Checking the Wrong Boxes: Psych-Up Misalignment in High School Athletics

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Abstract: This study investigates the alignment between high school athletes' preferred "psych-up" techniques and the optimal arousal levels required for their respective sports, as described by the Inverted-U and Catastrophe theories of arousal. Using a mixed-method design consisting of 195 survey responses across 30 sports and 9 in-depth interviews, this research examines whether athletes intuitively select preparation strategies that match the physiological demands of their sport. Results indicate that while athletes broadly recognize psyching up as important (mean importance rating: 4.05 out of 5), the majority demonstrate significant misalignment between their chosen techniques and their reported optimal arousal states. Aggressive music and physical stimulation were the most commonly used strategies across all sports, yet 60% of respondents identified "relaxed confidence" or "calm and focused" as their ideal peak performance state. Sport-specific analysis revealed that precision and endurance sports — swimming, golf, baseball, and distance running — showed the greatest misalignment, with technique accuracy rates as low as 25–33%. Additionally, approximately 27% of respondents reported their techniques becoming counterproductive, consistent with the Catastrophe Theory's characterization of performance deterioration following arousal threshold breaches. These findings suggest that high school athletes predominantly select psych-up methods based on ritual or superstition rather than performance optimization, and that targeted education on arousal-matched preparation strategies could meaningfully improve athletic performance.

Keywords: psych-up techniques, athletic arousal, Inverted-U theory, Catastrophe theory, high school athletics, sports psychology, pregame preparation

1. Introduction

This paper aims to deepen understanding of “psych-up” techniques as depicted in media, athletics, and the broader contemporary sports landscape, clarifying their complex role in athletic arousal through an analysis of various strategies. While the topic of preparation for an athletic event — such as supplementing with caffeine, maintaining positive self-talk, or attempting to relax the mind and body — has been documented extensively in the realm of individual sports, there is little evidence to solidify a direct correlation between the athletic activity being performed and the chosen method of preparation. The findings of this paper will determine whether, to a certain degree, the physical intensity and required arousal level of a sport to reach maximum performance (as demonstrated in the Inverted-U theory) dictates the chosen or preferred method of "psyching up."

Arousal itself can be defined as "a general mixture of both the physiological and psychological levels of activity that a performer experiences," and can be assigned a certain intensity based on the sport it is associated with (Gbadamosi, 2020). The article "Emotion and Sport Performance" details how arousal can affect the emotions and mood of an individual during their activity, as well as the inverse relationship. It is important to note that while mood and emotion may seem interchangeable, they are not. The term "emotion" refers to brief stints of extreme feeling, while "mood" refers to the larger-scale, longer-lasting feelings. Janelle and colleagues concluded that there is predominantly research into how negative emotions affect an athlete, but comparatively little on positive emotions, and that research as a whole remains generally scarce (Janelle et al., 2020). In a competitive field such as sports, gaining a slight edge with minimal effort is crucial to success.

The scientific literature in this field remains relatively limited, underscoring the need for additional research to advance the existing body of knowledge. This research aims to fill the preexisting gap in knowledge about the correlation between optimal arousal levels and psych-up techniques, specifically among high school athletes. The central research question is: How does a high school athlete's sport of choice impact their preferred "psych-up" method of sports preparation? Based on preliminary research, the hypothesis is formed that as a sport's required level of arousal for optimal performance increases, so will the emotional and physical stimulation intensity of the psych-up strategy.

1.1 Why Psych Up?

The term "psych-up" is inherently broad, serving as a general descriptor for athletic preparation without narrowing the capabilities of its usage. An athlete can choose at will what they wish to do in order to perform better based on their prior knowledge and personal experience. However, it is because of this breadth that the legitimacy of techniques becomes questioned: if so many different techniques are used, how do we know if they work? Simply put, psyching up at its most minimal capacity can serve as a placebo. There are multiple distinct classifications of psych-up techniques depending on their mental or physical usage and whether

they have measurable physical effects or serve primarily as a placebo effect. Placebo effects are especially common because of the vast popularity of ritualistic tendencies experienced by athletes.

This is depicted in the article "Athletes' Perspectives of Preparation Strategies in Open-Skill Sports," written by Bonk and Tamminen (2021), in which 19 high-performance athletes were selected for interviews to explain their personal preferences and rituals. One athlete, an ultimate frisbee player, states that preparation is crucial, serving as "pregame mental checks... almost like a checklist that you have to get through to ensure you're in the right mental state going into a sporting event" (Bonk & Tamminen, 2021). A second frisbee athlete similarly describes their routine as checking off all the boxes so that there is nothing left in the mental white space but performance (Bonk & Tamminen, 2021). A clear representation of mental fortitude resulting from these strategies emerges and displays the perhaps sometimes unintended results of psyching up.

1.2 Factors of Success

Another crucial aspect of psych-up strategies is that consistency dramatically alters their success and impact. The article "A Practice-Specificity-Based Model of Arousal for Achieving Peak Performance," written by Movahedi and colleagues (2007), details this concept with a study of 37 male participants completing a series of tests involving the success of free-throw attempts. Participants were randomly assigned to either high-arousal or low-arousal performance conditions, determined by heart rate and the Sport Competition Anxiety Test (SCAT), using consistent techniques on a participant-by-participant basis. They performed 18 individual practice sessions, followed by a post-test session at a different level of arousal (Movahedi et al., 2007).

Interestingly, arousal level did not directly alter the success of free-throw attempts when it remained the same as during practice sessions. Even more notable was the discovery that the post-test session — in which athletes experienced a different level of arousal than during practice — showed a significant decrease in free throws made, attributable solely to the changed arousal variable. This confirmed that athletes most likely perform best when they utilize a similar arousal level to what they practice with, supporting the belief that consistency is key.

The article "Effects of Psyching-Up on Sprint Performance" details the broader benefit of these strategies by having athletes perform 30-meter sprints with 10-meter segmental measurements (Hammoudi-Nassib et al., 2017). Athletes improved their performance by 5.7% overall, with 14 out of 16 athletes significantly improving through positive self-talk and mental imagery. Hammoudi-Nassib and colleagues describe how a vivid and focused image produced muscle activation comparable to that observed in actual motion, demonstrating physical — not merely psychological — manifestation of the imagery.

1.3 Inverted-U and Catastrophe Theory

When studying psych-up techniques, it is necessary to detail the effects of arousal on optimal sports performance. While no universally accepted conclusion establishes the relationship between arousal and performance, the Inverted-U and Catastrophe theories are commonly accepted frameworks. The Inverted-U theory infers that as an athlete's arousal increases there will be a corresponding increase in performance until they reach a point known as optimum arousal; however, the arousal rate is not constant and will begin to deteriorate if it exceeds the optimal position (Gbadamosi, 2020). This relationship is illustrated in Figure 1.

An important factor to consider within the boundaries of the Inverted-U theory is the relative optimal arousal level each sport requires. Activities such as weightlifting or combat sports require a higher level of arousal than those of golf or archery, which require far more precision (Wells, n.d.). These sport-specific differences are illustrated in Figure 2, which details the different optimal arousal peaks across three representative sports. Golf, with a concentration-centered approach, occupies the lowest arousal threshold; boxing, with a combat-heavy focus, occupies the highest; and netball falls in the middle with a relatively moderate intensity. The article "Effects of Music on Arousal during Imagery in Elite Shooters: A Pilot Study" demonstrates this, as professional shooters rated unfamiliar relaxing music as their highest preference when performing imagery, followed by unfamiliar arousing music and familiar arousing music, in that order (Kuan et al., 2017). This supports the theory that lower-intensity sports require lower arousal levels to reach optimal performance.

Catastrophe theory offers an alternative explanation of the arousal-performance connection, illustrated in Figure 3. Similarly to the Inverted-U, it begins with increasing performance as arousal rises until reaching the singular point of best performance. The dramatic difference occurs when an athlete passes the optimal performance point, which prompts a significant and irreversible drop-off in performance as arousal continues to increase. Gbadamosi (2020) remarks that the deterioration would be more severe and cannot be addressed simply by calming down — the primary characteristic and source of the name for the Catastrophe Theory.

For example, the article "The Effects of Caffeine on Arousal, Response Time, Accuracy, and Performance in Division I Collegiate Fencers" examined the effects of caffeine on collegiate fencers. Certain amounts of caffeine did improve overall performance, but exceeding that threshold caused performance to deteriorate at a rapid rate — a practical portrayal of the Catastrophe Theory applied to high-level sport (Doyle et al., 2016).

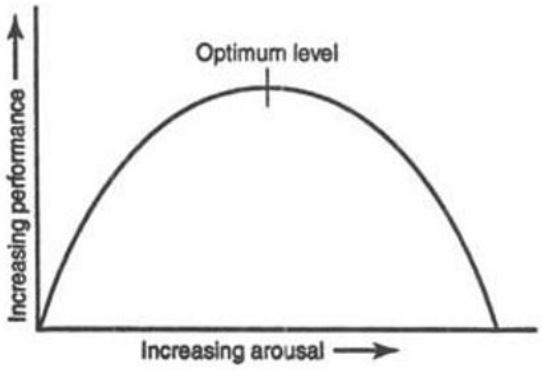

Figure 1: The Inverted-U Theory of Arousal and Performance TOG Soccer, ***Applying the Inverted-U Theory to Soccer***; Depicts the theoretical relationship between increasing arousal and athletic performance, showing peak performance at the optimum arousal level. Performance deteriorates on both sides of the optimum. Adapted from TOG Soccer, Applying the Inverted U-Theory to Soccer (2015).

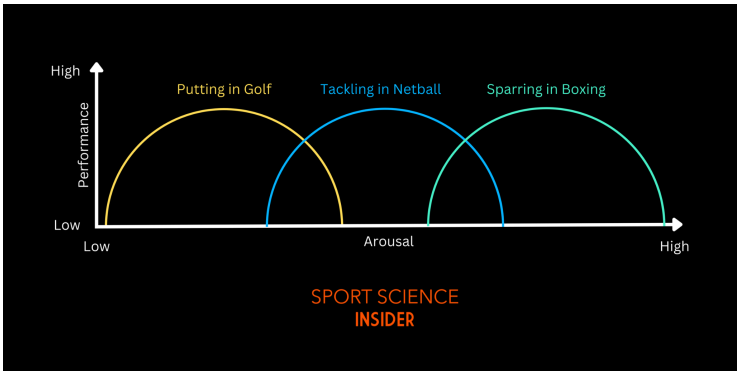

Figure 2: Sport-Specific Inverted-U Arousal Curves, **Sport Science Insider,** ***Inverted U Theory Explained*** Illustrates how the optimal arousal threshold varies by sport. Golf (putting) requires the lowest arousal, netball (tackling) requires moderate arousal, and boxing (sparring) requires the highest arousal for peak performance. Adapted from Sport Science Insider, Inverted U Theory Explained (Wells, n.d.).

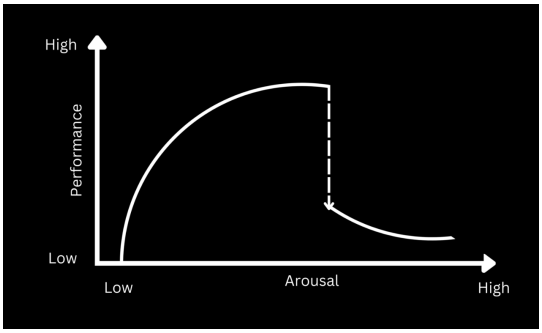

Figure 3: Catastrophe Theory of Arousal and Performance, Sport Science Insider, ***Catastrophe Theory in Sport Explained*** Illustrates the Catastrophe Theory's prediction that once arousal exceeds the optimal threshold, performance does not gradually decline (as in the Inverted-U) but instead drops sharply and irreversibly. This drop-off cannot be corrected simply by calming down. Adapted from Sport Science Insider, Catastrophe Theory in Sport Explained (Wells, n.d.).

2. Method

The chosen method used to accurately address the identified knowledge gap included two individual systems for gathering data. Each participant's responses identified primary characteristics regardless of the method of collection: age, sport or activity of choice, most commonly used method of psyching up, the reason why they partake in said method, and the physical response they feel following usage. These were universally needed for the statistical and qualitative analysis of both the prevalence of certain technique usage in specific sports and the broad categorization of motives behind usage. Before distributing the survey or conducting interviews, Institutional Review Board (IRB) approval was obtained to ensure the study met all ethical research guidelines involving human subjects.

2.1 Survey

The first chosen method was a survey containing a series of 10 individual questions as well as preliminary information gathering, distributed through in-school announcements, athletic programs, and their respective coaches. This survey group consisted of 195 students and collected unique information from a wide range of athletes across all sports offered at Aledo High School. The gathered data included: age, level of participation, sport, position/role, preferred psych-up technique, commonality of usage, effects on emotional state, effects on physical state, and choice reasoning. Each data set was individually consulted to identify patterns both within individual sports and across a variety of sports, such as sport intensity levels and the most commonly preferred method of psyching up.

2.2 Interviews

The second method consisted of 9 short, 10-question interviews with athletes of differing sports at varying levels of intensity. The interview method differed in its qualitative focus, which allowed for a far more in-depth analysis of interviewees' thoughts and beliefs. This qualitative information was then compared with the Inverted-U theory in order to understand the intensity of each sport and theorize how that impacted psych-up preference. After gathering data, quantitative survey data was compiled into a spreadsheet and cross-examined with qualitative data. A cross-analysis was also constructed between the findings of high school athletes versus the only known study groups of professional athletes.

3. Findings and Discussion

The process of data collection yielded a total of 195 high school athletes' survey responses spanning 30 sports, supplemented by 9 in-depth interviews across a variety of sports including basketball, baseball, football, golf, soccer, swimming, running, and volleyball. With a majority of survey respondents participating in varsity athletics (53.3%), the sample size was highly experienced in competitive play. Initial analysis confirms that psyching up is a key component in athlete preparedness, with respondents rating its importance an average of 4.05 out of 5. The most commonly used psych-up techniques reported were listening to aggressive music and physically participating in warm-up movements. However, a major divergence from preliminary research emerges when examining the emotional state of athletes and the intensity of their preferred techniques. While high-intensity techniques were relatively common, 60% of athletes identified "Relaxed Confidence" or "Calm and Focused" as their peak performance states, suggesting that high school athletes may prefer a lower intensity level than their professional counterparts.

3.1 Threshold Discoveries

Comparing these findings to the article "Competition-Day Preparation Strategies and Anticipatory Physiological Responses in Trained Strongmen Athletes" reveals an important distinction. Strongmen cited a high arousal threshold of 8 out of 10 as the upper echelon requirement for maximum force production (Winwood et al., 2019). When compared to high school athletes in this study who participated in gross motor skill sports (wrestling, football, weightlifting, track), the high school athletes preferred lower intensity by approximately three points. The average gross motor athlete from the interview series rated their optimal intensity as 5.1 out of 10, with the football player preferring a 4 out of 10, stating that when his arousal surpasses that threshold he begins to "forget assignments." A surveyed wrestler noted that "in wrestling, the more controlled aggression you have, the more it helps."

Table 1 presents the optimal intensity thresholds and peak mental states for each sport with a corresponding interview, with the strongmen category serving as a professional baseline.

Sport / Category	Optimal Intensity (1–10)	Reported Peak Mental State
Strongmen (baseline)	8.0	Maximum Aggression / Force
Soccer	7.0	"Chaotic and Aggressive"
Volleyball	6.0	"Positive Intensity"
Basketball	4.5	"Serious and Decisive"
Football	4.0	"Controlled / Remembering Plays"
Long Distance Running	4.0	"Peaceful and Detached"
Golf	3.5	"Chill / Normal Habits"
Baseball	2.5	"Zen / Zoned Down"
Swimming (Technical)	2.5	"Analytical / Sharp Vision"

Table 1: Optimal Arousal Threshold and Peak Mental States by Sport Intensity ratings derive from interview self-reports and survey cross-analysis. Strongmen data sourced from Winwood et al. (2019) and used as a professional baseline.

Generally, these sports can be categorized into three groups based on skill type: variable (gross), complex (gross), and precision (fine). Variable sports occupy intensity levels between 6–7, such as soccer and volleyball, which require high cardio to stay quick and alert. Complex sports fall between 4–5 intensity levels, consisting of sports such as football and basketball, requiring high energy but also accurate decision-making. Precision sports occupy intensity levels between 2.5–3.5, such as baseball, golf, and swimming, which have high technicality that excessive arousal can damage through uncontrolled movement or tension.

3.2 The Catastrophe Point

Another important finding concerns the applicability of the Catastrophe Theory to high school athletes. Out of the 195 athletes surveyed, 52 (approximately 27%) explicitly stated that their techniques had become too intense and led to harm. The basketball player interviewed stated that being overly energized causes him to "overthink and force things." The football player similarly stated that being too worked up causes him to "forget assignments," and the swimmer described a "snowball effect" that causes a sudden mindset flip.

The soccer player interviewed described a "stacking phenomenon" in which a high-intensity mistake leads to frantic attempts at remedying the situation, ultimately causing a severe downturn in performance. His "chaotic and aggressive" preferred mindset is characteristic of high arousal, yet his "rushing" is the exact thing that leads to catastrophic failure. Compiling these specific interview instances with the 27% of respondents who regularly experience backfire from their techniques and comparing them to the abrupt performance drop described under the Catastrophe Theory (Gbadamosi, 2020), a large number of athletes demonstrably experience a pattern characteristic of the Catastrophe Theory. This shows that high school athletes often choose techniques with too much intensity that result in harm.

3.3 Psych-Up Misalignment

A vital finding is the misalignment of athletes' chosen psych-up method with their optimal arousal level. There is a particular "aggressive music paradox" prominently seen across all sports, in which athletes attempt to prepare for relatively low-arousal activities — involving precision or endurance — with high-arousal tools such as aggressive music or stimulants. The interviewed runner stated that using intense music "didn't consistently improve performance" because it created a level of "hype" that differed from the natural adrenaline needed to sustain a long race, often causing burnout. Out of the 18 survey respondents who identified their main sport as track and field or cross country, 12 reported using aggressive music or physical intensity as their primary psych-up method, citing their post-psych-up emotion as "excited" or "aggressive." This directly contradicts the 61% of those same runners who identified "relaxed confidence" or "calm and focused" as their optimal state.

Table 2 presents each psych-up technique category correlated with a specific intensity level, derived from the preliminary research and qualitative data.

Strategy Category	Tool Example	Target Intensity (1–10)	Performance Goal
Ergogenic Aids	Caffeine / Smelling Salts	8.0–9.0	Maximum Force / Speed
Psychological Hype	Aggressive Music / Yelling	7.0–8.0	Adrenaline / Intimidation
Social Reinforcement	Team Hype / Crowd Energy	5.0–6.0	Motivation / Momentum
Cognitive Anchoring	Positive Self-Talk / Rituals	4.0–5.0	Confidence / Assignment Focus
Physiological Calming	Breathing / Zen Music	1.0–3.0	Fine Motor Control / Precision

Table 2: Psych-Up Strategy Categories and Their Corresponding Arousal Intensity Intensity levels were derived from cross-analysis of preliminary research and interview data. Categories are generalized and may overlap depending on individual athlete application.

Correlating the optimal arousal level of each sport with the arousal levels of each technique, conclusions can be drawn about the optimization of psych-up techniques by sport. Basketball and volleyball are among the most effective at utilizing scientifically beneficial techniques to reach a moderate arousal state between levels 4–6. Volleyball leans heavily on positive self-talk (26.7%), which falls closely within its arousal range, and basketball relies on visualization (26.3%), also falling closely within its range. Table 3 presents the technique accuracy rate and most common method used for each sport in the study.

Sport	Accuracy (%)	Most Common Method Used
Weightlifting	70.0%	Aggressive Music + Stimulants
Basketball	60.0%	Aggressive Music + Physical Warmup
Volleyball	53.3%	Positive Self-Talk + Physical Warmup
Football	44.4%	Aggressive Music + Stimulants
Soccer	43.5%	Aggressive Music + Stimulants
Baseball/Softball	41.9%	Visualization + Physical Warmup
Track & Cross Country	33.3%	Aggressive Music + Physical Warmup
Golf	33.3%	Visualization + Physical Warmup
Swimming	25.0%	Aggressive Music + Physical Warmup

Table 3: Technique Accuracy Rate and Most Common Psych-Up Method by Sport Accuracy is defined as the percentage of athletes in each sport whose chosen method matches the reported optimal arousal state. Only the most statistically significant sports from the survey were included.

Out of these nine sports, only three had above a 50% accuracy rating, meaning the vast majority exhibit major misalignment. The total sample population reported a 27% backfire rate from their techniques overall. Therefore, only a third of the majorly responsive sports demonstrated a somewhat viable technique-to-optimization ratio.

3.4 Limitations

While this study provides valuable insight into the psych-up techniques of high school athletes and their accuracy with regard to optimal arousal levels, it contains several limitations. First, while this study is statistically significant at the overall level of total respondents, the variety of sports creates a lack of certainty for each individual activity. The most responsive sports were included to minimize this concern. Second, the study incorporates qualitative questioning that required responses to be generalized into smaller categories, potentially disregarding personal and more detailed responses. Lastly, while this study addresses the scientific accuracy of what should be the optimal arousal for each sport, this is an inherently subjective metric. There will always be outliers that differ from the majority and cannot be properly accounted for.

3.5 Implications

The primary implications of this study emerge in the field of practice. The information provided on the misalignment of optimization techniques could be used by high school athletes to better understand how they could improve their performance with minimal effort. Simple changes to preparation can prevent catastrophic performance drops and stabilize energy levels, as illustrated through the tables and figures provided in this study.

Furthermore, this study has scientific implications and could encourage further research. New studies could emerge that focus on a single sport individually to create a more statistically viable finding for a larger population of athletes. Scientific knowledge could also benefit from further research on the practical implications of Catastrophe Theory, as this data implies inaccuracies are prevalent in over 66% of sports, with catastrophes happening in approximately one in four athletes.

4. Conclusion

This study was intended to provide further information on the reasoning behind high school athletes' chosen methods of psyching up for their sports of choice. Through a mixed-method data analysis, it is feasible to conclude that high school athletes tend to associate high levels of energy with success more often than not, despite this not being scientifically viable when considering the arousal level correlated with techniques such as stimulants or aggressive music. This indicates that athletes primarily choose their psych-up technique not due to performance boosts but instead because of what can be considered superstition or ritual. The literature review is similar in theme, with repeated use of ritualistic or superstitious tendencies, often explained by a "checklist" or "pre-effort routines" (Fronso et al., 2017).

When revisiting the hypothesis, it is clear that a general assumption of a positive correlation between sport intensity and preparation intensity is far from accurate. Chosen

techniques were seemingly unpredictable and should be streamlined for better performance. Future research may hone in on one specific sport, which allows for easier comparisons with the generalized data to uncover underlying themes of inaccuracy. Overall, this study provides new insights into the field of athletic preparation for high school athletes and should be considered for enhancing performance in practice and for future research endeavors. Psyching up is a lesser-known tool that, with the right implementation, can be utilized to bring players to their peak performance.

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