

Mental Imagery and Mental Training: A Study Relating to the Effects of Mental Imagery and
Mental Training on High School Student-Athletes at a Midsize High School in Baltimore
County, Maryland

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Abstract

The purpose of this research was to determine the effects of mental imagery and mental training on 20 high school cross country runners at a midsize high school in Baltimore County, Maryland. A one group pretest-posttest design was used and found that certain aspects of confidence and preparedness improved by mental imagery and mental training. A self-evaluation questionnaire that measured cognitive state anxiety, somatic state anxiety, and confidence was used to reveal that one of the three categories improved after mental imagery and mental training sessions. The runners somatic state anxiety increased over the course of the study revealing a stronger sense of confidence and preparedness following the mental imagery and mental training sessions. Cognitive state anxiety and confidence had minimal change through the study that had no positive or negative effect.

CHAPTER I

INTRODUCTION

Student-athletes in interscholastic athletics have been known to encounter many circumstances that lead to poor performance in intense and high-pressure scenarios. Poor performance in intense and high-pressure scenarios stems from student-athletes inability to execute in a competitive environment due to mental obstacles. This ideology of worrying about accomplishing the task-at-hand at full capacity comes from the internal stressors that are not within the student-athlete's control. This form of anxiety is called cognitive state anxiety where the individual worries or has negative thoughts about the performance (Weinberg & Gould, 2019). As an example, interscholastic student-athletes are regarded as students first, then athletes. “Student-athletes, unlike their non-athlete peers, must balance the simultaneous rigors of academic and athletic life and transition to the independence of adulthood while maintaining family, friend, and peer networks” (Moreland, Coxe, & Yang, 2018). Many of these internal stressors include improper time-management capabilities where the student-athlete becomes overwhelmed and worried about the items that are required of them. These items that factor in to a student-athletes mentality are the knowledge and unpreparedness for an upcoming important exam, research paper, or presentation. Although the student-athlete comes to practice every day prepared for the task at-hand, their inability to manage their time wisely may falter and effect their mental state. As such, when it comes time for the student-athlete to perform at a high-level, the internal stressors affect their achievement of success in a highly stressful competitive environment. The researcher has noticed that these influences can be attributed to stress, anxiety, or other mental obstacles a student-athlete encounters.

Overview

In interscholastic athletics, stress and its impact on performance is prevalent throughout sports programs. Some student-athletes try to prevent poor performance from occurring by self-talk, mediation, relaxation or other methods of mental training. Athletic coaches are the student-athletes' support system in reference to providing the necessary tools to reduce the levels of stress and distractions that many interscholastic athletes are faced with. Athletic coaches often utilize individual sessions with student-athletes to build confidence through motivation, self-awareness, and trust. It is my understanding from expertise that there appears to be no universal method for the athletic coaches to ensure student-athlete growth. However, it was found that coaches and athletes generally agreed on the relative frequency with how a coach interacts and encourages the athlete to use imagery across the where, when, why, and what (Jedic, Hall, Munroe-Chandler, & Hall, 2007). Thus, the ability for the athletic coach to recognize and adjust to the needs of the student-athlete allows overall development of the individual. This study explores how athletic coaches in cross-country and track and field might be able to improve the mental performance of their student-athletes and potentially improve their physical performance.

Statement of Problem

The purpose of the study is to implement a mental imagery and mental training program and determine the effects of improved confidence and preparedness in student-athletes who are competing in cross-country at a midsize high school in Baltimore County, Maryland.

Hypothesis

If cross-country student-athletes at a midsize high school in Baltimore County, Maryland utilize mental imagery and mental training prior to competition, then their confidence and preparedness will not improve.

Operational Definitions

The independent variable for this study is mental imagery and mental training. Mental imagery and mental training are defined as a series of strategies outlined by the literature review. These strategies include the use of visualization, focusing on uncontrollable external events and being mindful to feel ultimate preparedness for competition. For this study, mental imagery and training refers to a ten-minute relaxation period followed by ten-minute visualization period. During the visualization period, the cross-country student-athletes will be envisioning their performance in their mind. For example, a runner will sit on the cross-country course and imagine each step of their performance from beginning to end. This imagination will include feelings and obstacles they experience throughout the performance. The dependent variable is the improvement of confidence and preparedness in student-athletes performance as measured by the Competitive State Anxiety Inventory-2 (CSAI-2).

CHAPTER II

REVIEW OF THE LITERATURE

Athletic competition provides a perspective of mental ability for an individual and offers a wide range of diverse preparation techniques. Although it is assumed that physical talents provide the only edge for the competitor to have athletic success, research has indicated that mental training and mental imagery can have a significant impact on the performance of the individual. Visualization, self-talk, planned routines, and the reliance a coach has for the individual are among the different variations of mental preparation in athletic extra-curriculars. For example, in the sport of gymnastics, athletes are visibly seen visualizing and engaging in self-talk that makes up their pre-competition routine. Long-distance runners routinely eat pasta prior to a race to “carbo-load.” Coaches build their athletes “reliability by trusting and believing in them. As such, these techniques all serve a primary purpose of supporting the concept of mindfulness.

Mental Training Definition

Mental training strategies in athletics has a common goal of strategizing ways to prepare athletes for competition by concealing nerves that are established by uncontrollable external events. Uncontrollable external events consist of the weather, the size of the competition, the time the competition takes place, and whether the athlete feels “prepared” or not for the competition. Many times, athletes are engrossed in these external uncontrollable events and persuade themselves that they are incapable of completing the tasks for the competition. As such, these athletes formulate excuses as to why they are mentally unfit for the competition. On the contrary, positive mental interventions can help prepare the athletes mindfulness of the task to help eliminate the uncontrollable external events they may face. Mindfulness is a way of paying

attention that entails intentionally being aware of the present moment and accepting things just as they are (Kaufman, Glass, & Pineau, 2018). Being mindful and prepared for the uncontrollable external events allows the athlete to train the brain in a similar way in how the body is trained (Behncke, 2004). Mental training compliments the physical training by being prepared for high-pressure scenarios.

Most research literature shows that athletes who partake in some sort of pre-competition mental preparation tend to perform at a higher level than athletes who do not (Gregg & Hall, 2006). This is because their ability to raze the uncontrollable external events that deter other athletes (Mahoney & Averno, 1977). Those athletes who can enhance their mental preparation at the very least have an advantage against their competition in preparation toward the uncontrollable external events they may face.

Mental Imagery Definition

Another component that factors into the psychological state and preparedness of athletes is the concept of mental imagery. “Mental imagery is the process of imagining the performance of a skill with no related overt actions” (Jones & Stuth, 1997, p.101). Types of mental imagery used in athletes include the visualization of the task at hand. Athletes use visualization in many ways. According to Neck and Manz, “mental imagery refers to imagining successful performance of the task before it is actually completed” (Neck & Manz, 1992, p. 684). As a result, those athletes who engage in visualization and mental imagery tactics can recall circumstances of successful outcomes and mentally imitate the achievement. This allows the athlete to be more capable of preparation and control emotions during future competitions. This also allows the athlete to be fully prepared for any uncontrollable external events that may mentally hinder the performance of the individual.

Mental Training and Mental Imagery in Cross-Country and Track and Field

One measures athletic success in many ways, depending on the sport chosen. There are two comparable differences in sport, team and individual. Team sports record wins and losses, team statistics, and compromise of individual performances that help the greater good of the team. Individual sports have team results, such as the sport of cross-country. The result of a cross-country race is primarily approached in how the individual performs overall. The individual may help by contributing points to the overall team score, but the measure of success is how the individual improves upon their own performance based on previous performances. As such, each sport has a unique way of requiring mental capacity to maintain an edge to succeed (Gregg & Hall, 2006). Having the ability to mentally enhance a performance can not only increase the amount of success an athlete experiences, but also give them a barrier for the failures that are inevitable in athletics (Mahoney & Averbach, 1977). This allows the individual to prepare for the failures they may face as an athlete to optimize ultimate growth and success in the sport of their choosing.

The sport of track and field is primarily an individual sport that seldom has team scores attached to the result. Olympic track and field competitions are based on how the individual performs amongst the world. A tally of how many medals a country may accumulate is based on the individual performances from that particular country. In interscholastic track and field, competitions are mostly individual events with the few anomalies of team scored events such as a conference, regional, and/or state championship meet. While these events have team scores attached to the outcome, each specific event requires individual performance. As such, the communication and personal interaction a coach may have with the group and/or team differs from the sport of track and field. The mental preparation a track and field athlete has compared

to a team sport is more individualized. A track and field athlete can focus solely on the task at hand such as their race strategy rather than the potential errors made by teammates, coaches, and/or opponents. Gymnastics, running, and swimming effectively simplifies the individual's mental training process, in turn, resulting in better individual performances (Nicholls, Polman, Levy, & Blackhouse, 2008). The sport of track and field represents itself in a way that psychological interventions are more successful and personal than those of team orientated sports.

Track and field athletes must have a unique mental capacity to be successful and competitive in the sport. As an aerobic and anaerobic sport, track and field tests the body limits and forces the individual to push past the point of contentment. Athletes train hard to improve their skills and talents regardless of the time it takes them to complete the task (Khodayari, Saiiari, & Dehghani, 2011). This involves a certain amount of mental toughness that is both a preparatory method as well as a coping mechanism (Sheard & Golby, 2006). This coping mechanism allows the athlete to endure the physical demand and have a comprehension of the pain tolerance they must have in the sport of track and field.

The establishment of mental training and mental imagery in cross-country and track and field athletes has become extremely popular. Cross-country and track and field programs and teams have incorporated some form of mental training and/or imagery into the weekly workout routine. Visualization, self-talk, and having set routines are examples of how coaches can provide a form of self-reliance towards their athletes. Providing psychological skills training has many advantages and fits well with a problem-focused, therapeutic approach (Hays, 1995). The goal of mental training is to eliminate the presence of external uncontrollable events on athletes by using sport psychological skill training techniques (Bar-Eli & Blumenstein, 2002). Student-

athletes must cope with many uncontrollable stressors than those younger athletes (Bar-Eli, Dreshman, & Blumerstein, 2004). The obstacles an interscholastic student-athlete has may make psychological interventions much more difficult. The atmosphere in high school increases the amount of stresses in student-athletes' lives. As such, academics are presumed to be the most important aspect of high school life for student-athletes competing in the interscholastic level. Often, athletic importance finds itself at the bottom of the list in regard to an individual's determination of what high school life is like. Despite the classification, high school student-athletes are still dedicated to their athletic performance and want to do the best of their ability. When academic matters and other distractions make their way to the athlete's mentality, performance is hindered. Mental training and mental imagery aim to help eliminate the uncontrollable external events for the interest of the student-athlete's performance.

The Teaching of Mental Training

It is a clear concept that mental training separates elite athletes from amateur athletes. In a study of male gymnasts, the distinction between Olympic caliber athletes and amateur athletes was differentiated by the presence of a psychological aspect to training. The Olympic caliber gymnasts were given mental training techniques to enhance their performances. "Specifically, dream frequency, self-verbalizations, and certain forms of mental imagery seemed to differentiate the best gymnasts from those who failed to make the Olympic team" (Mahoney & Avenier, 1977). Mental training is what allows the athlete to gain the competitive edge amongst their competition and provide an opportunity to prepare for the uncontrollable external events that may happen during competition.

Mental training is not a substitute of performance skill education. However, mental training provides an opportunity to enrich performance and produce a method of retention by

recalling successful performances. “Athletes use imagery more for performance enhancement and skill execution than skill learning” (Jedic, Hall, Munroe-Chandler, & Hall, *et al*, 2007, p. 351). Mental training and mental imagery have limitless benefits for the athlete. For the high school student-athlete, mental training and mental imagery techniques can help prepare the individual for external uncontrollable events. These student-athletes who can or may eliminate the external forces and focus on the task at hand from their mental training and mental imagery techniques are those who are most likely to improve confidence and are more likely to perform better.

Summary

Mental training and mental imagery reap benefits for all types of athletes. This can be seen through the research of Olympic gymnasts performed by M.J. Mahoney and M. Avenier. Mental training and mental imagery increase the confidence of athletes and allow them to be fully prepared for external uncontrollable factors to perform better. Student-athletes that can focus and concentrate have the ability to commit to the task at hand. Thus, this ability to focus and concentrate allows the individual to build self-confidence which motivates them to exceed expectations in the task. Mental training and mental imagery benefits could be the key factor to prevent stress in an athlete who experiences an external uncontrollable event or has anxiety-like issues prior to competition.

CHAPTER III

METHODS

The purpose of this study was to implement and determine whether mental imagery and mental training is effective on confidence and preparedness in student athletes competing in cross-country at a midsize high school in Baltimore County, Maryland.

Design

The design that was chosen for this particular study of mental imagery and mental training in improving confidence and preparedness in student-athletes at a midsize high school in Baltimore County, Maryland was pre-experimental. One group was pre-tested and post-tested to explore the benefits of mental imagery and training on the confidence and preparedness of cross-country student-athletes at a midsize high school in Baltimore County, Maryland.

Participants

The study selected student-athletes who are coached specifically by the researcher. The participants voluntarily took part in the study. The ages of the participants range from 15 to 18 years-of-age. The participants were selected by the researcher because they are members of the a midsize high school in Baltimore County, Maryland cross-country and track and field program where the researcher is employed.

Instrument

The instrument used was a designed survey with a researcher-designed rating scale modified from the Competitive State Anxiety Inventory-2. Subjects completed a paper-based survey for the pre-test and then repeated the paper-based survey again at the conclusion of each competition as a post-test. This survey was chosen based on the capability to determine positive or negative mental states. The Competitive State Anxiety Inventory-2 (CSAI-2) exercise rates

each statement on a scale from one to four. Each statement relates to the student-athlete's feeling before a competition. One relates to the student-athlete having no feeling at all to four being very much so. The purpose of the exercise was to indicate how the student-athlete felt at that moment (Martens, Vealy, & Burton, 1990). The CSAI-2 was administered as the pre-test and post-test for the subjects involved with the study.

Following practice and/or competition, the subjects repeated the survey as a post-test. The scoring scale for the CSAI-2 survey breaks down the results into three components: cognitive anxiety, somatic anxiety, and a related component-self-confidence.

To score the CSAI-2, all statements are calculated at face value with the exception of statement 14. In statement 14, the score is reversed ($1 = 4$, $2 = 3$, $3 = 2$, $4 = 1$).

Component one is the cognitive state anxiety determined by the sum of statements: 1, 4, 7, 10, 13, 16, 19, 22, and 25. Component two is the somatic state anxiety determined by the sum of statements: 2, 5, 8, 11, 14, 17, 20, 24 and 26. Component three is self-confidence determined by the sum of statements: 3, 6, 9, 12, 15, 18, 21, 24, and 27.

Scores will range from 9 to 36, with 9 indicating low anxiety or strong confidence and 36 indicating high anxiety or low confidence (Martens, Vealy, & Burton, 1990).

Following the completion of the study, the pre-test results and the post-test results were compared to obtain an overall level of performance confidence on a rating scale of one to ten. Throughout the study, the subjects were administered a structured mental training program that incorporated mastery of visualization, positive self-talk, and mental choreography.

Procedure

The research included a single segment that lasted eight weeks in length. The segment was conducted during the cross-country competition schedule. The segment included a period of

time where the athletes were participating in both practice and competition. The surveys were administered at the beginning of the segment as a pre-test and at the end of the eight weeks as a post-test. The techniques used in the segment involved once a week mental training exercise. The mental training program consisted of visualization, positive self-talk, and mental choreography. The time allotted to the mental training program was the amount of time the student-athlete warms up, completes the event, and cools down for their specific event. This allowed for an all-inclusive mental training approach that focused on maintaining mastery of the mental game prior to participating in an event, during the event, and reflection after the event.

CHAPTER IV

RESULTS

As stated earlier, the hypothesis asserts that if cross-country student-athletes at a midsize high school in Baltimore County, Maryland utilize mental imagery and mental training prior to competition, then their confidence and preparedness will not improve. In this research, the results were interesting and intriguing as it was a split resolution. The hypothesis was supported for cognitive state anxiety and self-confidence; however, the results of the study rejected the hypothesis for somatic state anxiety. The intention of this study was to test how mental imagery and mental training affected the confidence and preparedness of the high school student-athletes at a midsize high school in Baltimore County, Maryland. The student-athletes were pre-tested by completing the Competitive State Anxiety Inventory-2 (CSAI-2) survey. This survey gave a baseline result for cognitive state-anxiety, somatic state-anxiety, and overall confidence. After the pre-test was administered, the researcher presented various mental imagery and mental training sessions with the student-athletes over a five-week period. The researcher used mental imagery scripts, positive self-talk, and mental choreography as the intervention during the five-week period. Table 1 provides further description of the runners means and standard deviations of the measure.

Table 1. Means and Standard Deviations of the Measures

Measure	Pre-Test Mean (Standard Deviation)	Post-Test Mean (Standard Deviation)
Cognitive State Anxiety	19.65 (4.966)	19.05 (4.729)
Somatic State Anxiety	16.65 (3.422)	14.035 (3.345)
Self-Confidence	24.25 (5.129)	24.35 (4.977)

Dependent t-tests were run to determine if there was impact of mental imagery training on confidence and preparedness. Mean and standard deviations of the measures are shown in Table

1. Results showed a significant difference for somatic state anxiety [$t(19) = 2.698, p < .05$], and no significant difference for cognitive state anxiety [$t(19) = .466, p > .05$] or self-confidence [$t(19) = -.108, p > .05$]. The null hypothesis was rejected for somatic state anxiety and accepted for cognitive state anxiety and self-confidence. These results and their implications will be discussed in the next chapter.

CHAPTER V

DISCUSSION

The results of this study had a split resolution to support and reject the hypothesis. The measures for cognitive state anxiety and self-confidence supported the hypothesis as the pre-test and post-test measures saw minimal change. However, the somatic state anxiety measure sufficiently changed to show a vast improvement to reject the hypothesis. Most research literature shows that athletes who partake in some sort of pre-competition mental preparation tend to perform at a higher level than athletes who do not (Gregg & Hall, 2006). The following information gives further explanation of the results of the study.

Implications of Results

The study was intriguing and interesting to comprehend the true implications of performing mental imagery and mental training with student-athletes. Mental imagery and mental training have been a part of the researchers training cycle for several years. Thus, to have data to affiliate the suggestion that mental imagery and mental training improves confidence and preparedness in student-athletes is remarkable.

Cognitive state anxiety is simply the thoughts a student-athlete may have in pre-competition. Cognitive state anxiety is where the individual worries or has negative thoughts about the performance (Weinberg & Gould, 2019). In the study, the student-athletes that were measured did not show a significant improvement or decline that would support the hypothesis. The cognitive state anxiety levels of the student-athletes were slightly better in the post-test than they were in the pre-test; however, these results were not significant enough to yield a positive change to the student-athletes confidence and preparedness. To explain this in further detail, as

the season progresses, the meets that the student-athletes perform at become more important. As a result, the experience the student-athlete has early in the season prepares them for the more notable meets later in the season.

Self-confidence is how the individual interprets his or her own worth. The intriguing finding in this category was that the student-athletes had a high self-confidence level in the pre-test. “Student-athletes, unlike their non-athlete peers, must balance the simultaneous rigors of academic and athletic life and transition to the independence of adulthood while maintaining family, friend, and peer networks” (Moreland, Coxe, & Yang, 2018). The theory behind this measure is that the high school student-athlete is confined to their daily rigors and have a regimented schedule. The student-athlete has the same school schedule, lunch time, practice time, and bedtime. Additionally, the high school student-athletes at a midsize high school in Baltimore County, Maryland have tremendous support from their parents/guardians. Thus, the student-athletes haven’t quite experienced true tribulations to have a substantial effect to their self-confidence.

Somatic state anxiety in contrast is the feeling attached to a performance. After the pre-test, the somatic state anxiety measure was where the researcher placed emphasis in an attempt to make improvements. For a competitor in cross country and track and field, there are a lot of feelings that are associated with performance. Athletes train hard to improve their skills and talents regardless of the time it takes them to complete the task (Khodayari, Saiiari, & Dehghani, 2011). As such, student-athletes may feel or experience pre-competition butterflies, sweating, heavy breathing, or an elevated heart rate. The researcher acknowledged these characteristics and used mental imagery and mental choreography to relieve these feelings or associations. As a result, the somatic state anxiety levels improved over the course of the study.

Theoretical Consequences / Threats to the Validity

The study was administered with a pre-experimental design that encountered pre-tests and post-tests on a single group and no control group. In this study, the student-athletes were the single group of the research. Therefore, this particular study has specific vulnerabilities such as, history, maturation, instrumentation and/or testing. These are vulnerable threats to the internal validity of the research.

History is an event that occurs during the intervention that could have an impact on the results. As such, these individual student-athletes were performing at a high level during the competitive cross-country season. In this particular case, all student-athletes that were tested endured the season and remained healthy to participate. However, one theoretical consequence to the result of this study would be if an individual would become injured and unable to complete the rest of the season. This result would deflate the confidence of the individual and affect the measures of the study.

Maturation is an influence that may occur from biological, natural, and/or social events that can impact results. In this study, the subjects studied were high school student-athletes that ranged from 14-18 years of age. During the course of the study, it is relevant and possible that the student-athletes could have matured over the course of the study. The goal of mental training is to eliminate the presence of external uncontrollable events on athletes by using sport psychological skill training techniques (Bar-Eli & Blumenstein, 2002). Student-athletes must cope with many uncontrollable stressors than those younger athletes (Bar-Eli, Dreshman, & Blumerstein, 2004). These uncontrollable stressors may contribute to the maturation of student-athletes. As such, this internal threat could be deemed as negative to the results; but it could also be considered as a positive that the student-athlete is maturing through the experiment.

Instrumentation may have systematic misrepresentation of a statistical result due to a specific factor. In this study, it is possible that the calculation of the results to the questionnaire may have errors by the user. For example, each question on the survey was calculated at face value based on the student-athletes answer. However, one of the questions on the questionnaire had a reverse score; meaning, that if the surveyed answered one, it was calculated as a four and so on. Theoretically, it is possible that the researcher could have made a calculation error that would reflect a negative effect to the results of the study.

The test or study might cue a person to change a behavior regardless of the program or intervention. The individual may make a change of behavior that would be a positive or negative to the research. In light of the fact that high school student-athletes were studied in this research, the participants' previous incorporation of mental imagery and mental training was not taken into account nor controlled. Therefore, those who may have employed psychological practice in their own previous training may have had a different improvement threshold than those who were unaccustomed to the application of mental imagery and mental training.

In addition, without a particular control group, the results of this study cannot be generalized to a larger population of student-athletes. Further research would require a larger sample to see if generalization is possible. As in most studies, inclusion of a greater and more representative sample, rather than a limited sample, may strengthen the statistical significance of the results. The next section will confer implications for further research.

Implications for Future Research

The study has revealed that over a period of time, mental imagery and mental training can improve thoughts, feelings, and associations to performance anxiety. Having the ability to

mentally enhance a performance can not only increase the amount of success an athlete experiences, but also give them a barrier for the failures that are inevitable in athletics (Mahoney & Avernier, 1977). As such, there is a strong inclination to continue to utilize mental imagery and training and expand the timeframe to a longer span to exhibit supplementary results. Future research will improve the quality of experiences the student-athlete will have and enhance their performance anxiety. Additionally, future research shall include more student-athletes and a control group to further examine the variables studied here with hopes of greater external validity.

Conclusion

The experiment of utilizing mental imagery and mental training in high school student-athletes was a rewarding assignment. As an experienced coach, I have utilized mental imagery, mental training, and mental choreography as a part of the regular training regimen. Thus, the results provided a true assessment of how these tactics are beneficial for student-athletes and coaches involved in extra-curricular activity. Furthermore, it allows those who are involved a chance to teach and learn valuable life-lessons that will persist throughout a lifetime.

APPENDIX A

Competitive State Anxiety Inventory 2 (CSAI-2) Questionnaire

Instructions:

Complete the questionnaire during a quiet time before practice when you are fairly relaxed. If you are not currently active in the competition season, recall such situations as clearly as possible and record your responses accordingly.

Explanation:

The following statements are descriptions of student-athlete feelings before a competition. Read each statement and circle the appropriate number to indicate how you feel right now in that particular moment. There are no right or wrong answers. Do not spend more than 2 minutes on any one statement.

Statement	Not at all	Somewhat	Moderately so	Very much so
I am concerned about this competition.	1	2	3	4
I feel nervous.	1	2	3	4
I feel at ease.	1	2	3	4
I have self-doubts.	1	2	3	4
I feel jittery.	1	2	3	4
I feel comfortable.	1	2	3	4
I am concerned I may not do as well in this competition as I could.	1	2	3	4

Statement	Not at all	Somewhat	Moderately so	Very much so
My body feels tense.	1	2	3	4
I feel self-confident.	1	2	3	4
I am concerned about losing.	1	2	3	4
I feel tense in my stomach.	1	2	3	4
I feel secure.	1	2	3	4
I am concerned about losing.	1	2	3	4
My body feels relaxed.	1	2	3	4
I'm confident I can meet the challenge.	1	2	3	4
I'm concerned about performing poorly.	1	2	3	4
My heart is racing.	1	2	3	4

Statement	Not at all	Somewhat	Moderately so	Very much so
I'm confident about performing well	1	2	3	4
I'm worried about reaching my goal.	1	2	3	4
I feel my stomach sinking.	1	2	3	4
I feel mentally relaxed.	1	2	3	4
I'm concerned that others will be disappointed with my performance.	1	2	3	4
My hands are clammy.	1	2	3	4
I'm confident because I mentally picture myself reaching my goal.	1	2	3	4
I'm concerned I won't be able to concentrate.	1	2	3	4

Statement	Not at all	Somewhat	Moderately so	Very much so
My body feels tight.	1	2	3	4
I'm confident of coming through under pressure.	1	2	3	4

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