REGULATORS EXAMINE TIGHT AIRLINE SEATING IN AN EVACUATION

News / Airlines

If it is harder to get into an airline seat, does that mean it is harder to get out of the plane in an emergency?

Probably not, researchers say. But it turns out no one knows for sure yet. Airline regulators haven't formally studied evacuations under the tighter space conditions that now exist on many airplanes.

While even some in Congress have asked if the squeeze of air travel seating is a danger, researchers say it is unlikely to make much of a difference. The keys to a quick airplane evacuation, they say, are less about seat size or leg room than about crowding in aisles, spacing of passengers throughout the plane, travelers' knowledge of the procedures and the size, age and gender of passengers themselves.

The Federal Aviation Administration conducts its evacuation tests with 31 inches of space for each

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row - seat plus passenger. That is called "seat pitch" in industry parlance. Today, many airlines have squeezed what used to be the airline standard of 31- or 32-inch seat pitch. American, Delta and United all have some rows at 30 inches. Spirit Airlines and a few other low-fare airlines have planes with 28-inch seat pitch.

Cynthia McLean, the FAA's principal cabin safety investigator, says the FAA's Civil Aerospace Medical Institute, here in Oklahoma City, plans to request funding from Congress to study seating density, likely in the next three years. "This is something we have to kind of step back and see what the effect is. There might be an effect. We don't know," she says.

Most prior seat-pitch studies have focused on the width of exit rows and have shown that the ideal is just enough space to accommodate a single-file line of passengers. If the passageway is too big, people bunch up. If too small, they can't squeeze through quickly. Seat pitch minimums are regulated for exit rows, but not for other parts of the airplane.

Ms. McLean doesn't think smaller seat pitch in regular rows will matter because logjams happen in aisles during evacuations. Even if it takes you longer to get out of the tight quarters of your coach class or economy row, you'll most likely still have to wait in the aisle to get out. "The speed out of the row itself really does not have a significant affect," Ms. McLean says.

Having the seat in front of you closer may actually reduce injuries in an emergency landing. In the brace position, you want your head pressing against the seat in front of you, she says. Roomier rows have more room for your head to bang into something.

National Transportation Safety Board investigations have shown no impact from denser seating on evacuations, a spokesman says.

The FAA cabin simulator in Oklahoma City is an 85-foot-long tube about as wide as a typical single-aisle airplane that is fitted with 120 seats. The simulator is used sporadically for research projects and training of FAA inspectors and airline employees, mostly people who go back to airlines and train cabin crews.

It was fashioned from a retired military cargo plane, and has both main-door and over-wing emergency exits, 16 GoPro cameras and theatrical smoke generators. The windows are actually video screens so "passengers" see different environments outside, from splashing waves to fire. Like a cockpit simulator, it is mounted on hydraulic pistons so evacuations can be tested at various angles and heights. Seats can be moved to test different densities and configurations, and new aircraft signs and lighting can be checked for visibility in smoky cabins.

Before airplanes enter service, their manufacturers have to demonstrate to regulators that all people on board can be evacuated within 90 seconds using only half of the exits. Manufacturers do this by filling their cabins with a maximum number of seats, usually with tight seat pitch, to get planes certified for maximum occupancy. Their evacuation simulations are conducted in the dark with only emergency lighting. Participants have to be inexperienced at evacuations with a mix of age and gender. Some people hold infant-sized dummies and luggage is scattered to simulate pieces falling out of overhead bins.

Once planes are put in service, airlines have to show regulators that any major changes they make comply with evacuation standards.

The evacuation tests, however, have been criticized as unrealistic. There is no one on board with mobility issues, for example, because everyone is required to be in good health because of the

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risk of injury during the test. Blocking exits on one side makes the flow faster than randomly blocking exits, says Edward Galea, a professor at London's University of Greenwich who has studied hundreds of evacuations and built a widely used airplane evacuation computer model. Research has shown that people hesitate at doors in real emergencies more so than in tests.

"The tests are not challenging," Dr. Galea says.

Manufacturers say the tests aren't meant to be realistic, only to provide a benchmark. Evacuating within 90 seconds provides a good safety margin since fire-resistant aircraft materials give passengers a couple of minutes to get out.

With tighter seating conditions, Dr. Galea says casual study indicates that less maneuvering space in regular rows may not matter in an evacuation anyway. He recently used his model to see if the airline squeeze trend should be studied further. He found no change in survivability.

"Simply reducing the space in the seat row does not have a negative impact" on evacuation, he says.

Dr. Galea notes that if there are more people on the plane, it will take longer to evacuate. Bunching up passengers at one end of airplane can make evacuations more complex as well. Roomy first-class and business-class cabins have fewer passengers per exit than rear of the plane where dense seating may leave more passengers vying for each door. Some airlines train cabin crew to push people to bypass the nearest exits and go up front for quicker escape.

Ms. McLean says research has shown that the most important factor in surviving a crash landing is a person's agility. Age, gender and weight have shown to be significant.

A few minutes studying how to open emergency exits is recommended as well. Clothing can matter: long pants, long-sleeved shirts and lace-up shoes are best.

The biggest danger researchers have seen in aircraft evacuations as recent as a British Airways fire aboard a Boeing 777 on the ground in Las Vegas on Sep. 8: People fleeing with their carry-on bags. Retrieving luggage slows up exiting from the airplane and possibly delays others behind you.

Ms. McLean recommends traveling with a fanny pack that has your phone, ID, medication and other important items so you can run with empty hands. And once you get to the aisle, don't crawl on the floor. Instead, hunch over and grab arm rests as you move down an aisle. Keep your head down below the smoke where you can see floor markings.

Dr. Galea's advice: Never sit in a window or a middle seat. "I don't want to be blocked by people getting out," he says. And sit within seven rows of a viable exit improves your chances of quick escape.

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