2017-06-04

Stress Exposure Training as a Means for Athletes to Prevent Paradoxical Performance

Adam M. Fulton
adamfulton1994@gmail.com

Stress Exposure Training as a Means for Athletes to Prevent Paradoxical Performance

Adam Fulton

Brigham Young University

Abstract

Paradoxical performance has been studied for years, with an emphasis on helping athletes prevent choking under pressure. However, although progress has been made, too many athletes are still underperforming due to anticipated and unanticipated stressors (Baumeister & Showers, 1986, p. 362). Stress exposure training is suggested as a solution to choking under pressure, even though little research has been done. A review of the literature on paradoxical performance is presented, emphasizing skills that appear to be effective and could be inserted into a stress exposure training program. Skills such as self-consciousness training, positive self-talk, self-confidence, pre-performance routines, and others could be improved as part of stress exposure training (Driskell, Sclafani, & Driskell, 2014). Although stress exposure training has been done in the military, law enforcement, firefighting, aviation, and even in baseball, recommendations are made for further research in other sports.

Stress Exposure Training as a Means for Athletes to Prevent Paradoxical Performance

On October 5, 2016, the San Francisco Giants and the New York Mets faced off in the National League wild card game to kick off the Major League Baseball (MLB) playoffs, a win-or-go-home situation. The game was tied at 0 going into the top of the ninth inning. San Francisco was at the plate, and on the mound for New York was Jeurys Familia, their star closer who led the league in saves during the regular season. With one out and two men on base, Conor Gillaspie came up to bat. Gillaspie was the backup third baseman, playing only because the starter was injured. By all accounts, Familia had this in the bag. However, with one ball and one strike, Familia left the pitch up. In other words, he threw it right down the middle and Gillaspie hit a three-run home run, which enabled the Giants to win the game and move on to the playoffs.

What happened to Jeurys Familia? He was considered to be one of the best closers in the MLB, but in the biggest, most important game of the season, he did not perform up to par. This happens to athletes in every sport imaginable. It is a phenomenon called "choking under pressure," or paradoxical performance (Baumeister & Showers, 1986, p. 361). Choking refers to "suboptimal performance under pressure conditions" (Baumeister & Showers, 1986, p. 362). Pressure conditions include big games (Super Bowl, World Series, rivalry games, etc.), the presence of college or professional scouts, family members in attendance, and expectations of the fans, among other things unique to each athlete. Moments at the end of athletic contests where the outcome is on the line, such as Familia pitching against Gillaspie in the ninth inning of the wild card game, are also pressure-filled for athletes.

It is also important to understand when underperformance is not considered choking. Lackluster performance does not always mean that an athlete choked under pressure. A novice football player who drops what could be considered an easy pass in an important game is not an

example of choking, because he does not have all of the physical skills. However, if that same pass was dropped by a professional, it would be considered choking if he dropped it because of pressure or another stressor. As another example, one missed shot by a basketball player would not be a choke. But if that player missed 10 shots in a row when he was expected to make at least five of them, that would be a choke.

There are several different theories that explain choking under pressure. The two main theories are distraction theory and self-focus, or explicit monitoring (Baumeister & Showers, 1986, p. 6). Distraction theory maintains that choking happens when an athlete gets distracted and focuses attention on task-irrelevant information, such as crowd noise (Lewis & Linder, 1997, p. 939). Self-focus, a theory which is more widely supported than distraction theory, happens when an athlete, feeling the pressure of the situation, focuses on the mechanics and specifics of performed skills, which causes the athlete to make more mistakes because it disrupts the automaticity of the skills (Baumeister & Showers, 1986, p. 6). However, other scholars do not consider choking as being either because of distraction or self-focus (Christensen, Sutton, & McIlwain, 2015, p. 2). According to Christensen et al. (2015), this phenomenon may be more complex than just one theory (p. 2). Rather, other factors need to be considered as part of a more holistic view of paradoxical performance.

Due to the development of sport and performance psychology throughout the world, athletes have access to sport psychologists who can teach them different mental skills that improve performance. Some of those skills include imagery (or visualization), positive self-talk, goal setting, etc. (Harwood, Cumming, & Fletcher, 2004, p. 320). However, those skills are effective for skill development and not necessarily for task performance under pressure. When the time comes to perform, the time for goal setting and visualization is over, and it is time for

action. Positive self-talk and other skills can help during games but not in all situations. Despite having the knowledge of all of these skills, athletes still choke under pressure.

Many sport psychologists have researched ways to help athletes overcome paradoxical performance. Emotion regulation strategies are effective at stopping athletes from choking under pressure (Balk, Adriaanse, de Ridder, & Evers, 2013). Using distraction, such as singing a song, to alleviate choking under pressure has been studied (Mesagno, Marchant, & Morris, 2009). Reeves, Tenenbaum, and Lidor (2007) researched the effects of self-consciousness training on paradoxical performance and found that it was effective in preventing choking. Although all of these mental skills can help elite athletes to perform well in high-pressure situations, stress exposure training can be even more effective, because it allows them to practice those mental skills under stress before experiencing pressure and stress in competition (Driskell et al., 2014). Stress exposure training can help athletes eliminate self-focus and distraction, reduce stress caused by pressure, and perform well even in less than ideal circumstances.

Overview of Stress Exposure Training

Stress Training in Non-Athletic Areas

Athletes are not the only people with stressful occupations. There are other occupations that involve high stress, as well as a need for high performance, just like athletics. Police officers, soldiers, firefighters, and pilots are examples of other high-stress occupations. They all need to be able to perform at a high level in extremely stressful situations. Lives are often on the line. Therefore, some stress training has been done to assess effectiveness in these domains.

Police officers can benefit from stress training. In 2016, a study was done on select members of Finnish Federal Special Response Police Teams (Andersen & Gustafsberg, 2016).

Police officers, like athletes, are required to make quick decisions under stress. The goal of this particular study was to see if stress training would improve the use of force decision-making (Andersen & Gustafsberg, 2016). Those participants who went through the stress training showed "significantly better physiological control, situational awareness, and overall performance," as well as better force decision-making (Andersen & Gustafsberg, 2016). This shows that stress training can help people make better decisions quickly under pressure.

Stress training can help soldiers under pressure. The military is very involved in providing soldiers with performance enhancement opportunities. The Air Force, Navy SEALs, and Army Special Forces all implement forms of stress training to prepare soldiers while they are training and also when they are active (Robson & Manacapilli, 2014, p. 15-25). The Air Force exposes candidates to different stressors during training and provides them with education and support both before and after deployment (Robson & Manacapilli, 2014, p. 16). The Navy has a more formal form of stress training for SEALs. After boot camp, recruits attend an 8-week course that includes training on goal-setting, tactical visualization, arousal control, and positive self-talk (Robson & Manacapilli, 2014, p. 22). In the Special Forces, a more needs-based approach is taken. They train soldiers to perform in high stress, train them to use those skills in operational environments, monitor them to identify those who have a hard time adapting to high stress, and treat and intervene when necessary (Robson & Manacapilli, 2014, p. 24). Soldiers can perform better when they are trained to respond well under high stress.

Less has been done with firefighters and pilots, but they can also benefit from stress training. Baumann, Gohm, and Bonner (2011) found that anxiety and cognitive difficulties decrease when participants were exposed multiple times to the same stressful scenario. However, they did not get the same results when participants were exposed to a new, similar

scenario (Baumann et al., 2011). For pilots, a study was done in which novice pilots received stress training followed by flight simulator training (McClernon, McCauley, O'Connor, & Warm, 2011). Those who received the stress training along with the simulator training flew better than those without the stress training when they flew an actual aircraft (McClernon et al., 2011). Therefore, firefighters and pilots can enhance performance through stress training.

Stress Training in Sports

Not much research has been done on stress training in sports. This is surprising because there are remarkable similarities between athletics and high-stress occupations in law enforcement and the military. Athletes require peak physical performance. Quick decision-making is key. Routine moments can become stressful within seconds. Mental toughness is crucial to success. Although there is not much research, the little there is shows what good stress exposure training can do in sports.

Driskell et al. (2014) described the stress exposure training (SET) model as implemented at a youth baseball facility called the Baseball Factory, which trains over 10,000 young players annually, some of which go on to play in the major leagues (p. 30). The training directors asked if there was a better method to train players, a way that was not as controlled and relaxed as practices generally are throughout all sports (Driskell et al., 2014, p. 30). The directors realized that practice is not always the best preparation for competition. Even if players develop the right skills, they often do it out of the context of actual competition. This can be detrimental to athletic performance (Driskell et al., 2014, pp. 29-30). The same thing happens in other domains, even botany. When a plant does better in the greenhouse than in its natural environment, it is referred to as the hothouse phenomenon (Driskell et al., 2014, p. 29). Athletes need to be trained in context so that they do not experience the hothouse phenomenon.

According to Driskell et al. (2014), "the purpose of stress training is to prepare individuals to maintain task performance under high-demand, realistic task conditions" (p. 33). The SET model that they used (and continue to use) in the Baseball Factory has three stages: information provision, skills acquisition, and application/practice in simulated, real-world conditions (Driskell et al., 2014, p. 34). Using this model, it is crucial for athletes to develop the physical, sport-specific skills that they need before implementing stress training (Driskell, 2014, p. 39).

The SET model can be used in other sports besides baseball. Athletes in all sports can benefit from a form of stress exposure training. Implementation will differ from sport to sport. For example, baseball practices often consist of hitting in the batting cages, pitching with just the catcher present, fielding ground balls and fly balls, and other fairly isolated activities. Therefore, the way SET is implemented in baseball will differ from the way it is used in football or basketball, where much of the practicing is done with most or all of the team. Each athlete will also be trained differently because of differing skill level, experience, and personal stressors and distractors. Through individualized stress training, athletes will be able to perform better when it matters.

Eliminating Self-Focus and Distraction

Self-focus and distraction are the main theories for explaining paradoxical performance (Baumeister & Showers, 1986, p. 6). Sport psychologists who support distraction theory explain that when an athlete feels pressure, his or her focus shifts to task-irrelevant cues (Beilock & Carr, 2001, p. 701). In some cases, distractions can be beneficial. A distraction is occasionally necessary so that an athlete can forget about a badly performed task in a game. However, distractions are usually detrimental in that distracted athletes generally focus on things that are

not relevant to the task. Self-focus theory is closely related to distraction theory. Self-focus, or explicit monitoring, is shifting attention to the individual processes in executing a skill, which is thought to inhibit performance and can also be considered a distraction (DeCaro, Thomas, Albert, & Beilock, 2011, p. 391). An athlete that focuses on the specifics of how to perform automatic skills can easily choke under pressure.

Self-Focus

Self-focus is natural to most people, not just athletes. For example, almost anyone can walk across a 2-foot wide board without even thinking. However, if asked to walk across something that is 2-feet wide but 100 feet above the ground, the task suddenly becomes extremely difficult, if not impossible for many people. When someone is trying to balance on something high up in the air, they tend to think about walking one step at a time. That can be dangerous, because they are susceptible to getting surprised by something ordinary like a gust of wind. Walking is an automatic skill, but when someone starts thinking about how to walk, the automaticity is disrupted.

Another example is typing. Many people can type quickly without looking at the keys or even at the computer screen, because it is a well-practiced skill that has become automatic. That automaticity can be disrupted when a job candidate needs to take a typing test at a certain number of words per minute. If the candidate becomes too stressed, he or she may think about the location of each key on the keyboard in order to minimize mistakes. But if that happens, the assessed time will be much slower than if he or she simply trusted in the typing automaticity that they have developed.

The same thing happens to athletes in all sports. In 2011, Jake Heaps, quarterback for Brigham Young University, mishandled a snap early in the annual rivalry game versus the University of Utah. When he picked up the ball and tried to throw, the ball went backwards instead of towards the intended receiver and Utah scored a touchdown on the recovery. Being a quarterback, Jake Heaps was well acquainted with the mechanics of throwing a football. However, in a crucial moment in a big game, he somehow managed to make the ball go backwards instead of forwards. Explicit monitoring theory would describe this mishap as a result of thinking about throwing instead of just throwing (Decaro et al., 2011, p. 391). Unlike in practice, play does not happen slowly. Everything happens quickly and skills need to be executed just as quickly. But if an athlete thinks about how to execute an automatic skill in that moment, he or she is susceptible to forgetting a crucial element of skill execution in an effort to think about how to execute the skill and execute it at game speed at the same time, which is what happened to Heaps.

Self-focus can be hard to overcome, since it is natural to most people. However, psychologists have done experiments to see what techniques are effective for athletes. Reeves et al. (2007) had Division I female soccer players take shots on goal under different conditions. The goal of the experiment was twofold; they wanted to see if explicit monitoring theory explains paradoxical performance and if self-consciousness training can help prevent it. Self-consciousness training involved the players focusing on specific aspects of task performance, such as kicking the ball with a certain part of the foot. They discovered that explicit monitoring theory does explain paradoxical performance and that self-consciousness training can help athletes prevent choking (Reeves et al., 2007, pp. 249-250). The soccer players in the self-consciousness training condition performed better (made more kicks) in dual-task situations than

those who did not go through self-consciousness training. Therefore, athletes can prevent choking due to self-focus through different methods, one of which is training with some self-focus. However, that is most likely only effective when focusing on one or two key aspects of task performance, or relevant cues. Focusing on one or two cues of performance can train the rest of the body to do the rest of the skill automatically (Mesagno & Mullane-Grant, 2010, p. 344). Athletes need to learn how to do that, because they do not have enough time while performing at game speed to focus on each part of a skill.

Distraction

Some researchers have found that the distraction theory explains paradoxical performance better than explicit monitoring theory (Englert & Oudejans, 2014, p. 1040). Athletes can become very easily distracted. Even the best performers are just normal people with normal, everyday problems. Therefore, some distractions for athletes are not even related to sports. School, relationship issues, family problems, and other things can all direct an athlete's attention away from task performance. Other distractions are closer to the action but still irrelevant, such as crowd noise, cheating opponents, angry coaches, and the presence of scouts or other coaches. When an athlete focuses on any of these distractions, even though many skills can still be performed automatically, it is harder for him or her to make good decisions at game speed.

Despite the reality of distractions in sports, researchers have found ways to reduce athlete distractibility. Mesagno, Marchant, and Morris studied the effects of music on athletic performance to determine if music would reduce self-focus (2009, p. 133). They had basketball players shoot free throws under a pressure manipulation without music and then while listening to music and found that they improved by an average of 19.4% while listening to music (Mesagno et al., 2009, p. 145). Although the experiment was originally intended to reduce self-

focus, listening to music also reduced distractibility of participants (Mesagno et al., 2009, p. 145). Therefore, using a controlled distraction can be beneficial to athletes by taking the focus away from non-controlled distractions and reducing self-focus.

What Stress Exposure Training Can Do

Although the interventions described here have proved effective in reducing self-focus and distractibility, they still have not been implemented as a component of SET. A problem with these interventions is the pressure manipulations used. A common intervention is videotaping the participants (Mesagno et al., 2009). But, for elite athletes, does being videotaped actually produce enough pressure to be compared to the pressure they feel during an actual performance? It is hard to recreate the pressure felt due to the magnitude of a game, the presence of family members or scouts, and the expectations of the crowd. Each team or athlete must create their own pressure manipulations and practice reducing self-focus and distractibility under those manipulations. That way, it will be more natural when athletes need to perform in a real game.

Reducing Stress Caused by Pressure

The reason that athletes tend to focus on the wrong things, whether it be the mechanics of the task or irrelevant cues, is that they do not know how to control the stress caused by the pressure of different situations (Oudejans & Pipjers, 2009, p. 1632). There are different reasons that athletes feel stressed during a game or match. The state of a struggling family member can negatively impact performance. Focusing too much on the outcome of a game (winning or losing) tends to distract an athlete from task performance, which is what ultimately decides the outcome. If an athlete is aware of a college or professional scout in attendance, their decision-making might be impaired due to the stress of trying to impress the scout. Despite all of the

negative effects of stress on athletic performance, stress can also be a cue for high performance if athletes are trained well.

Emotion Regulation Strategies

People typically respond to stress in high pressure situations in two ways: they can either cope with it or they can choke. Coping mechanisms can also be labeled in two ways, either positive or negative. The positivity or negativity varies depending on the situation. For example, crying would be a perfectly acceptable and even positive way to cope with the stress of losing a loved one. However, it would not be acceptable to cry because of the stress of having to make two free throws so that your team can win. Therefore, athletes need to be trained to cope with stress in a positive way that improves performance, which can be accomplished through emotion regulation strategies.

Balk, Adriaanse, de Ridder, and Evers experimented with emotion regulation strategies using a golf putting task (2013). Using only experienced golfers, each participant was assigned to one of the two emotion regulation conditions (reappraisal or distraction) or a control condition, in which they were instructed to let themselves experience naturally whatever emotions they were feeling (Balk et al., 2013, p. 413). In the reappraisal condition, the participants were told to control their experience in a positive way in order to minimize the pressure, such as reminding themselves that it was only a game (Balk et al., 2013, p. 413). This is also known as positive self-talk. The participants in the distraction condition were instructed to not think about anything related to golf, maybe by singing a song in their head (Balk et al., 2013, p. 413). They found that the participants that used distraction improved their performance under pressure and those who used reappraisal did not choke under pressure, although they did

not improve either (Balk et al., 2013, p. 415). This study shows that using emotion regulation strategies can help athletes prevent paradoxical performance.

Pre-Performance Routines

Another way to manage stress in sports is through the use of pre-performance routines. Athletes use these in several different situations, usually before performing closed skills. Closed skills are self-paced, such as serving in tennis or shooting a free throw (Mesagno & Mullane-Grant, 2010, p. 346). Pre-performance routines can help choking-susceptible athletes maintain appropriate attentional control during task performance (Mesagno & Mullane-Grant, 2010, p. 344). For example, a basketball player can feel pressure when he or she has to make free throws at the end of the game in a close contest. Therefore, having a set routine before shooting can help alleviate that pressure, such as bouncing the ball three times and exhaling deeply. Rafael Nadal, a professional tennis player, has a very unique pre-performance routine for serving. While bouncing the ball with his racket, he pulls his shorts a little bit and then passes his hand in front of his nose and to both ears before bouncing the ball several more times with his hands, after which he finally serves. Athletes who execute these types of self-paced skills can benefit from using the same pre-performance routine in every situation.

Mesagno and Mullane-Grant showed how effective pre-performance routines are by assigning Australian football players to different conditions in a kicking task (2010, p. 346). The participants in the pre-performance routine condition improved the most under pressure (Mesagno & Mullane-Grant, 2010, p. 353). However, it still is not clear which type of routine is the most effective (Mesagno & Mullane-Grant, 2010, p. 354). Some athletes will benefit from using cue words. A tennis player might tell him or herself things like “high toss,” “pop the elbow” (or “roll the shoulder”), and “follow through into the court.” Those cues remind the

player to do certain things and can help maintain consistency in task performance. However, cue words might not work for other players. A different tennis player might decide to focus more on a physical pre-performance routine, like Nadal's. Each athlete is unique. The key is to have each one figure out what works best for him or her individually.

What Stress Exposure Training Can Do

SET can improve the effectiveness of emotion regulation strategies and pre-performance routines under pressure. The first step is to train the athletes to use distraction or positive self-talk as a way to cope with stress, as well as pre-performance routines in self-paced or closed skills. The next step is to apply those skills using better pressure manipulations, adapted to the needs of each team and/or athlete. Training with anxiety or stress is crucial to performing well under anxiety or stress. Oudejans and Pipjers, after experimenting with basketball players, found that free throw performance only improved under pressure after training with induced anxiety (2009, p. 1644; see Figure 1 and Figure 2). Therefore, practicing ways to cope with anxiety and stress in stress-filled practice settings can help athletes perform better.

Performing Well in Less than Ideal Circumstances

Sports are filled with unanticipated setbacks. Some setbacks are performance-related, while others have nothing to do with sports or have little direct impact on performance. Dez Bryant (wide receiver for the Dallas Cowboys) played in a game after learning of his father's death less than one day earlier. Jack Youngblood, who played on the defensive line for the Los Angeles Rams, played through the entire playoffs, including the Super Bowl and the Pro Bowl, on a broken leg. The Chicago Cubs and the Cleveland Cavaliers both recently won championships (in baseball and basketball) despite falling behind three games to one in their

respective championship series. Most athletes have experienced difficulties in games after the referees or officials made bad calls. Despite all the things that can go wrong before or during a performance, the best athletes find ways to overcome them and are often described as mentally strong.

Self-Confidence

Professional athletes are well known for being arrogant or cocky. It is not rare to hear an athlete call him or herself the best player in his or her sport. However, there is a difference between arrogance and confidence. Arrogance is selfish, and arrogant athletes believe themselves to be better than others; moreover, it is important to them that they are better than others. On the other hand, confident athletes believe in their abilities (just like arrogant athletes), but they are preoccupied with doing the best they can instead of being better than others and are just as happy scoring a lot of points as they are with helping their teammates score (if that is what the situation requires). They focus more on their performance than on their statistics.

Arrogant players care a lot about what people think about them. Because of that, they will often avoid taking control in high pressure situations in order to avoid embarrassment if they fail. Confident athletes do the opposite. Santonio Holmes was a wide receiver for the Pittsburgh Steelers when they played the Arizona Cardinals in the Super Bowl in 2009. It was a close game, and the Steelers had one last chance to go down the field and score a touchdown to win the game. Before the drive started, Holmes walked up to star quarterback, Ben Roethlisberger, on the sidelines and told him to give him the ball. Roethlisberger trusted him, and Holmes made four catches during the drive, including the touchdown that is widely considered one of the greatest Super Bowl plays in Super Bowl history, if not the greatest. Holmes' self-confidence allowed him to give the best performance of his life when his team needed it the most.

One of the most important effects of self-confidence on performance is that it helps athletes focus on what they can control (Besharat & Pourbohlool, 2011, p. 760). Confident athletes realize that they cannot control the decisions of the referees, the performance of their teammates, the weather, injuries, or even the outcome of the game or match. The only thing they can control is their own performance. That kind of focus decreases anxiety, because they realize that worrying about the weather or other irrelevant stimuli does not help them play better and, in fact, can impair their performance. Self-confidence decreases cognitive anxiety and improves performance (Besharat & Pourbohlool, 2011, p. 763). Coaches have always tried to help athletes improve their self-confidence, and it has helped improve performance.

What Stress Exposure Training Can Do

Athletes often lose their confidence when the stakes are high. A basketball player who is a good shooter and is normally confident in his or her shooting ability may choose to pass the ball instead of shoot in order to avoid failure and let the team down. A tennis player might keep hitting the ball crosscourt instead of taking the more aggressive shot down the line when there is an opportunity. Athletes who make decisions like that are playing not to lose instead of playing to win. There is a big difference. At the end of the rivalry game between Brigham Young University and the University of Utah in 2016, Kalani Sitake, the head coach, chose to go for the 2-point conversion instead of kicking the extra point at the end of the game. This was a playing to win strategy. Kicking the extra point would have sent them into overtime, where anything can happen. But Sitake chose to go for the win since they had that opportunity. Even though the conversion attempt failed, Sitake's confidence in his team put them in a position to win the game in that moment instead of playing not to lose and waiting for another opportunity.

That kind of decision-making can be taught in SET. Athletes can be trained to be confident in themselves in all situations, including when the game is on the line. In team sports, each athlete can be trained to make the risky decision in the high pressure moment, such as taking the game-winning shot in basketball or throwing the football to the receiver in double coverage in a high risk, high reward situation. Athletes in individual sports can also be trained to take risks, such as hitting the tennis ball down the line despite the increased likelihood of failure. Along with that decision-making training, SET can help athletes perform well when they make those risky decisions, because self-confidence can become a cue for high performance. Increased self-confidence can also help athletes have good performances despite suffering through things outside their control, such as family problems, injuries, and the weather.

Implementation of SET

SET can be implemented in two different ways: phased training or combined training. Phased training is implemented in two phases (task acquisition followed by exposure to stressors) and combined training combines the two phases (Friedland & Keinan, 1986, p. 72). Friedland and Keinan (1986) found phased training to be more effective (p. 76). Introducing stressors during task acquisition can impede athletes' progress (Friedland & Keinan, 1986, p. 72). So, the first step in any form of SET is proper task acquisition. Athletes need to learn the skills correctly before they can be expected to perform them well under pressure.

The next step is educating the athletes about stress and its effects (Driskell et al., 2014, pp. 34-36). Athletes need to know what the different stressors are and how they are affected by them. Many stressors are common across all sports, such as the pressure of a big game, important people in attendance, and the expectations of teammates and fans. Other stressors are unique to each sport and to different athletes within the same sport. A tennis player does not

have to be worried about getting hit in the head by another head, but a wide receiver running a route across the middle of the field does. Golfers do not have to worry about crowd noise like other athletes, but they do have to worry about the location of sand traps and ponds. Each athlete in each sport needs to learn these unique stressors and how they should react to them.

After that, athletes need to be taught mental skills that can help them overcome these stressors (Driskell et al., 2014, pp. 37-38). Athletes cannot be expected to look up mental skills on the Internet or read sport psychology books that will help with their performance. They need to be taught them in person, either by a coach or by a sport psychologist. Self-consciousness training, positive self-talk, controlled distractions, pre-performance routines, and self-confidence should all be taught to these athletes, among other skills. That way, they can begin to be stronger mentally.

The final stage of SET is helping the athletes apply their new knowledge and skills in training with exposure to stressors (Driskell et al., 2014, pp. 38-39). The stressors should go beyond simply videotaping the athletes. That does not accurately reflect the stress and pressure that athletes feel during competition. Driskell et al. mentions performance pressure, competitive demands, time pressure, and noise as stressors that athletes are exposed to during a competition (2014, pp. 38-39). As each team and athlete determines how to best replicate these stressors and apply them in a practice setting, athletes could improve their performance dramatically when experience those same stressors in games and matches.

Conclusion

Jeurys Familia will likely have another chance to save a playoff game for his team in the ninth inning. But he will need tools to be able to accomplish it; otherwise, he will probably make the same mistake. He will need to practice focusing on pitch location and speed/spin instead of on the mechanics of throwing. He might want to consider using a controlled distraction so that he focuses on the right things. Positive self-talk may help him stay positive and play through stress. Creating a special pre-performance routine for high-pressure at-bats could provide him relevant cues for high performance in those situations. He will also need to regain his self-confidence so that he can make risky decisions and execute them under pressure. All of these skills can help him perform better.

However, without implementing these skills using SET, he might only perform well in practice or in games that do not mean much. Familia could really benefit from SET. He did not only blow the save in the wild card game in 2016; in 2015, he set a World Series record for blown saves with three. He has a history of underperforming when the stakes are the highest. The desired outcome of playing sports for most athletes is to win a championship, but most athletes never get the opportunity to play for one. They believe that they are preparing for that moment when they practice, but many choke under the pressure when they actually get to play in a championship game or series. The conditions are unlike any they have experienced before, because the stakes are so high. Practicing under simulated conditions is crucial for high performance (Driskell et al., 2014). If athletes like Familia use SET, they could adjust more quickly to high-pressure conditions.

More research needs to be done in order to determine how effective SET can be for different athletes and teams at different levels, such as high school, college, and professional.

Coaches should work closely with sport psychologists who are familiar with SET to determine the needs of their teams and athletes. Choking under pressure has been studied for years and improvements have been made, but if SET is researched more, even more progress can be made. Each athlete may be able to understand what they need to do to prevent choking. Fewer athletes will experience the disappointment and embarrassment of underperforming when it matters most. More importantly, every athlete will be able to perform at their best in all situations and have the satisfaction that they had nothing left to give, regardless of the outcome.

References

Andersen, J. P., & Gustafsberg, H. (2016). A training method to improve police use of force decision making: A randomized controlled trial. *SAGE Open, 6*(2). doi:10.1177/2158244016638708

Balk, Y. A., Adriaanse, M. A., de Ridder, Denise T. D., & Evers, C. (2013). Coping under pressure: Employing emotion regulation strategies to enhance performance under pressure. *Journal of Sport & Exercise Psychology, 35*(4), 408-418.

Baumann, M. R., Gohm, C. L., & Bonner, B. L. (2011). Phased Training for High-Reliability Occupations: Live-Fire Exercises for Civilian Firefighters. *Human Factors: The Journal of the Human Factors and Ergonomics Society,* 53(5), 548-557. doi:10.1177/0018720811418224

Baumeister, R. F., & Showers, C. J. (1986). A review of paradoxical performance effects: Choking under pressure in sports and mental tests. *European Journal of Social Psychology, 16*(4), 361-383. doi:10.1002/ejsp.2420160405

Beilock, S. L., & Carr, T. H. (2001). On the fragility of skilled performance: What governs choking under pressure? *Journal of Experimental Psychology: General, 130*(4), 701-725. doi:10.1037/0096-3445.130.4.701

Besharat, M. A., & Pourbohlool, S. (2011). Moderating effects of self-confidence and sport self-efficacy on the relationship between competitive anxiety and sport performance. *Psychology, 2*(7), 760-765. doi:10.4236/psych.2011.27116

Christensen, W., Sutton, J., & McIlwain, D. (2015). Putting pressure on theories of choking: Towards an expanded perspective on breakdown in skilled performance. *Phenomenology and the Cognitive Sciences, 14*(2), 253-293. doi:10.1007/s11097-014-9395-6

DeCaro, M. S., Thomas, R. D., Albert, N. B., & Beilock, S. L. (2011). Choking under pressure: Multiple routes to skill failure. *Journal of Experimental Psychology: General, 140*(3), 390-406. doi:10.1037/a0023466

Driskell, T., Sclafani, S., & Driskell, J. E. (2014). Reducing the effects of game day pressures through stress exposure training. *Journal of Sport Psychology in Action, 5*(1), 28-43. doi:10.1080/21520704.2013.866603

Englert, C., & Oudejans, R. R. D. (2014). Is choking under pressure a consequence of skill-focus or increased distractibility? results from a tennis serve task. *Psychology, 5*(9), 1035-1043. doi:10.4236/psych.2014.59116

Friedland, N., & Keinan, G. (1986). Stressors and tasks: How and when should stressors be introduced during training for task performance in stressful situations? *Journal of Human Stress, 12*(2), 71-76. doi:10.1080/0097840X.1986.9936770

Harwood, C., Cumming, J., & Fletcher, D. (2004). Motivational profiles and psychological skills use within elite youth sport. *Journal of Applied Sport Psychology, 16*(4), 318-332. doi:10.1080/10413200490517986

Lewis, B. P., & Linder, D. E. (1997). Thinking about choking? attentional processes and paradoxical performance. *Personality and Social Psychology Bulletin, 23*(9), 937-944. doi:10.1177/0146167297239003

Mesagno, C., Marchant, D., & Morris, T. (2009). Alleviating choking: The sounds of distraction. *Journal of Applied Sport Psychology, 21*(2), 131-147. doi:10.1080/10413200902795091

Mesagno, C., & Mullane-Grant, T. (2010). A comparison of different pre-performance routines as possible choking interventions. *Journal of Applied Sport Psychology*, *22*(3), 343-360. doi:10.1080/10413200.2010.491780

McClernon, C. K., McCauley, M. E., O'Connor, P. E., & Warm, J. S. (2011). Stress Training Improves Performance During a Stressful Flight. *Human Factors: The Journal of the Human Factors and Ergonomics Society,* 53(3), 207-218. doi:10.1177/0018720811405317

Oudejans, R. R. D., & Pijpers, J. R. (2009). Training with anxiety has a positive effect on expert perceptual-motor performance under pressure. *The Quarterly Journal of Experimental Psychology*, *62*(8), 1631-1647. doi:10.1080/17470210802557702

Reeves, J. L., Tenenbaum, G., & Lidor, R. (2007). Choking in front of the goal: The effects of self-consciousness training. *International Journal of Sport and Exercise Psychology, 5*(3), 240-254. doi:10.1080/1612197X.2007.9671834

Robson, S., & Manacapilli, T. (2014). *Enhancing performance under stress: Stress inoculation training for battlefield airmen.* Santa Monica, CA: RAND. Retrieved from

http://www.rand.org/content/dam/rand/pubs/research_reports/RR700/RR750/RAND_RR750.pdf

Appendix

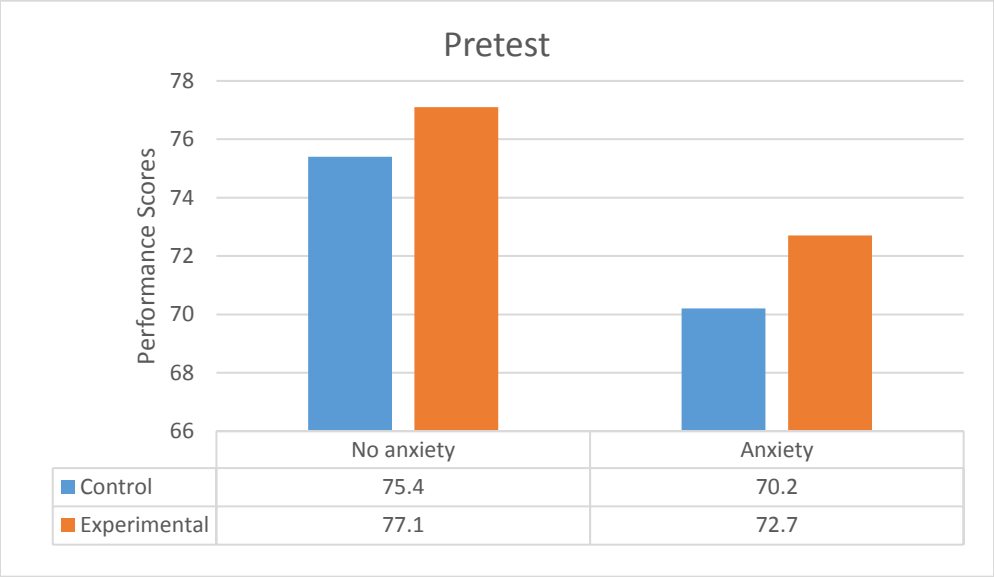

Figure 1. Free throw performance scores with no anxiety and with induced anxiety before a 5-week practice period. Adapted from Oudejans, R. R. D., & Pijpers, J. R. (2009). Training with anxiety has a positive effect on expert perceptual-motor performance under pressure. *The*

Quarterly Journal of Experimental Psychology, *62*(8), 1631-1647.

doi:10.1080/17470210802557702

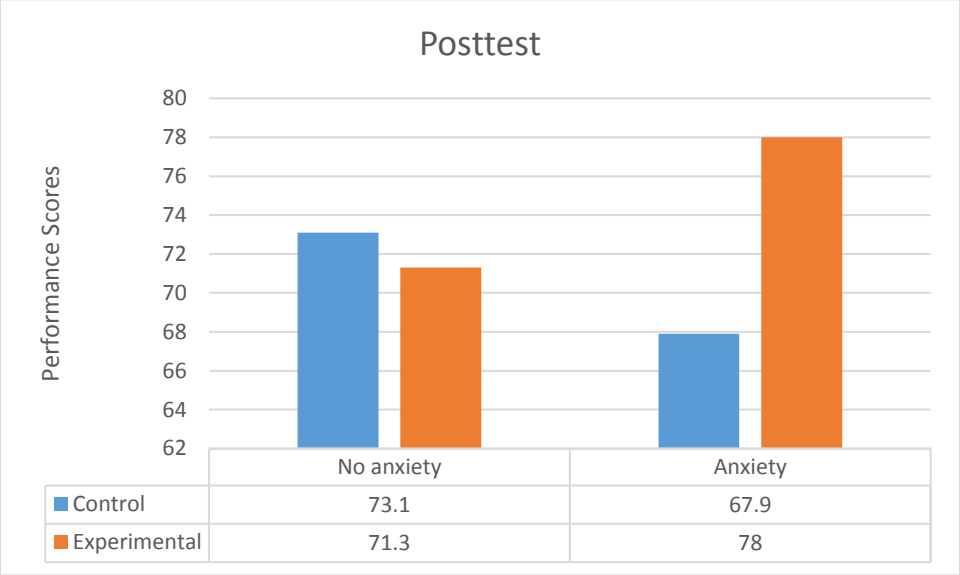

Figure 2. Free throw performance scores with no anxiety and with induced anxiety after the 5-week practice period. During the practice period, the control group trained normally while the experimental group trained with induced anxiety. Adapted from Oudejans, R. R. D., & Pijpers, J. R. (2009). Training with anxiety has a positive effect on expert perceptual-motor performance under pressure. *The Quarterly Journal of Experimental Psychology*, *62*(8), 1631-1647. doi:10.1080/17470210802557702