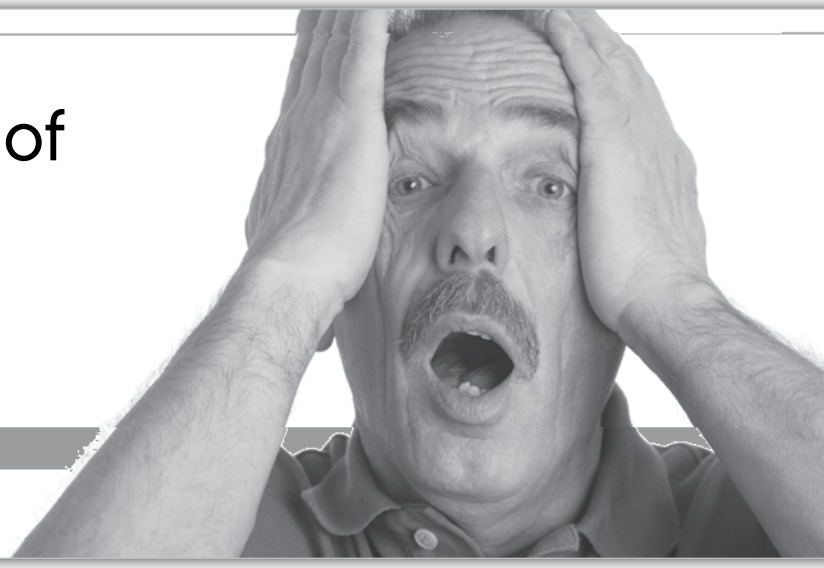
The many causes of under-performing

Why you choke and how to combat it



Choking is sub-optimal performance, not just poor performance. It's a performance that is inferior to what you can do and have done in the past and occurs when you feel pressure to get everything right. (Beilock, 2010b)

Gary Faulkner Jr., a member of our Webber International University bowling team, recently won the Team USA Youth Trials (Junior Gold) in Las Vegas, earning a spot on Junior Team USA. After qualifying 7th, Gary averaged an amazing 243.9 for twelve games in the semi-finals. Through the semi-finals, he actually improved his performance each block. He battled back from a poor start in the match play finals to never relinquish his lead, winning the title by over 200 pins after 46 games. This peak performance earned him a $10,000 scholarship as well as an appointment to represent the United States in international competition. Everyone who knows Gary or has witnessed him in action is likely to be awed by his cool competition demeanor as well as his constant and consistent emotional control.

Gary's performance illustrates excelling when it matters most. Earning a spot on your national team is often a highlight of one's career and the result of years of dedication. Such a tournament situation is a catalyst for stress and anxiety. Yet, how could he do it? How could he perform with excellence while others, many others, under-performed as the tournament ramped-up with anxiety-filled realities? This is not new. We have witnessed colossal collapses at all levels, from amateur to professional. The better someone becomes, especially in major events, the more likely they will fall prey to their own self-destruction.

This month I'd like to share with readers the many causes of under-performance as well as provide research-based recommendations on how to minimize choking in competition.

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Why do people choke?

There are two major reasons why people have sub-optimal performances: explicit monitoring of physical execution and stress-induced distraction. Explicit monitoring is when an athlete turns their thoughts inward and begins to exert control over physical execution, technique, and procedural knowledge.

Performance problems can emerge because well-practiced physical execution is best done without conscious attention and the analysis of physical movement. Distraction involves the diminishment of the working memory needed during competition.

When stress and anxiety are introduced, the athlete is distracted due to performance worries. This uses up working memory and disrupts the ability to analyze, problem solve, make decisions, and form strategies.

Paralysis by analysis

Explicit monitoring is often referred to as *paralysis by analysis* and is best understood as the under-performing that is produced when an individual focuses too frequently on actions that normally operate automatically outside of conscious thought.

To illustrate this phenomenon, let's review the impact of consciously thinking about technique and the subsequent result. The Human Performance Laboratory at the University of Chicago conducted a study of highly skilled college soccer players. After an initial baseline assessment of dribbling speed and skill quality, the players were asked to focus on their foot as they dribbled. Specifically, these players were asked to focus on the inside portion of their foot as they made contact with the ball. Dribbling speed was reduced and errors increased when the soccer players paid attention to their foot as compared to when they just dribbled. In a follow-up study, when asked to establish goals linked with success, those players who focused on physical execution and technique performed more poorly than normal as compared with their baseline assessment of skill.

In a study of Division I baseball players, Gray (2004) demonstrated that the addition of stress leads athletes to turn their focus inward and attend to physical execution. That leads to reduced performance compared with their baseline normal batting proficiency. Moreover, when baseball players were asked to identify the up or down direction of their bat during the swing, their hitting performance declined due to interference with swing mechanics.

Distraction

When individuals feel pressure in competition, they can be distracted. That leads to negative self-talk or perpetuation of the fear of not performing at their best in front of parents, friends, and coaches. This is especially true when high expectations exist due to a major competition. When stressed, many players are distracted by fear of making errors.

A study of teams that played at home needing to win only one more game to win the World Series or the NBA Championships, revealed that in only 37.5 percent of basketball games (and only 38.5 percent of the time in game seven), did the home team actually win. When the researchers disaggregated the data, errors by the home team were most often the cause of losing rather than the visiting team performance. A video study of game play revealed that players focused more on their skill execution in an environment where they played in front of a supportive audience than they did during an event in which they played in front of a neutral crowd. These participants were less accurate and responded more slowly.

Many studies have explored the difference between positive-outcome imagery and negative-outcome imagery in regard to performance. In studies of dart throwing and golf putting, negative imagery was associated

with performance declines. Participants were asked to visualize hitting an area away from the center of the board (Powell, 1973). After visualizing missing the target, accuracy was impaired significantly leading to performance declines. When these individuals visualized hitting the target in the intended location, performance was enhanced.

In a golf study, participants were instructed to visualize the ball missing the hole and ending-up in a specific location away from the hole. In another study, participants were instructed to not putt a golf ball past the hole (Janelle, 1999). These golfers left the putts significantly short of the hole. Findings suggest that the suggestion and negative imagery led to overcompensation to eliminate an end result. These are referred to as ironic mental process. In Woolfock et al. (1985), those who had negative imagery associated with putting had a decline in performance while utilizing positive imagery led to performance increases.

Employing positive outcome imagery has been shown to lead to performance improvements. Taylor & Shaw (2002) found that skilled golfers were more confident and had fewer errors when engaged in positive imagery as compared to when they were visualizing negative imagery or none at all. Conversely, negative imagery led to increased amount of errors and a reduction of confidence. In this incident, golfers were instructed to visualize the ball missing in a specific manner (overshooting to the right and missing). In Beilock et al. (2001), research illustrated that practicing positive imagery led to improvement in golf putting performance and was superior to six other types of visualizations.

A study by the Canadian national swim team's team psychologist revealed the power of the mind and its relationship to under-performance (Davis et al, 2008). A dozen swimmers who failed to make the 2004 Olympic team were shown their race on video as well as the races of others. A functional MRI (a specialized scan used to measure the change in blood flow related to neural activity) was used to measure the brain activity of each athlete as they watched their race. The research revealed that the swimmers who failed had more activity in the emotional centers of their brain paired with a reduced activity in motor regions utilized for planning and execution of movement.

As an intervention, the team sport psychologist had each player focus on the positive aspects of their performance. Specifically, the 20-minute intervention was designed to aid in future planning and event reappraisal. After this exercise, they returned to the race videos. When scanned, there was more activity in the motor regions and less in the emotional centers.

How to reduce under-performance: a pre-approach routine for success

The following pre-shot and pre-approach plan utilizes the findings in the research base to help reduce the likelihood of stress-induced under-performance.

Pre-approach routine

In between each shot, review what you need to do on your next shot, in regard to strategy, making a committed plan for a target line. As you are waiting for your turn and after making a plan, sing a song to yourself. As you are singing the song, see yourself successfully executing the shot, hitting your intended target line, and hitting the pocket for a strike. See it and believe the visualization as you sing your song.

This pre-approach process moves your attention away from the self-defeating focus on physical execution. It incorporates positive imagery before every shot rather than chance worrying about the outcome of the next shot.

Pre-shot routine

Well-practiced technique can easily be interfered with when an athlete takes extra time.

That can create a situation in which they have more time to think about physical execution. This is especially true when an individual does not have a process-oriented pre-shot routine. Accordingly, I recommend utilizing the following pre-shot routine:

- Step # 1: Count backwards: As you approach the lane, count backwards by threes, starting with 15. This will use up working memory, reducing the likelihood you will use it to think about physical execution.
- Step # 2: As you pick up the bowling ball, take a deep breath. Exhale as you set your feet.
- Step # 3: Set your body and take another deep breath.
- Step # 4: Start your target at the focal point on the pin to establish launch angle and direction, using a quiet eye. Stare purposely at the exact spot on the pin, or between pins, you want the ball to go toward as it goes through the front target. Specifically, look at the focal point and say "1001-1002." This also uses working memory so you won't use it to think about physical execution.
- Step # 5: See the front target and begin the approach, holding your eye on this target.

Conclusion

The anxiety produced in competition can lead an athlete down an unproductive road. Specifically, stress can erode the working memory of an athlete interfering with his/her ability to plan and analyze during competition. At the same time, stress acts like a catalyst for monitoring physical execution which leads to performance errors and a less than expected level of performance.

It is critical to realize that athletes are susceptible to performance declines due to the presence of stress and anxiety in bowling tournaments. Accordingly, be proactive to address stress-induced distractions as well as explicit monitoring brought on due to tournament anxiety.

References

Beilock, S.L., Afremow, J.A., Rabe, A.L. and Carr, T.H. (2001). "Don't Miss!" The Debilitating Effects of Suppressive Imagery on Golf Putting Performance. *Journal of Sport and Exercise Psychology* (23):200-221.

Beilock, S.L. (2010a). Choke:What the Secrets of the Brain Reveal About Getting it Right When You Have to. New York: Free Press.

Davis, H., Liotti, M.,Ngan, E., Woodward, T., Snellenberg, J., Anders, S., Smith, A. & Mayberg, H. (2008). fMRI BOLD Signal Changes in Elite Swimmers While Viewing Videos of Personal Failure. *Brain Imaging and Behavior,* 2:84-93.

Gray, B. (2004). Attending to the Execution of a Complex Sensorimotor Skill: Expertise Differences, Choking, and Slumps. *Journal of Experimental Psychology: Applied*, 10 (1): 42-54.

Jackson, R.C. & Beilock, S.L. (2007). Performance Pressure and Paralysis by Analysis:

Research and Implications. In Farrow, D., Baker, J. and MacMahon, C. (Ed.), *Developing Sport Expertise Researchers and Coaches put Theory into Practice* (pp.104 – 114). London: Routledge.

Janelle, C. (1999). Ironic mental processes in sport: Implications for sport psychologists. *Sport Psychologist* (13):201-220.

Powell, G. E. (1973). Negative and positive mental practice in motor skill acquisition. *Perceptual and Motor Skills*. 37(1):312.

Taylor, J.A. & Shaw, D.F. (2002). The effects of outcome-imagery on golf putting performance. *Journal of Sport Sciences* (20): 607 – 613.

Woolfolk, R. L. Murphy, S. M., Gottsfeld, D., & Aitken, D. (1985). The effects of mental practice of task and mental depiction of task outcome on motor performance. *Journal of Sport Psychology* (7):191-197.