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## Why do we 'choke' under pressure?

*Psychologists find that over-attention to well-learned performances may make things worse; however, training that way may actually improve performance under pressure*

WASHINGTON — It's the "bottom of the ninth" let-down when star pitchers throw away the game. Or opening-night jitters that have well-rehearsed ballerinas falling flat. Athletes, performers and others who routinely carry out learned, automatic sensorimotor skills have long been plagued by the mysterious phenomenon of "choking" -- performing worse than expected under pressure. Two Michigan State University psychologists have conducted experiments that finally help resolve the debate over its cause: Do we "choke" because we pay too much attention to the process, or because we pay too little attention as a result of distraction from the task at hand? The answer appears to be the former -- at least in well-learned, highly automatic skills. This research appears in the December issue of the *Journal of Experimental Psychology: General*, published by the American Psychological Association (APA).

Sian L. Beilock, Ph.D. student, and Thomas H. Carr, Ph.D., focused on golf putting as an example of the kind of skill that can suffer under pressure. Their data support the "explicit monitoring" hypothesis that over-attending to a well-learned performance may hurt it -- an idea that has been borne out anecdotally by athletes and performers who learn to relax. "Many of the notions described in theories of 'flow' and 'inner tennis' parallel our findings," says Beilock.

Beilock and Carr split a pool of 54 novice student golfers into three groups and trained all to a high skill level on a golf putting task. The groups trained in one of three different conditions. One group practiced under normal conditions. Members of the second (distraction) group learned to putt while simultaneously performing a secondary task, listening to words presented on a tape recorder and repeating a target

word every time they heard it. The third (self-consciousness) group putted with a video camera set up in front of them. Beilock and Carr told its members to pay close attention to performance because golf pros would review the tapes.

Following extended practice, all three groups were given the same low and high pressure tests. In the low-pressure test, participants performed a series of putts in an undistracting environment. In the high-pressure test, prior to putting, participants were told they had to improve their putting performance to receive monetary awards for themselves and a partner depending on them.

All three groups putted about equally well on the low-pressure test, but the picture changed under high pressure. The single-task putting group and the distraction group both got significantly worse under pressure, whereas the self-consciousness group actually improved. “This suggests that adapting to an environment where one is forced to attend to performance from the initial stages of learning,” says Beilock, “may provide immunization against the negative effects of performance pressure.”

The results also support the “explicit monitoring” theory of “choking,” that paying too much attention to well-learned skill execution may be detrimental to performance. Understanding the cognitive mechanisms leading to poor performance under pressure, as shown in these experiments, can lead to prevention, says Beilock, in “real-world tasks in which serious consequences depend on good or poor performance in relatively public or consequential circumstances.” For example, many aspects of public speaking may ordinarily be automatic. However, lawyers giving a closing argument to a jury may feel pressure to perform, and as a result, think too much about what they are doing -- and stutter or lose their train of thought. Training under conditions that have individuals attend to their performance, or, conversely, purposely taking one’s mind off well-learned skill performance under pressure (for example, by repeating a key word or singing a song), may help.

Article: “On the Fragility of Skilled Performance: What Governs Choking Under Pressure?”; Sian L. Beilock, Ph.D. student, Departments of Psychology and Kinesiology, and Thomas H. Carr, Ph. D., Department of Psychology, Michigan State University, East Lansing, Mich.; *Journal of Experimental Psychology – General*, Vol. 130, No. 4.

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(Full text of the article is available from the APA Public Affairs Office and at [http://www.apa.org/journals/xge/press\\_releases/december\\_2001/xge1304701.html](http://www.apa.org/journals/xge/press_releases/december_2001/xge1304701.html) )

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