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THIS STORY

## A computerized reality promises help for anxiety disorders

Associated Press

*Last Updated: Aug. 27, 2000*

**Atlanta** - Esther Begle, 34, owner of a small flower business, sits on a black office chair in a one-story brick building in Atlanta. A black plastic helmet covers her ears and eyes. She is wearing a seat belt.

But this is merely her physical reality. In her mind, she's in a window seat of an airliner, looking out. That's what the helmet's video screens and headphones are telling her.

The soothing voice of Ken Graap seems to come from deep in her brain.

"How you doing?"

"Good."

"Want to start the engine?"

"OK."

The gentle music in the plane shuts off and the engines come on.

"Ready to taxi a bit? . . . We're going up to the end of the runway."

Begle hears a female voice gently telling her to put her tray table in its upright and locked position. Then it's Graap again.

"How you doing, Esther?"

"Good."

"Here we go."

The engine whine grows to a roar. Buildings race by in the distance. Her seat is vibrating.

As Begle hurtles down the imaginary runway, her hands remain in her lap, resolutely relaxed. But her breathing picks up a little.

This has always been the hardest part.

### How it works

Virtual reality is a new wrinkle in a standard technique called exposure therapy.

The idea is to teach people how to manage fears, and then take them into whatever situations terrify them.

There they learn they can control their emotions and that, really, these situations aren't so scary after all.

**On the Net:** [www.psicologia.net](http://www.psicologia.net) is about virtual reality in medicine  
[www.vrphobia.com](http://www.vrphobia.com) is the Center for Advanced Multimedia Psychotherapy

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Later this year, researchers will report that going through a simulation like that repeatedly can help people conquer their fear of flying.

But that's just a hint of what's going on in perhaps two dozen laboratories in the United States and elsewhere. Researchers are testing "virtual reality," computer-simulated environments like the one Esther was immersed in, for treating a wide variety of mental disorders.

- At the University of Washington in Seattle, about 20 people with serious fear of spiders have entered a virtual kitchen, chased a tarantula around a countertop and flushed it down the sink. "It's very successful" in reducing the fear, says researcher Hunter Hoffman.
- At the University of Southern California in Los Angeles, researchers are developing a virtual classroom, complete with distractions like a wandering paper airplane and the sound of dropping pencils, to evaluate children suspected of having attention deficit/hyperactivity disorder.
- At Department of Veterans Affairs medical centers in Atlanta and Boston, some Vietnam veterans with post-traumatic stress disorder are visiting "virtual Vietnam," a re-creation of the wartime environment that still lays claim to their minds.
- At Virtually Better Inc. in Atlanta, where Begle took her simulated flight and Graap is CEO, researchers are also studying a computer-generated environment for treating fear of public speaking. Patients face audience members who can be made to applaud, look interested or bored, or even doze off.

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"We're getting close to cruising altitude," Graap tells Begle.

This is just a demonstration. Begle (pronounced "beagle") is in fact already a success story for virtual-reality therapy.

When Graap presses a button on his computer and the virtual skies darken, thunder rolls through Beagle's helmet and she feels the bumps in her chair and below her feet. She admits that such weather still bothers her. The good part is that she now knows how to turn her thoughts elsewhere, such as by reading a mystery.

It was turbulence in a real flight nearly three years ago that made her afraid to fly.

"I just felt like we're all going to die," she recalled. Her mouth went dry, her legs shook. She squeezed her husband's leg to "keep myself from standing up and screaming."

Valium, chats with pilots and Bible verses weren't enough. So earlier this year she tried virtual reality.

The program was conceived by psychologist Barbara Rothbaum of Emory University and computer expert Larry Hodges of the Georgia Institute of Technology, a pioneering team in the field of using virtual reality to treat anxiety disorders.

"I know what scares people and he knows how to put it in virtual environments," Rothbaum says.

Five years ago, they reported that people who feared heights could be successfully treated by riding a 50-story virtual glass elevator and making their way across imaginary footbridges. The researchers later founded Virtually Better.

Virtual reality is not a radically new therapy for phobias. It's a new wrinkle in a standard technique called exposure therapy. The idea is to teach people how to manage fears, and then take them into whatever situations terrify them - heights, airplanes, an encounter with spiders. There they learn they can control their emotions and that, really, these situations aren't so scary after all.

In Rothbaum's forthcoming fear-of-flying study, researchers report 90% of patients who tried virtual-reality flights later took a real flight on their own. That's about the same success rate seen in patients who had real-world exposure at an airport instead.

The advantage of virtual reality is that it can provide the feared environment right in the therapist's office. No more driving to the airport for fear-of-flying treatment, for example. That could save money; insurance companies often won't pay for that therapist's driving time or airline tickets. The treatment is done in private rather than in public, and the experience is easily controlled. Need a few more takeoffs? Coming right up.

And it is, well, not real.

"The beautiful thing about virtual reality is that's somewhere between the imagination and real life," said Brenda Wiederhold, director of the Center for Advanced Multimedia Psychotherapy in San Diego. "So it's kind of a comfortable place to start.

"It gets a lot of people in who wouldn't come in if you said, 'I'm going to take you on a plane tomorrow.' "

The digital plane Begle rode certainly didn't look real from her seat. It was a bare-bones mock-up of an airliner cabin. Nobody else was there. The two forearms she could see on her arm rests were stiff and unmoving. If she looked directly down, she would see that in this environment, she had no upper arms.

But it works. On Begle's first simulated takeoff, she was asked to rate her anxiety on a scale from zero to 100, with the upper limit being the most terrible panic imaginable.

She hit 75.

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While the best-studied use for virtual reality in mental health is in treating phobias, another area showing promise is distracting patients as they get painful medical treatment.

Researchers are just beginning to explore other uses such as therapy for eating disorders or rehabilitation for brain problems like stroke or traumatic injury, says Mark Wiederhold, the editor of the journal *CyberPsychology and Behavior*, and Brenda Wiederhold's husband.

In post-traumatic stress disorder, early indications are that it might help reduce symptoms such as flashbacks in Vietnam veterans. The idea is to help a troubled veteran focus on particular traumatic events over and over, until they lose their grip on the mind. Then they can simply be remembered rather than re-experienced.

Virtual reality treatments aren't for everybody. Some patients - the reported fraction varies widely - suffer "cybersickness," including dizziness, disorientation and nausea. And not everybody can suspend disbelief well enough to benefit.

Experts also worry that untrained or unskilled therapists might offer virtual reality as a gimmick, giving bad therapy that might even make a phobia worse.

"They could wreck the whole field for us," Rothbaum said. "A couple bad apples would give it a bad name."

After all, virtual reality is only a tool, said Mark Wiederhold. "A tool will never substitute for good clinical skills. A bad therapist with advanced technology is just a bad therapist with advanced technology."

But researchers also have big dreams.

Could child molesters learn to control themselves by visiting virtual playgrounds during therapy? Could people hash out bothersome issues by confronting digital versions of their bosses or spouses? Could teenagers practice just saying no if they met up with simulated pushers?

As hardware prices fall and software improves, could these systems even be turned into self-help tools?

But these are matters for the future. For now, Begle says, virtual reality has helped her. She got through a bumpy 20 minutes on a real flight recently without losing control.

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