

Shortstop Psychology: The Mystery of the Yips

March 05, 2014

Henry Skrimshander is a shortstop and the star of Chad Harbach's lyrical novel *The Art of Fielding*. Henry plays for the fictional Westish College, and his flawless defensive play is attracting the attention of major league scouts. But just as he is about to break the NCAA record for error-free games, he forgets how to throw. Just like that, and for no apparent reason, even the simplest routine toss to the first baseman becomes impossible.

Henry has a case of the "yips"—a well documented syndrome that has ended real-life major league careers. This perplexing condition is also known as the "Steve Sax Syndrome," after the Los Angeles Dodgers All-Star second baseman who suffered a similar fate. For just one season, in 1983, Sax was unable to make the routine throw to first, committing 30 errors and earning the mockery of fans. Several others—including pitcher Steve Blass, infielder Chuck Knoblauch, and one of my favorite former Nats, Rick Ankiel—have had their careers derailed by cases of the yips.

What are the yips? What's going on that a highly skilled athlete can suddenly and inexplicably lose the fundamentals of fielding? The usual explanation is that these players start to "overthink" their automatic, highly tuned visual and motor skills, and sabotage them in the process. But this has never been proven, nor is it clear just what this means on a basic cognitive level.

Leiden University psychological scientists Bruno Bocanegra and Bernhard Hommel decided to explore this phenomenon in the laboratory. Bocanegra and Hommel were not really interested in the yips or shortstops or even baseball, but more generally in any kind of goal-directed behavior—and the role of cognitive control in performance. They wondered if it were possible that too much cognitive control—overthinking—might be a liability under certain circumstances.

Cognitive control is for the most part considered a plus for humans—an adaptive ability that allows us to control our circumstances in ways that are advantageous. Cognitive control allows us to trump automatic but misguided decisions and actions. But is it possible, the Leiden scientists asked, that our cognitive autopilot is more adaptive when situations are fairly simple and predictable? Put another way, do certain situations provide enough information on their own to trigger optimal behavior without a lot of thought?

To answer this, they devised a fairly complicated set of laboratory tasks, in which volunteers were required to make a choice of actions, depending on the stimulus they saw. Sometimes the task included fairly complex instructions requiring cognitive effort: Do this if this and this, but alternatively do this if this and that. In other cases, the task included instructions that required very little mental effort: a simple stimulus-response based on a single feature, like red-left, green-right. The idea was that the control task would demand considerable attention and integration of information, but for the simple and predictable task, automatic visual and motor skills would be adequate—superior in fact.

To test this, the scientists added a twist to the tasks. The stimuli varied in size and color and other

features, but unbeknownst to the volunteers, the tasks had been manipulated so that color always predicted the correct response in the simple task. The automatic cognitive system would be expected to pick up on this, effortlessly integrating this information and enhancing performance. So, if automatic piloting were in fact enhanced by exertion of mental control, the volunteers would always perform better in the highly structured and predictable task. The hidden information should be an aid, an asset in deliberating the correct choice.

But that is not what Bocanegra and Hommel found. Indeed, as they report in an article to appear in the journal *Psychological Science*, they found the opposite: The predictive information only improved performance when volunteers were acting automatically. It actually impaired performance when volunteers were trying to exert mental control. Put another way, exerting mental control in a predictable situation, when automatic response was enough, actually impaired performance. The unneeded mental effort appeared to interfere with what is a perfectly adequate automatic performance.

So back to baseball. Shortstop is one of the most demanding positions on the field, requiring complex decision making. Sometimes the shortstop needs to cover second, other times third. He needs to hold runners and turn double plays and take relays. He needs to keep all of this information in his head, and keep all possibilities in mind as the batter approaches the plate. But the instant the ball is struck, all of that mental calculation has to be put on hold, while eyes and legs and hands take over in the art of fielding a hard-hit ground ball.

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