



# Researchers Determine What Makes People 'Choke'

**Ever Fumble Under Pressure? Researchers Think They Know Why**

**By Lee Dye**

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We've seen it happen to the best of them.

A world-class athlete is going for the gold when a well-honed skill suddenly deserts him. A concert pianist, finally getting that chance to play in Carnegie Hall, finds her fingers have turned to thumbs. Tiger misses a six-inch putt.

The big moment comes, and goes, and they've blown it.

In a word, they've choked. Even those of us who have never reached the top know the feeling. We should have been able to do something that was easily within our reach, and we couldn't pull it off. Why did our skills fail us when we needed them the most?

Researchers at Michigan State University think they have figured out why. A series of experiments there indicate that we choke because we are trying too hard, not because we aren't trying hard enough.

Science by Golf

"Paying too much attention to the performance breaks down the skill," says Sian L. Beilock, who headed up the research project as part of her doctoral dissertation in psychology. "And that's what causes choking."

Beilock reported her findings in the December issue of the *Journal of Experimental Psychology: General*, published by the American Psychological Association. Beilock and her faculty adviser, Thomas H. Carr, brought 54 male and female students into their lab and taught them how to play golf. Or at least how to putt.

Tests were designed to see if the researchers could induce choking, which they found they could do fairly easily, and whether people could be "vaccinated" against choking by exposing them to such things as distractions. If they could, the researchers reasoned, they could figure out what provides the best "inoculation," and that would tell them what causes choking.

"There are two theories on why people choke under pressure," Beilock says. "One theory suggests that under pressure, you become distracted by the pressure, or the audience, or the consequences of failure. In essence, you don't pay enough attention to your skill."

"Another theory predicts just the opposite. You get in a high-pressure situation and you start paying too much attention to your skill. You start trying to control it in a way that you never did in practice.

"They both seem plausible."

The researchers divided the participants into three groups and brought in experts to teach them how to putt. One group tried to master that maddening skill without any distractions. But a second group was faced with a daunting distraction. They learned putting while listening to words on a tape recorder and repeating a target word every time they heard it.

The third group putted with a video camera set up in front of them, and they were told to pay close attention to their performance because golf pros would be reviewing the tapes. The idea there was to make the members of the third group very self-conscious as they tried to learn to putt.

### Practice Under Pressure

Beilock says all three groups developed their putting skill to a high level. Then they were put through two tests, one low pressure and one high, to see how they performed. All three groups performed well under low-pressure conditions.

But that changed dramatically when the pressure rose. The participants were told they would receive a monetary reward (a measly \$5, but enough to get their interest) if they could improve their performance in the second test. They were also told that they had been paired with another participant, and both would have to improve to receive the reward.

"Then we told them that their partner had already gone through the experiment and had improved," so each participant was led to believe that someone else would lose out if he or she failed.

"That really did it," Beilock says. "They didn't want to lose money for someone else."

The pressure was too great for the first group, those who had learned the skill without any distractions or video cameras. They failed, but it showed that the researchers had indeed caused them to choke.

The experiment got more interesting with the second group because they had been trained in a distracting environment. Their early training had, in effect, "inoculated" them from distractions. So if people choke because they are distracted, and don't pay enough attention to what they are doing, this group should have done well under pressure.

"But they choked," Beilock says.

The third group, however, breezed through without choking. They had learned to play while a video camera had been focused on them (with the threat of pros looking over their shoulders), thus compelling them to concentrate on what they were doing. They had been "vaccinated" against being self-conscious. High pressure didn't cause them to focus on themselves, worrying about every detail.

And that's why they didn't choke, Beilock says.

### Turning on Autopilot

Three other experiments support the findings, she adds.

"We bring expert golfers into our lab, and we tell them to pay attention to a particular part of their swing, and they just screw up," she says. "When you are at a high level, your skills become somewhat automated. You don't pay attention to every step in what you're doing."

High pressure can make even the best athlete self-conscious, causing him or her to "try to control their performance in a way that they are not used to," Beilock says.

Maybe what it all means is that to win big, you've got to get your mind off yourself.

The key, she says, is to learn how to relax. Humming a tune while approaching the 18th hole at the U.S. Open might help.

By the way, don't worry about those students who participated in the study. Every one of them got \$5. Lee Dye's column appears weekly on ABCNEWS.com. A former science writer for the Los Angeles Times, he now lives in Juneau, Alaska.

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