shuttle and Space Station programs, about 50 percent of astronauts and cosmonauts experience some degree of motion sickness.

Two NASA scientists from Ames Research Center in California have developed **Autogenic** Feedback Training (AFT), a special program to help astronauts control their symptoms of space motion sickness. Doctors Patricia Cowings and William Toscano's goal was to teach astronauts and cosmonauts how to control their own **autonomic** responses, which would help them cope with the woozy feeling of being space sick.



"AFT is a six-hour training program where astronauts are given self-suggestion exercises," says Dr. Toscano. "They learn to recognize the early symptoms of motion sickness and respond. Everyone is unique in the way they experience motion sickness, so the first part of the program consists of monitoring each person for their particular responses and then tailoring the self-suggestions to be most effective."



Imagery and visualization techniques carry negative images with them,” he says. “We don’t use **mantras** and we don’t meditate. It’s about focusing attention on a problem and re-directing the way your body responds to certain conditions. It’s about using mental, instead of **pharmacological** treatments.”

Training the body to respond to its own symptoms has had some earth-bound success as well, Toscano says. Besides its use with airplane pilots, AFT has been used with success in medical patients with certain **autoimmune** disorders that make them unable to tolerate food. Until using AFT techniques, patients resorted to tube feeding in order to avoid vomiting with every meal. “After AFT, doctors report that patients are able to eat normal
oscano says. “The success we’ve seen with the simple techniques of AFT offer encouragement for many types of disorders beyond motion sickness.”

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