

How to Avoid Choking under Pressure

Afraid of crumbling when it counts? Try not to think so hard.

By Elizabeth Svoboda

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Key Concepts

- We choke under pressure because such conditions thwart the normal brain processing of tasks that are so well learned they have become "automatic."
- Trying to concentrate on monitoring the quality of your performance is counterproductive because the cerebellum, which controls complex motor tasks, is not consciously accessible.
- Ratcheting up the pressure at your practice sessions is the best way to avoid failing when it counts.

You've practiced your big presentation a thousand times. Your last rehearsal was perfect, and you're ready to go. You tell yourself that for the real thing, you will focus on keeping your voice up, smiling, and enunciating clearly and slowly. Suddenly, at the podium, you freeze—all your preparation is for naught as you stand there like a deer in headlights. What happened?

and we all have had the experience. But why do we sometimes, without warning, inexplicably screw up just when it matters most? The answer lies in the way our brains are structured. When we have practiced something so well that we no longer need to think about it, subconscious processing systems are at work. When we then slow down to focus on these "automated" actions, we can thwart those processes, tripping ourselves up. And a raft of recent research is revealing who drops the ball and when, yielding surprising insights that could help frequent flubbers leave their self-sabotaging tendencies behind.

Don't Concentrate

Since the early 1980s researchers have been studying in earnest the question of why we choke. In 1984 Florida State University psychologist Roy Baumeister officially defined "choking" as "performance decrements under pressure circumstances." Ongoing research in the past 25 years has established that factors such as audience pressure and high performance expectations make us especially vulnerable to choking—just as perennial chokers might surmise.

But in recent years, scientists have started arriving at more counterintuitive insights about the circumstances that court choking. Well-meaning experts often advise performers to take their time—slowing down delivery, the thinking goes, helps to quell nervousness—but it is

actually better just to get on with things if you are well rehearsed, says psychologist Sian L. Beilock of the University of Chicago.

In a 2008 study she divided novice and skilled golfers into two groups and instructed them to perform a series of golf putts. The researchers encouraged members of the first group to take their time, whereas they exhorted members of the second group to swing as quickly as they could. Novice golfers performed less accurately when speed was emphasized, but skilled golfers showed exactly the *opposite* pattern: they performed best when told to execute quickly and faltered when advised to take their time. (This result adds weight to the long-held notion, confirmed by previous studies, that some experienced golfers develop “the yips”—muscle tremors or freezing up—when they assume a position for a prolonged period before putting.)

Beilock speculates that this pattern occurs because taking extra time to perform when you have already practiced ad infinitum can encourage too much conscious thought. “These golfers were really hurt when we asked them to pay too much attention,” she says. “What happens under [stress](#) is that they do start worrying, and in response to that they start monitoring their performance.”

The idea that too much self-monitoring hinders performance aligns with the well-established theory of how the brain learns to perform complex motor skills—anything from speaking to typing to cradling a lacrosse ball. The part of our brain that is most involved in learning a new task is the cerebral cortex, which controls higher-order, conscious thought and is adaptable to novel situations. But as we play a piece of music or practice a speech over and over again, we gradually transfer the control of that activity from the cerebral cortex to another area of the brain, the cerebellum, which orchestrates the lightning-fast motor activation needed to perform complex actions. “The cerebral cortex is very good at general-purpose stuff but not at intricately timed things,” says Boston University neurologist Frank Guenther. “You want to get the better-equipped part of the brain doing the job for these tasks.” Thus, when people are learning something new they show high levels of activity in the cerebral cortex, whereas when they perform a task they already know well they show more activity in the cerebellum.

The wrinkle in this system is that the cerebellum, unlike the cerebral cortex, is not consciously accessible. As a result, Guenther says, it is when chokers try to check their progress as they are performing that they run into trouble. “Let’s say you’re trying to play the piano. If you were relying on your motor memory”—just letting it fly—“your motor command would automatically read out the next note in about 50 milliseconds.” But consciously monitoring your performance brings this superfast sequence of motor commands to a screeching halt, resulting in a choking incident of epic proportions. “The feedback from the first note takes 100 milliseconds just to move from your cochlea up to your brain. So if you’re saying to yourself, ‘Okay, I just finished the C, now I have to go on to the D,’ you’re going to have problems.”

But how much monitoring is too much? Obsessing over every little detail can be perilous, but daydreaming might leave you without sufficient focus to complete a task at all. To find the happy monitoring medium, psychologists Daniel Gucciardi and James Dimmock of the

University of Western Australia recruited 20 expert golfers and instructed them to perform putts in three circumstances. Players in the first group focused on three words that stood for aspects of their physical technique (such as “head,” “weight” and “arms”); the second group focused on three words that had nothing to do with the putt (for example, “red,” “blue” and “green”); and the third group focused on a single word that encapsulated the putting motion (such as “smooth”). Initially, the golfers putted in a low-pressure situation, and most of them did well. During a second trial, however, Gucciardi and Dimmock ratcheted up the tension by offering the top performers cash prizes.

The players sailed through the second trial with flying colors—except the ones who focused on multiple aspects of their putt, according to the results published in the January 2008 *Psychology of Sport and Exercise*. “When they were focusing on the three representative mechanical processes, that was when their performance dropped,” Gucciardi noted. Similarly, in 1999 psychologist Lew Hardy of the University of Wales found that performers who think about a concrete, detailed set of rules during their moment in the spotlight (“keep skis high in the air” and “keep body streamlined” for a ski jumper, for instance) are more likely to succumb to pressure than are those who do not have such a specific set of rules in mind.

On the other hand, the golfers in Gucciardi’s study who focused on holistic single-word cues actually performed *best* in the pressure-packed putting round. Gucciardi thinks the degree of focus involved in fixating on a one-word mantra—not too much, not too little—could account for the difference between the three groups. “Our thought is that if you use the one word, it prevents you from regressing into conscious control, but it’s still enough to activate the schematic cue to get that motor program running,” he says.

The upshot? If you scrutinize your performance too much—trying to control, for example, the natural inflections in your voice as you present an important finding to your office mates—you will be priming your cerebral cortex to trip over your cerebellum, leaving yourself at a loss for words. But if you focus on a single word or idea that sums up your entire presentation (“smooth” or “forceful,” for instance), you will be best equipped to prevent your brain from getting in its own way.

Pressure Makes Perfect

Steering yourself away from conscious monitoring is easy enough when you are reciting a speech or playing a piece in your living room, but keeping optimum focus in front of a crowd or review board is another animal entirely.

The best way to make a performance situation feel like rehearsal, says Raoul R. D. Oudejans, a psychologist at Free University Amsterdam, is to subject yourself to the same anxiety-packed conditions during practice that you expect to encounter during your moment in the spotlight. In a 2008 study Oudejans rounded up a group of Dutch police officers and asked half of them to practice their marksmanship skills by shooting at a cardboard target; the other half trained by firing shots directly at one another (the cartridges contained soap, not bullets). After three one-hour training sessions, the “performance” was on: an officer-on-officer shoot-out using the dummy cartridges. The officers who had practiced on cardboard targets caved

in this new tension-filled situation, whereas the group that had trained under the same stressful conditions thrived, notching much higher accuracy ratings than the other group did.

These results indicate that turning up the heat from the very first day of practice may be one of the most effective ways to immunize yourself against blowing it. “Performers train and train, but it’s not that common to specifically train under these kinds of psychological constraints,” Oudejans says. “They’re trained in how to play their game, but they don’t train under pressure, so they fail.” Training in such situations minimizes the possibility of freezing up for the same reason that letting spiders crawl all over you makes them less frightening: your brain gradually adapts, so that circumstances that once would have made you uneasy no longer feel novel or threatening. “The more exposure you get to these high-pressure situations, and the more you succeed [despite them], the less likely you’re going to get that whole affective experience,” explains Art Markman, a psychologist at the University of Texas at Austin. In other words, the more comfortable you feel, the less likely you are to be affected by pressure.

The Choking Conundrum

To reap the same performance benefits the Dutch officers did from their trial-by-fire training, Oudejans recommends devising a high-tension practice regimen appropriate to your particular performance situation. If you are on deck to give an important business presentation, he says, have someone film you as you rehearse: “Your self-awareness increases that way—you get confronted with yourself in the same way you would in performance,” Oudejans observes. If you are prepping for an important sports match or musical recital, try enlisting a few friends or family members to serve as an audience during your practice sessions.

These kinds of antichoking strategies grounded in empirical data are reassuring when you are up at bat and your stomach starts to churn. Still, researchers who study choking are the first to admit that figuring out who whiffs and when is far from an exact science. Many studies conducted to date focus on how and why people fall short in highly constrained situations such as making a putt or shooting a free throw. But in real-world situations, Markman points out, a plethora of factors—some under your control, some not—work together to determine whether your performance is successful. “It’s a very complex interaction,” he says. “Your performance is going to depend on whether the situation is going to reward you or not, and it’s also going to depend on the nature of the task.” In other words, if something unexpected happens (for instance, the laptop battery fails during your PowerPoint lecture), you might still flub despite a strenuous antichoking practice regimen.

But that does not mean such a regimen is not worth undertaking. The most effective strategies, notes Trinity University psychologist Harry Wallace, are the ones that imbue performers with the assurance that they can deal with any eventuality. This mind-set proves helpful even (and perhaps especially) when something goes wrong. “Part of the key is not being overconfident in advance and recognizing that you may feel more anxiety than you expect,” Wallace says. “You want to address any concerns far in advance of performance. You don’t want to have any second thoughts about your likelihood of success.”