



Highlighted Article

## Lifting the Mind: A Case Study of Applied Sport Psychology in Powerlifting

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**Abstract:** The sport of powerlifting has extensive research within the areas of physical and physiological training and the impact these factors have on competitive performance, yet there is a lack of research examining the impact applied mental training has on meet performance. Over the course of this four-month sport psychology intervention, the case of Matt highlights the positive psychological, emotional, and competitive effects applied mental training can have on an elite powerlifter. Examining topics such as training burnout and staleness, competitive goal setting and self-talk, and in – competition arousal control and energy management, this study's results suggests the importance the growing field of applied sport and exercise psychology may play in the emerging sport of powerlifting. Though case study in nature, the qualitative reports and significant quantitative results of this case will hopefully reshape the way trainers, coaches, and athletes think about powerlifting meet preparation, on and off the platform.

**Key Words:** Mental Training, Exercise Psychology, Imagery, Relaxation



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movement and use this foundation in combination with my experience as an athlete and coach to treat and prevent illness/injury.

## 1 Introduction

The sport of powerlifting may seem simple in nature to those who have never attended a meet or training session: push, press, and pull. Consisting of three repetitions each of three staple lifting movements (i.e., squat, bench press, and deadlift), the concept of determining the strongest in the field by cumulative score is a basic form of competitive exercise, however there are endless physical and psychological components which determine success or failure in this ever-emerging sport. However, it is the latter of those two components which is severely lacking in research and applied techniques, and it is the goal of this article to detail the impact of an applied mental training program on one athlete's longitudinal competitive powerlifting performance. Case study in nature, it is the hope that this athlete's systematic implementation of a Certified Applied Sport Psychology Consultant - designed eight-week intervention may serve as a guide for those powerlifters looking to improve in their psychological competence and performance, as well as a guidepost for researchers in the field to explore a new competitive arena for applied mental skills training.

### 1.1 Case Study – Matt

Entering the fall, Matt (name changed to protect the subject's anonymity) was a moderate-to-good up-and-coming amateur powerlifter. Only 20 years old and working on his junior year at a Southeastern American University, Matt was not nearly approaching his prime when it comes to competitive powerlifting [1], although it had come clear to Matt that he was not able to perform his best when it matters in the sport of powerlifting; competition day.

### 1.2 Powerlifting 101

The goal of the sport of powerlifting is to establish who is the strongest on any given competitive meet day in three primary exercise movements, aimed at demonstrating complete and overall body strength. The squat (primarily utilizing leg and core strength), the bench press (primarily emphasizing chest, triceps, and shoulder strength), and the deadlift (primarily demonstrating leg, back, and core strength) are the competition lifts, with each athlete given three attempts to record their highest single event score, leading to a three-lift total overall score to determine placement in the meet. Powerlifting meets can last as long as twelve hours, with athletes sometimes having upwards of an hour in between competitive lifts. There are a few different governing bodies (i.e., USA Powerlifting, International Powerlifting Federation, etc...) who

vary slightly on their acceptable competitive accessories (i.e., lifting belts, knee sleeves, wrist wraps, etc...) and supplementation, with athletes compete in weight classes similar to other sports such as weightlifting, wrestling, and boxing.

Although Matt had competitive experience, it was the time regulations and constraints of a competitive meet which he felt provided him struggle, as he felt he was not doing an effective job regulating his emotions, energy levels, or attentional focus to be able to last the grueling ten-hour days. Matt would consistently reach and exceed his goals in the first event, but often fall short of weights he achieved in practice environments due to psychological exhaustion and poor physiological planning over the course of the meet.

*“I often found myself imagining my failure to lift a weight, or my inability to execute a lift properly, or place mental focus and energy concerning myself with potential injury.”*

As Matt gained cursory understanding of applied sport psychology [2, 3], it was from a time management and planning perspective that was one of his two main goals for the intervention. Being better able to regulate his heart rate and arousal levels when needed throughout the meet, effectively “switch on” his focus and attention when needed, and properly assess his emotions and regulate them as needed throughout the meet.

As a general rule, competitive powerlifters and weightlifters compete in between two and four meets per year [4], placing extreme importance on performance in these meets in order to qualify for regional, national, and international competitions, but also places huge importance on the training environment between meets.

*“The most significant difficulty associated with powerlifting for me is the internal struggle between the optimist and the pessimist. Putting a bar on your back several times per week or picking a bar up off of the ground loaded with weights, that are never forgiving, challenges your ability to maintain a heightened level of self-confidence.”*

Psychological constructs such as burnout [5] motivational climate [6], and enjoyment [7] have been shown to significantly decrease athlete practice performance, and it was this “practice mentality” as defined by Matt that he wished to improve, as he has previously reported experiencing each of the mentioned psychological maladies.

### 1.3 Targeted Mental Skills and Outcome Goals

As directed by the Certified Applied Sport Psychology Consultant, Matt was directed to select

two or three traditional mental skills or tools [2] to focus on during his intervention and training cycle. From Matt's experience within powerlifting and weightlifting, he felt the topics of Self-Talk, Imagery, and Arousal/Energy Management [2] would be the most applicable and effective for his task at hand. In conjunction with the increased mental skill use and mastery, the primary targeted outcomes were increases in the three primary competitive powerlifting events (i.e., deadlift, bench press, & squat), which Matt would be competing in the near future. Additionally, qualitative sub-goals such as lessened staleness and burnout in training sessions were targeted outcomes.

Outcomes of these goals was assessed by self-reported use of self-talk, imagery, and arousal management, quantitative data from national competitive powerlifting meets, and self-reported levels of burnout and training staleness.

## 2 Methods

Over the course of eight weeks, Matt underwent an intensive applied mental training intervention at the direction and supervision of an Association of Applied Sport Psychology Certified Consultant (CC-AASP). Although this intervention focused on the mental tools and skills of Self-Talk and Imagery, an overall goal for the project was a general improvement Matt's mental approach to the sport of competitive powerlifting.

### 2.1 Procedure

Matt's intervention followed traditional mental skills training (MST) phase progression [2, 8] education, acquisition, and implementation stages. Although these stages will not be detailed in depth, extensive evidence [2, 7-10] for the demonstrated effectiveness of this approach to traditional mental skills training can be found in the sport and exercise psychology literature.

## 3 Results

Although the mental skills training project was focused on the increase in use and mastery of the targeted mental tools and skills (i.e., self-talk, imagery, and arousal management), the primary goal from the intervention was increased competitive performance. Prior to the beginning of the applied sport psychology intervention, Matt's best competitive lifts (three months prior) were 451 lbs. in the squat, 303 lbs. in the bench press, and 479 lbs. in the deadlift; leading to a competitive meet personal records of 1235 lbs. (See Table 1). Upon completion of the applied sport psychology intervention, Matt took part in a competitive powerlifting meet (specifics withheld to preserve anonymity). He recorded lifts of 485 lbs. in the squat (7.54% increase), 314 lbs. in the bench press (3.63% increase), and 507 lbs. in the deadlift (5.85% increase); leading to a 5.75% increase in overall performance (See Table 1), a new personal and state record, and earning entry into a national championship meet. Within the field of sport and exercise psychology, effective applied sport psychology interventions have historically [8, 11,12] shown to yield performance increase of 3-5%, thus Matt's increase of 5.75% is substantial and suggests the importance and effectiveness of applied mental training in powerlifting.

## 4 Discussion

Due to the unique situation and psychological training Matt was privy too, his results may not only shed light on the important of applied sport psychology in the sport of powerlifting, but the purposeful preparation and systematic nature of his applied mental training intervention. While the systematic mental skills training program may not be directly attributed to Matt's physical performance enhancement, this discussion is to suggest and describe a correlational relationship.

**Table 1.** Powerlifting Statistics for Matt Pre & Post-Intervention

<b>Powerlifting Event</b>	<b>Pre-Intervention Competitive Best</b>	<b>Post – Intervention Competitive Best</b>	<b>Percent Change</b>
Squat	451 lbs.	485 lbs.	+ 7.54%
Bench Press	303 lbs.	314 lbs.	+ 3.63%
Deadlift	479 lbs.	507 lbs.	+ 5.85%
Overall Total	1235 lbs.	1,306 lbs.	+ 5.75%

#### 4.1 Appropriate MST Design for Powerlifting

As one of the primary goals of applied mental training is to improve self-awareness and self-regulation [13]. Matt's ability to acquire, practice, and implement his selected mental tools and skills was a vital component to his success and competitive improvement.

*"One specific realization that I had during the time spent focusing on certain mental skills is that I am more aware of my own mental state more often. I generally "practice" these skills before the beginning of the project; however I did not dedicate a chunk of time specifically to these thoughts, which led me to stray more often and not benefit to the same degree."*

From early in Matt's exposure to the field of sport psychology, he was able to appropriately understand and identify the skills that he felt would be most beneficial for his competitive performance, ultimately leading to a productive and significant intervention. Athletes sometimes select skills and techniques to work on at random, with no forethought or roadmap in mind for practice and competitive improvement, however this case study highlights the effectiveness purposeful and systematic psychology skill selection and practice can have on performance.

#### 4.2 Training Burnout & Staleness Prevention

Within the sport of powerlifting, it is typical to see meet preparation training programs run anywhere between 12-16 weeks in length. Due to the highly exercise-specific nature of the sport, unlike most sports which use physical exercise to increase performance in other areas, these training cycles can become monotonous and contribute to psychological staleness and even burnout. In the case of Matt, he reported that the continual need to perform the same exercises with consistent and pristine technique required immense focus, which after time came to be more challenging when accompanied with fatigue. Towards the beginning of his meet preparation training, Matt would be excited to enter the gym and be able to train and work towards his goals for the competition. After several weeks, although the competition day was closing in, he would tend to start viewing his training sessions as something he "had to do" rather than something he wanted to do. This sense of burnout would contribute to lower performance in training sessions, the occasional exclusion of portions of the training session, and a decreased confidence going into the subsequent training sessions due to a sense of lack of preparation.

#### 4.3 Building Competition Confidence from Practice Successes

It is no secret that success in practice can lead to success in competition regardless of the performance, however in powerlifting it is the numbers on the end of the bar that are of most concern. Unlike other Olympic sports such as swimming and track, a powerlifter's one-repetition maximum potential is typically known ahead of time, leading to a planned approach to the selected weight to lift in competition. With this as a norm in the sport, it is vital that powerlifters have confidence-building training sessions leading up to a competition, as one missed lift in training can damage and degrade an athlete's confidence leading up to a competitive meet.

*"It is, however, evident that my ability to enter a training session with a more positive and confident mindset allowed me to train at a higher level, and therefore the physiological adaptations could be maximized as well."*

As previously mentioned, one of the effects of staleness and burnout is the decreased motivation to complete training sessions to their full extent, leading to a sense of unpreparedness and lack of confidence in subsequent sessions. In correlation with confidence levels, the way the weight feels in the hands or on the back of the athlete will determine the way in which numbers are chosen, both in training sessions and in competition. Matt reported having significantly improved his ability to confidently choose his performance-numbers, which were within his realm of strength, and was one of the several key factors that allowed him to increase his performance substantially between competitions. In many traditional sports, there is an element of luck involved as a result of the direct effect of the opponent on an athlete's performance. In powerlifting, there is no direct interference of opponents in the ability for an athlete to execute his lifts. For this reason, it is of paramount importance that the athlete is able to individually maximize his performance, a skill which requires conscious mental effort to maintain confidence, and one which Matt was able to utilize to his advantage in his training and competition.

#### 4.4 Importance of Arousal Regulation during Competition

As a typical powerlifting meet takes place over the course of 8-10 hours, the ability to be aware and properly regulate one's arousal and energy levels is paramount. Matt reported this was a weakness at the beginning of the intervention, as he often expended most of his energy during the first half of the meet,

leaving him depleted and exhausted for the final lifts of the meet.

*“The most important component of improving my performance (the primary goal) in the three lifts was the ability to undulate my level of arousal during the length of the competition, rather than getting so mentally fatigued and being unable to “turn on” when I needed to towards the end.”*

This awareness of and ability to regulate energy levels comes as a direct result of increased understanding and application of the traditional sport psychology skills of energy/arousal management [6] Without being able to increase and decrease his heart rate and activation level as needed, Matt historically would expend all his energy early in the meet, which may show itself in solid early-lift performances, but would ultimately lead to negative overall results. Through purposeful practice and by acquiring the self-understanding, self-awareness, and self-regulation skills to increase and decrease his energy/arousal/activation levels as needed, Matt was able to apply these skills as needed to achieve competitive milestones.

## 5 Conclusion and Practical Applications

Although case study in nature, Matt’s applied mental training intervention illustrates the importance and applicability of sport psychology training in strength sports such as powerlifting and weightlifting. Through the specific, deliberate, and purposeful selection and practice of applied sport and exercise psychology principles, strength-sport athletes can see improvements on and off the platform, with this example providing rationale for the inclusion of the mental aspects of performance in any competitive training protocol. Granted, this research project was a sample size of one, under the advisement of a Certified Applied Sport Psychology Consultant, however there is no reason that these results cannot be replicated with properly researched and planned training agendas.

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