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A Study to Assess the Efficacy of Implementing an In-Season Psychological Skills Training Program with Elite Level Cyclists

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Master of Science

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DECLARATION OF ORIGINALITY

I do hereby declare and attest to the fact that this is an original study based solely upon my own scholarly work here at Lindenwood University and that I have not submitted it for any other college or university course or degree here or elsewhere.

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Signature:_____ Date: _____

LINDENWOOD UNIVERSITY

School of Sport, Recreation and Exercise Sciences

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Committee Approvals	Signature	Pass	Fail
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Abstract

The purpose of this study was to assess the efficacy of developing and implementing an in-season Psychological Skills Training (PST) program to increase performance, mood state, and self-efficacy mental skills for elite cyclists. Additionally, the goal of the study was to develop a success profile for elite cyclists after completing a PST program. A collegiate cycling team formed the treatment group (N=25), who received a 12-week in-season PST program, and a similar demographical control group (N=28) received no mental skills training. Sports psychology instruments using pre- and posttest included the Sports Emotional Reaction Profile (SERP), Athletic Coping Skills Inventory-28 (ASCI-28). Profile of Mood States, and the Athlete Identity Measurement Scale. Participation among elite cyclists in a 12-week long psychological skills in-season training program has shown to positively correlate self-efficacy toward psychological skills and emotional states. Based on USA-Cycling race results and parameters measured in the ASCI-28, a predictive success model was created using a linear regression analysis to filter highly correlative variables using other psychometric instruments ($p<.01$). High scores in confidence, self-discipline, and tension control on the SERP were highly predictive of success ($p<.001$).

Keywords: Sports psychology, psychological skills training, Profile of Mood State, Sports Emotional Reaction Profile, Athletic Coping Skills Inventory-28, Athlete Identity Measurement Scale, mindfulness, visualization, goal setting, arousal control, in-season psychological skills training.

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KEY TO ABBREVIATIONS

AIMS	Athlete Identity Measurement Scale
ACSI-28	Athletic Coping Skills Inventory-28
POMS	Profile of Mood States
PST	Psychological Skills Training
SERP	Sports Emotional Reaction Profile
TMD	Total Mood Disturbance

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CHAPTER ONE

INTRODUCTION

Background of the Problem

Psychological skills training may perhaps be what separates a world champion podium athlete and the rest of the competition. When the best rowers in the world competed during the 2008 Beijing Olympics the average time of all of the men's rowing events between first and fourth place was within 1.34 percent (Birrer & Morgan, 2010). The average time between first and fourth is quantifiable, but what other contributing factors separate athletes who step on the podium and the rest of the competition. Many athletes believe physical training is enough to elicit results, but world class athletes incorporate innovative strategies to their programs. Many athletes use psychological skills training to elicit positive performance results. When the competition level is separated by fractions of a percent it becomes necessary to incorporate mental skills training. Heightened competition increases athletic accomplishments, thus increasing strategies to facilitate world class results. When the rest of the field has maximized their physical training, nutrition, and recovery, many athletes begin incorporating psychological skills.

Psychological skills training (PST) consists of regimented and deliberate exercises designed to improve various mental skills in order to improve performance results, perceived gratification, and intrinsic motivation (Birrer & Morgan, 2010). Imagery, goal setting, arousal control, self-talk, self-confidence, and concentration are all psychological skills often used in a PST program. Similar to physical training, mental skills also need to be fine-tuned. A structured systematic psychological skills training program needs to be embraced by the athletes in order to be effective. Many athletes and coaches underestimate the importance of mental skills, and are

nervous to let someone train and test their mental skills (Murphy, 2005). Assessing the athlete's strengths and weaknesses are vital to a successful psychological skills training program (McCann, 2005). Much like a physical training plan, a PST plan is unique to the athlete consisting of progressions and regressions to the individualized plan. Every athlete has differing abilities to handle the stresses of a PST program, and the stresses associated with it (Weinberg & Williams, 2010). A young or novice athlete will not be able to cope with as many psychological skills training methods compared to a high level elite athlete. Elite athletes are more likely to be practicing forms of mental skills based on their success level, but elite athletes are always striving to fine tune their techniques (McCann, 2005).

Many researchers have connected elite level performance with increased psychological skills, and Durand-Bush and Salmela's (2002) research identified the attributes of self-confidence and motivation were both performance determinants among Olympic and World Championship athletes. The elite athletes who identified with having increased self-confidence and motivation practiced more mental skills training in the form of imagery and self-talk during their training and competition (Durand-Bush & Salmela, 2002). Additional support for Olympic athletes using psychological skills were identified by Orlick and Partington (1998) as "success factors." The psychological skills that influenced elite athlete's success were high levels of commitment, imagery training, short term goals, and mental preparation plans (MacNamara, Button & Collins, 2010).

In sports many of the top athletes have high self-confidence, which is often misconstrued by the media as arrogance. Bradley Wiggins came off as "cocky" to Velonews when he told the reporter he was going to beat Tony Martin and win the 2014 Time Trial Cycling World Championship, and Wiggins won (Chesterman, 2014). Wiggins was likely using his confidence

and imagery as a psychological skill because he saw himself winning the 2014 Time Trial World Championship long before the interview occurred. Psychological skills can be a major contributor to an athlete's success. When an athlete uses imagery, self-talk, and goal setting the athlete begins to understand the goal is attainable with more work dedicated to the process. Once the athlete begins to see how the psychological skills are positively impacting their athletic performance their self-efficacy begins to shift in a positive direction. When an athlete begins to achieve short-term and long-term goals their self-efficacy increases due to their success, and the athlete becomes more confident.

Undeniably, psychological skills are present within world-class sports, and with many of the top athletes in the world practicing psychological skills training the same practices trickle down to the elite athletes. The purpose of this study was to examine elite cyclists experiencing a psychological skills training program and the relationship between self-confidence, self-efficacy, and level of competition success. Another objective of this study was to develop a success profile for elite cyclists based upon participation in a comprehensive psychological skills training program. Based on the cyclists participating in the psychological skills program, this study examine how mental skills were built over time in relation to performance, self-confidence, and self-efficacy during a road cycling spring season.

Purpose of Study

The purpose of this study was to assess the efficacy of developing and implementing an in-season psychological skills training program to increase performance, mood state, and self-efficacy mental skills for in-season elite cyclists. Additionally, the goal of the study was to

develop a success profile for elite cyclists after completing a comprehensive psychological skills training program.

Research Hypotheses

The study implemented the following hypotheses:

H1: Elite cyclists experiencing a PST program will report higher self-efficacy for mental skills training than elite cyclists who do not participate in a PST program.

H2: Elite cyclists experiencing a PST program will be more successful in competition than elite cyclists who do not participate in a PST program.

H3: Elite cyclists experiencing a PST program will report less mood disturbance on the Profile of Mood States instruments than elite cyclists who do not participate in a PST program.

H4: It is possible to develop a success profile to predict high level performance of elite cyclists based upon participation in a comprehensive PST program.

Assumptions

1. It was assumed that all participants were honest in answering the assessments.
2. It was assumed that all participants were active competitors in USA Cycling events.

Delimitations

The delimitations placed on this study were:

1. This study was limited to collegiate men and women from Lindenwood's cycling team. The conclusions will apply to similar populations.

2. Outside influences in sports psychology or other psychological skills training may influence the results. However, these variables were not examined in this study.

Definition of Terms

Elite Cyclists: Union Cyclist International (UCI) or USA Cycling (USAC) Association Categories Pro, 1, 2 or 3 and Category A or B in collegiate cycling out of five categories respectively.

Psychological Skills Training: Psychological skills training are regimented and deliberate exercises to improve various mental skills in order to improve performance result, perceived gratification, and intrinsic motivation (Birrer & Morgan, 2010).

Arousal control: The levels of arousal are based on a spectrum, and the state of an individual's arousal is based on their psychological and physiological activation response to the stimuli.

Concentration: The sense of being present to the particular stimulus the individual is focusing on, and disregarding attention to all other areas.

Goal Setting: Goal setting is the development of specific performance oriented goals.

Imagery: Vividly picturing an athletic experience using imagination to practice sport specific skills (Vealey & Greenleaf, 2010).

Self-talk: Inner thought creating perceptions, instructions, judgments and explanations of one's surroundings (Zinsser, Bunker, & Williams, 2010).

Mindfulness: "Being able to bring a direct, open-hearted awareness to what you are doing while you are doing it: being able to tune in what's going on in your mind and body, and in the outside world, moment by moment" (Teasdale, Williams, & Segal, 2014).

Flow: The physiological and psychological state of hyper-focus necessary when the skillset to

meet the challenge is slightly out of reach (Jackson & Csikszentmihalyi, 1999).

CHAPTER TWO

LITERATURE REVIEW

Psychological Skills

Over the last twenty years sports psychology has seen a monumental shift among athletes and coaches looking to incorporate sports psychology into their training regimen. Twenty years ago, Phil Jackson was under scrutiny for having Michael Jordan and the Chicago Bulls meditating, and presently NFL players are regularly attending yoga sessions. The athletic culture has slowly evolved their interpretation of sports psychology to a more positive outlook. At one time many athletes believed you only went to see the sports psychologist if you were emotionally unstable (Weinberg & Williams, 2010). Still to this day many athletes, outside of those competing at the top of their game, are not familiar with sports psychology or psychological skills training. Even some of the top athletes in the world are not exposed to PST programs until later in their career or after an injury or emotional setback (Weinberg & Williams, 2010). Athletes work toward mastery in their sport and gain marginal improvements from year-to-year, and many athletes who experience a PST program unlock their unique athletic potential.

Petitpas, Giges, and Danish (1999) have explained why athletes flourish who have a close relationship with the practitioner teaching psychological skills. Athletes have reported feeling misunderstood when the practitioner is disconnected with the athlete or the athlete's sport. The athlete may possess readiness to learn and develop psychological skills from someone relatable, but because the athlete persists in disconnecting with the practitioner the athlete experiences noncompliance in the PST program (Petitpas, et al., 1999). Weinberg and Williams (2010) discuss the importance of the sports psychologist's sport competency: "One thing that we have found important is that the consultant needs good conceptual knowledge of the sport to be

effective and build credibility with the athletes" (p. 372). Athletes who are enrolled in a PST program must possess the desire and maturity, but it has been suggested if athletes are taught PST skills early on in their athletic career their personal development is accelerated. Younger athletes or athletes who may not be at the same maturity level can benefit from modified PST to meet their maturity readiness (Petitpas, Giges, & Danish, 1999; Weinberg & Williams, 2010). The PST training plans can be modified to include fewer goals, shortened educational sessions, and longer periods of time spent on each psychological skill (Weinberg & Williams, 2010).

Dr. Jack Lesky (2014) of the Ohio Center for Sport Psychology believes when athletes practice psychological skills it translates into increasing their accomplishments outside of sports. To improve mental skills, a planned systematic approach is effective for an individual to learn and practice psychological skills for increased performance benefits over an allotted time period. A systematic approach to building psychological skills is sometimes referred to as "psychological strategies" (Birrer & Morgan, 2010). To effectively improve mental skills an individual's psychological skills should be assessed to form a baseline. From the baseline assessment, an interpretation of the score is analyzed to determine an individual's readiness and placement to introduce a structured mental skills training plan. Terry Orlick (2008) elaborates on the importance of assessing and becoming aware of psychological skills strengths and weaknesses; "With this awareness, you establish priorities and thereby pursue the things that are really important to you and avoid the things that are not" (p. 61).

Lesky (2014) categorized nine mental skills into three levels within *The Performance Pyramid* which include; *Level 1 Basic Skills, Level 2 Preparatory Skills, and Level 3 Performance Skills.* Within the three levels there are subcategories. *Basic Skills* are structured into one's personality and an improvement in basic skills will take daily practice. Basic skills

require longer durations of practice to change a behavior. *Basic Skills* include the following subcategories; *(1) Attitude, (2) Motivation, (3) Goals and Commitment, (4) People Skills.* Building upon *Basic Skills* are *Preparatory skills*. *Preparatory Skills* include; *(5) Self-Talk, and (6) Mental Imagery. Preparatory Skills* are used in preparation for a performance. Prior to performance, a cyclist will use *Preparatory Skills,* specifically imagery, to visualize a smooth start off at the starting line seconds before the race begins. The third building block of Lesyk's *Performance Pyramid* is *Performance Skills. Performance Skills* are used during competition, and consist of *(7) Managing Anxiety, (8) Managing Emotions, and (9) Concentration* (*Lesky, 2014).*

Aside from sport specific skill training and physical conditioning, psychological skills have an integral role in athlete's training. An athlete may have a well-structured psychological training program, but if the athlete is not developmentally ready for a particular skill the program will be ineffective. Understanding Dr. Jack Lesky's (2014) "Performance Pyramid", and how each psychological skill builds on the next is vital for an effective program. Each psychological skill can be improved, and understanding how developmentally ready the athlete is through assessment will continually progress the athlete towards improvements.

Goal Setting

In order for athletes to become successful in their sport, Edwin Locke and Gary Latham (1985) believe the athletes need to possess a high level of sport specific skills and the drive to be successful. Great athletes were not born great, and at one time world-class performers had the skill levels of an elite level performer. However, the soon to be world-class performer possessed the motivation to devote themselves to deliberate practice in their sport (Ericsson, Krampe, &

Tesch-Romer, 1993). A fundamental psychological skill to improve both skill and motivation is goal setting (Gould, 2010). An athlete who sets a goal is in pursuit of a defined objective with a set time limit and a specified benchmark of achievement (Gould, 2010). When an athlete is setting individual goals, an emphasis needs to be placed on setting realistic goals within reach of the athlete's abilities and potential (Locke & Latham, 1985).

In order to deliberately practice, athletes need to be highly motivated, and motivation often occurs in the form of extrinsic motivation, intrinsic motivation, or the combination of both. Extrinsic motivation is motivation driven by outside influences, and these influences come in the form of money, possessions, and results. An extrinsically motivated individual is more likely to become affected by competitive conditions. Intrinsic motivation is the opposite of extrinsic. Emotional forces within the individual drive intrinsic motivation, and an individual who is intrinsically motivated loves what they are doing. An intrinsically motivated individual loves the journey and the process of their experiences to reach their goals. Individuals who are intrinsically motivated love working towards their goals. Many world-class athletes are fueled by their love of the process, and possess the drive to work extraordinarily hard. An athlete who has developed intrinsic motivation is said to have "a task relevant focus, less fluctuation in motivation, and decreased stress and distraction" (Botterill, 2014, p. 40).

By focusing on process goals an individual can relieve pressure often built up by obsessing about the outcome of their results. Shifting a goal's focus from the outcome to the process allows for an individual to work on their goals daily, Cal Botterill (2014) explained how athletes "have learned if you take care of the process the outcomes will take care of themselves" (p. 40). Coach John Wooden fundamentally understood process oriented goals, and was famously

quoted saying "Winning isn't everything; it's the only thing left to do" (Gallimore & Tharp, 2004).

Setting a goal with a specific outcome gives the athlete criteria to work towards, and is increasingly more effective than a vague objective. One example of a vague objective goal is "Go out there today and give your best effort." Measuring an athlete's "best effort" is not a specific objective and is not comparable or measureable (Locke & Latham, 1985). When a goal does not emphasize a measurable outcome of a performance the athlete cannot validly compare their effort. When the athlete has the outcome goal of winning the competition, and fails to win despite having a breakout performance the athlete may have a negative bias towards the competition (Gould, 2010). Measurable goals are important in planning the process of achieving the goal. An example of setting a specific goal for a cyclist to work towards is "Completing a 20 kilometer time trial within the time of 27:30, and to stay in an aerodynamic tuck for the entire duration of the time trial by June 1, 2015." A cyclist will understand the exact criteria to strive for, "completing a 20 kilometer time trial within the time of 27:30." The second half of the goal, "stay in an aerodynamic tuck for the entire duration of the time trial," will provide the cyclist a specific behavior to perform during the time trial that will lead to the cyclist's success.

Imagery

Imagery in sports allows athletes to vividly picture an athletic experience using their imagination to practice their sport specific skills or to prepare the athlete for competition (Vealey & Greenleaf, 2010). During imagery, body movement through the skill is absent, but some residual movement may still be present. The cerebral cortex is activated when we visualize body movement, and the brain creates pathways to engrain the movement into the mind. Athletes who

incorporate imagery through multiple senses: visual, auditory, kinesthetic, olfactory, taste, and emotions have a heightened imagery experience for the athlete. There are several medias an athlete can include to enhance imagery in their training, for example visualization scripts, mental skill rehearsal, and learning a new skill (Murphy, 2005).

Improvements to sport specific skills have been demonstrated while using imagery, and many Olympic athletes have reported their extensive use of imagery. Orlick and Partington's (1988) extensive interview of 235 of the Canadian 1984 Olympic athletes found that 99% of the athletes recalled using imagery to prepare for their competitions. Imagery is not a stand alone practice component; rather it is effectively used in conjunction with skill repetition. When an athlete uses imagery it prevents muscular fatigue from the constant repetition of the skill (Vealey & Greenleaf, 2010). A road-racing cyclist previewing the course the day before the race may not be able to practice cornering at speed due to fatigue before the race, but they can practice visualizing the corner at speed. Many cyclists are mounting GoPro cameras on their handlebars to record the race, and with this technology becoming increasingly popular cyclists are able to watch previews of many of the races across the United States. The cyclists are then able to accurately depict their visualization with accuracy.

Often athletes practice imagery in their pre-competition routine, however, in order for the athlete to hone their imagery skills ideally they would start practicing during their offseason. Off-season specific imagery should focus on skill rehearsal and learning new skills (Murphy, 2005). An example of practicing imagery is when a cyclist visualizes a criterium race by replaying a challenging section in their mind continuously until they feel fluid through the turn. Imagery practice will not be as effective for someone learning the skill. The response to skill-specific imagery is more stimulating in elite athletes with heightened levels of proprioception. Prior to

competition the athlete may use stress reduction imagery to develop a pre-competition routine. During an athlete's pre-competition routine the athlete will use positive imagery to control the reduction of anxiety (Murphy, 2005). An example of an athlete using stress reduction imagery is the use of deep breathing exercises and focusing on positive emotions to elicit a change to the athlete's stressful emotions into eustress prior to competition (Murphy, 2005).

Arousal Control

The levels of arousal are based on a spectrum, and the state of an individual's arousal is based on their psychological and physiological response to the stimuli. The arousal spectrum ranges from coma to a panic attack. Athletes typically have an arousal state with heightened anxiety levels, which can have a variety of effects on performance (Balague, 2005). The inverted-U hypothesis explains the arousal continuum from under-aroused to over-arousal as it relates to performance. The inverted-U can be observed in a curvilinear progression with poor performances both under-aroused and over-aroused at the base, and at the height of the curve optimal performance lies between the spectrums. A performer who is overly aroused will often perform poorly, and the same is true of a performer who is lackadaisical. Anxiety is the body's natural physiological and psychological response to stress. An increase in anxiety is associated with an increased heart rate and a decrease in concentration. Researchers have examined arousal levels by informing the participants of cash prizes and adjusting physical exertion on a cycle ergometer by increasing intensity to increase the participant's heart rate reserve percentage of maximum heart rate. Oxygen uptake and heart rate reserve were used as metrics for biofeedback instruments to measure arousal. While riding the cycle ergometer the participants were given 12 linear progression intensity stimuli to react upon. As hypothesized, the researchers found

participants reactions to the stimulus resulted in a curvilinear relationship to arousal state and performance (Arent, & Landers, 2003; Landers, & Arent, 2010). Additionally, the inverted-U arousal to performance hypothesis curve is specific to the task performed. The appropriate arousal strategies can be put into place when the task requires more or less arousal. For example, in billiards the arousal levels of individuals adjusting fine motor skills may be very low compared to a rugby player using explosive strength to recruit large muscle fibers to make a defensive tackle. Additionally, arousal regulation is individualized to the performer, and everyone's optimal arousal to a given performance is different. While some athletes need to calm themselves down with deep breathing exercises others may need to psych themselves up to perform at their best (Landers, & Arent, 2010).

When some athletes are exposed to new environments and experiences, their anxiety levels increase. In a response to new activities with heightened anxiety levels, the athlete may exhibit increased negative self-talk, which can contribute to negative feelings and performances (Balague, 2005). In order to cope with negative self-talk, athletes should strive for confidence in their abilities. Bandura (1997) explains the social cognitive theories asymmetric relationship between self-efficacy and an athlete's ability to cope with anxiety. Athletes who perceive performances as stressful through their physiological responses (e.g. increased heart rate, increased sweating, and tightening throat) are not as likely to believe in their ability to cope with the anxiety of the situation. Conversely, athletes who perceive the situation from past accomplishments have increased self-efficacy towards their ability to cope with the anxiety prior to a performance (Bandura, 1997). Michael Gervais explains how to develop self-efficacy on a consistent basis "determine what it feels like when you perform at your best –remember, not just

winning, but when you are resonating with your most courageous self. Dedicate yourself to feeling that way on a consistent basis" ([Wisdom 2.0], 2014).

When heightened arousal states naturally occur during high-pressure situations some athletes are plagued by nervousness and worry. An athlete's performance can be negatively affected by increased stress prior to competition which can cause increased muscle tension and increased fatigue. Other athletes are affected by a loss of focus during competition, and often these athlete's perform better during practice than competition. To avoid athletes who perform better in practice than competition coaches need to educate athletes on ways to control anxiety levels. An effective tool to reduce an athlete's arousal state is deep breathing. One technique used by many athletes to reduce stress is a 1:2 breathe inhalation to exhalation ratio. Maximizing each inhale and exhale for the whole count ensures the athlete is utilizing the relaxation technique to its fullest potential. Breath counts for a 1:2 breathing technique typically last five seconds for an inhale through the nose, and followed by an exhale through the mouth for ten seconds (Williams, 2010). Counterintuitively, not all individuals benefit from relaxation training, and relaxation strategies may be detrimental to some athletes. Researchers have investigated the shift in arousal paradox and found that when individuals are unable to ease tension and anxiety with breathing strategies their worries and anxiety increase. To counteract this singularity it is suggested to manifest the unimportance of relaxation training to the athlete (Williams, 2010).

Mindfulness

Mindfulness is traditionally a Buddhist practice, which has become increasingly popular over the past two decades. Practicing mindfulness creates a non-judgmental awareness with yourself and your surroundings (Kabat-Zinn, 1994). In sports being in tune with yourself and

your surroundings is absolutely critical. Bradly Wiggins, England's 2012 Tour de France champion stated, "I never think too far ahead. How can you think three days ahead when you've got two days in-between? That's how you cock things up" (Williams, 2009). John Teasdale, Mark Williams, and Zindel Segal (2014) define mindfulness as "Being able to bring a direct, open-hearted awareness to what you are doing while you are doing it: being able to tune in what's going on in your mind and body, and in the outside world, moment by moment."

Mindfulness practices come in many different forms, and one way to become more present with mindfulness is to be more aware of your thoughts during mundane activities such as brushing your teeth or eating. Being fully aware of one's thoughts during mindless activities will help detect things that may have been overlooked if our attention is passive. Having a present mindful attention detects thoughts earlier that may have taken longer to detect when one's attention is passive (Teasdale, et al., 2014).

Another form of mindfulness practice is to center one's thoughts to the present by focusing on your breathing. Appreciating the complexity of each inhalation and exhalation by creating an awareness of the physiological changes that occur within the body; with each breath there is an exchange of carbon dioxide and oxygen, or directing your focus towards the expansion and decompression of your diaphragm through respiration. Developing an awareness of complex systems, such as respiration that are often overlooked due to their self-regulating nature, will create oneness with surroundings to cultivate an increased awareness of thoughts (Kabat-Zinn, 1994).

A strong theoretical relationship between mindfulness and self-efficacy in sports exists. When athletes practice mindfulness within their sport, they are repeating the skill, but they are repeating the skill with an awareness of their surroundings. As Patterson and Lee (2008) state

"that it is not only how much the performer practices (i.e. the absolute number of repetitions of a skill such as a tennis serve), but how the performer practices each repetition that is the more important variable in the contribution of practice to skill acquisition" (p. 119). The awareness the athletes cultivate through mindfulness connects every motion to deliberate practice, and leads towards skill mastery (Bandura, 1997; Pineau, Glass, Kaufman, Bernal, 2014). Mindfulness focuses on the process to reach the outcome, and the desired outcome is the inevitable product from the process (Kabat-Zinn, 1994). One study measured rower's self-efficacy and mindfulness, and a positive correlation was found among rowers who reported increased mindfulness traits and self-efficacy towards rowing. The researchers suggest athletes who would like to increase their self-efficacy towards their sport incorporate mindfulness practice into their training regimen (Pineau, et al., 2014)

Recent research on mindfulness investigated how 438 college aged athletes practicing mindfulness meditation compare to their counterparts who scored lower on the Mindful Attention Awareness Scale. The more mindful athletes scored significantly lower on the Perceived Stress Scale and the Athlete Burnout Questionnaire. Mindful athletes were less stressed, less burnt out and more successful in academic and athletic performances. The researchers draw a connection to the positive correlation between mindfulness and performance. The theoretical connection between mindfulness and athletic performance has been connected by flow researchers. Flow is the state of consciousness where the person experiences oneness with mind and body and is totally immersed in their actions to achieve optimal performance (Moen, Federici, & Abrahamsen, 2015).

In recent years, mindfulness practices have become increasingly popular among professional sports teams and recreational athletes. Researchers implemented mindfulness

techniques on long-distance runners as a psychological skill. Mindfulness benefits were examined using a Mindful Sport Performance Enhancement program between an experimental and control group. Long runs can present many challenges to runners, such as nagging pain, boredom, and distracting thoughts. The monotony of running can decrease focus, and a loss of focus can be detrimental to running performance. Mindfulness helps runners focus by developing a deeper connection between mind and body. The mind develops a nonjudgmental awareness towards the stimulus coming from a nagging injury, or the environmental factors being interoperated by the body, and the incoming stimulus is transmitted to thoughts. The researchers found that runners who implemented mindfulness practices in their routine scored lower in organization on the Multidimensional Perfectionism Scale, which measures precision, neatness, and order. The researcher's explanation of runners who scored lower in organization was explained by an increase in development of awareness towards accepting imperfection, and the runners implemented a less judgmental thought pattern during organizational tasks. The runners who received mindfulness training reported a reduction to stress, anxiety, and criticism to personal standards. Many of the findings in their research have been reported in previous mindfulness research where reports include benefits in behavior, stress and an acceptance of experiences (De Petrillo, Kaufman, Glass, & Arnkoff, 2009).

Concentration

At the center of Terry Orlick's (2009) *Wheel of Excellence,* a model used to achieve excellence in performance, is focus. The components surrounding focus in the *Wheel of Excellence* are *commitment, mental readiness, positive images, confidence, distraction control, and ongoing learning,* and with improvements made to "focus" all other components will

improve. Focus is a choice, and what we focus on and when we focus leads to great performances. Orlick (2009) outlined how to reach great performances. "The recipe for high-quality focusing is simple—stay positive and stay fully connected" (p. 4). By increasing positive energy and perpetuating the moment we become more focused. In order to have a positive outlook and be present the interpretation of the challenge should be viewed as an opportunity and not as an obligation (Orlick, 2009). When Orlick and Partington (1988) interviewed 235 Olympic athletes an overwhelming response from the best athletes was how they focused, visualized, and prepared mentally for their next training session to maximize their opportunities to get the most out of training.

An elite athlete has the ability to judge their perceived concentration level and understand what constitutes a positive and negative stimulus towards their performance. Performing athletes are bombarded with external stimulus in a variety of forms; sound distractions referred to as noise, competitors, environmental factors, and visual distractions. How does the athlete interpret the constant stream of stimulus? Simply put, they don't. Overthinking and interpreting each stimulus is how the stimulus becomes a distraction. To achieve optimal concentration the athlete must let go of their thoughts pertaining to acute movement mechanics and shift their concentration towards the movement's effects in simplest form (Perry, 2005). Wulf and McNevin (2003) investigated how centering an athlete's attention to their body moving through space differs from focusing their attention on the racquet head during the serve. As the athletes shift their attention to the racquet their mind was freed of the complexity of the movement. With clear cognition the athletes were more accurate and consistent while serving. Similar to an elite cyclist sprinting towards the finish line who has little concern for their biomechanical movements and body positioning, rather the cyclist absorbs himself in the automated process of applying

maximal force to the pedals to generate speed, and has no recollection of the movement. Athletes often can not describe their movement patterns, rather they are truly absorbed in the moment (Perry, 2005).

An athlete's concentration level is critical to their performance. During a competition the athlete's focus has to be drawn to internal and external stimuli over the course of the competition. Proper concentration occurs when an athlete's focus is on the process of the skill rather than being distracted by the outcome of the performance (Perry, 2005). An example of how a cyclist can focus on the process is when the cyclist is competing in a 40 kilometer time trial. A time trial is a race against the clock, and in order for the cyclist to focus on the process the athlete has to direct his or her attention to internalize how their body is feeling to gauge effort and pace over 40 kilometers. This is in contrast to a cyclist whose focus is external concentration which is more result based. An example of this would be a podium finish during a 40 kilometer time trial race. The cyclist who focuses their attention during the race on an external concentration is more likely to experience the principle of "choking under pressure" (Perry, 2005). "Choking under pressure" occurs when optimal concentration is jeopardized by the athlete focusing on their outcome performance during a high pressure competition. Once the athlete's concentration shifts to an outcome oriented goal, performance failure becomes increasingly probable (Perry, 2005). An athlete does not have the ability to control the outcome of the performance, but the athlete can control the process. Process-oriented concentration becomes imperative to an athlete during high stakes competitions.

Self-talk

To develop self-talk an athlete needs to establish an awareness of their inner thoughts, perceptions, instructions, judgments, and explanations of their surroundings. Positive self-talk leads to successful athletic performances, and successful athletes are more confident. An athlete may use self-talk to become more confident through positive self-talk. Positive self-talk creates internal thoughts, and the athlete begins to interpret and internalize positive self-talk as their feelings. Once the athlete's positive feelings are embraced the athlete begins to develop behaviors in alignment with their positive self-talk (Zinsser, Bunker, & Williams, 2010). An example of how an athlete's positive self-talk shapes behaviors is when a cyclist uses positive self-talk during a challenging road race. The cyclist may use the phrase "spinners are winners." Using this simple phrase reminds the cyclist to keep a high cadence to maintain efficiency, and the positive phrase reminds the cyclist their overall goal to win the race. Once positive feelings are embraced, the athlete possesses positive thoughts, feelings, and behaviors, and is likely to have more successful performances (Zinsser et al., 2010).

On the opposite end of the self-talk spectrum is negative self-talk. An athlete who uses negative self-talk internalizes their negative thoughts to a breaking point. Once the athlete reaches their threshold of irritable negative thoughts their behavior becomes compromised, and their performance is also compromised (Zinsser et al., 2010). In order to avoid negative self-talk Mitch Abrams and Bruce Hale (2005) suggest developing a control over the negative thoughts. To control an individual's negative self-talk an immediate end to the negative thoughts needs to occur. By immediately stopping the negative self-talk the individual will develop a control over their negative thinking. Their thoughts will be replaced by positive self-talk to elicit more

positive feelings, and an establishment in positive behaviors will ensure the success of the individual (Abrams & Hale, 2005).

Researchers have systematically determined how more successful athletes use self-talk during the developmental stages of learning a new skill. Upon developing skills athletes who use constructive self-talk, which gives the athlete cues to remember during skill progression, have a higher success rate than athletes who use negative self-talk. During formative skill acquisition the athletes use cue words, and in cycling cue words help with pedaling drills (e.g. "pedal circles", "spinners are winners", and "dance on your feet"). As the athlete progresses in skill development and becomes closer to reaching mastery self-talk diminishes and the athlete may now describe their skill ability as second nature (Zinsser et al., 2010).

Self-talk is a multifaceted skill athletes utilize to increase performance. Researchers have found many self-talk applications to investigate. Self-talk research has been conducted to measure how positive affirmations affects athletic performances. Runners who use self-talk cues synonyms with "speedy" or "fast" have made improvements in their running speed. Likewise, when a sprinter uses self-talk cues such as "explode" or "snap" their mind is not focused on the starting whistle or beep, freeing mind allows a focused and explosive movement. Much like using self-talk to improve a skill, athletes use self-talk to improve their mood state. A more positive mood state transcends to an increase in performance when anxiety levels are controlled and nervousness is at bay. In one study, researchers examined swimmers who believed their anxiety levels prior to competition were debilitating to their performance. The swimmers were instructed to alter their interpretation of anxiety and view the anxiety as eustress to prepare the swimmers for competition, and consequently increased their performance (Zinsser et al., 2010). Self-talk is a small piece of the puzzle when athletes are seeking optimal performance, but when

a piece of a puzzle is missing or the dialogue in your mind is negative the process is incomplete (Orlick, 2008). A flowing stream of positive thoughts transcends to successful performances, and the endurance sports proverb beautifully illustrates a positive outlook on competition: "Smiling faces win races."

Flow

An elite cyclist depicts the flow state as "It doesn't seem like you're sitting on a bike. You feel altogether like it's just one piece of machinery working together… like you're part of this machine that you were born with, and it's how you move" (Jackson & Csikszentmihalyi, 1999). In sports "being in the zone", "feeling in control", "total involvement", and the "oneness" the cyclists describes with his bike are all expressions athletes use to describe flow (Jackson & Csikszentmihalyi, 1999). Mihaly Csikszentmihalyi (1990), often credited as the architect of flow, defines flow as "the state in which people are so involved in an activity that nothing else seems to matter; the experience itself is so enjoyable that people will do it even at great cost, for the sheer sake of doing it" (p. 4). Given the opportunity, flow will occur when the balance between challenge and skill are met. For an athlete to reach the flow state the athlete must possess the necessary skillset to meet the challenge. The challenge itself should put the athlete slightly out of their comfort zone to meet the challenge with focus (Jackson & Csikszentmihalyi, 1999).

When flow's critical element, the challenge skill balance, is met the outcome is goal oriented due to the specific criteria of the challenge. In order for athletes to experience flow a high level of psychological skills are necessary. Among the psychological skills focus, arousal regulation, and identifying attainable goals outside of the athletes comfort zone are essential to experience flow. During peak performances athletes are credited in being in a flow state when

achieving their personal best performances (Jackson & Csikszentmihalyi, 1999; Jackson, Thomas, Marsh, & Smethurst, 2011). Jackson and Roberts (1992) were the first researchers to link athletes experiencing characteristics of flow and being in the moment during peak performances. Contrastingly, athletes who focus their attention on the outcome and other competitors are not as likely to experience peak performances, and report higher levels of anxiety and decreased performances (Aherne, Moran, & Lonsdale, 2011; Jackson & Roberts, 1992).

Instruments

Research has shown when sports psychology consultants assessed athletes, that 63 -75% of consultants use mood state and psychological skills questionnaires. There are over 300 questionnaires used by sports psychologists, and with the abundance of questionnaires it becomes essential to select one with validity and reliability (O'Connor, 2014; Weinberg & Williams, 2010). Questionnaires help athletes draw conclusions about themselves as an athlete rather than having a consultant or coach assess their performance from past experiences. Likert scale questionnaires provide athletes with autonomy of his or her strengths and weaknesses by providing answers to scenarios (Weinberg & Williams, 2010). The Sports Emotional Reaction Profile inventory uses the statement "An offhand comment by someone can ruin my game", and the athlete selects one of the following "almost never," "seldom," "sometimes," and "almost always" (Tutko & Tosi, 1976). By answering questions to the self-administered questionnaire the athlete will have a great self-investment and adherence to developing a tailor made psychological skills training program (Weinberg & Williams, 2010).

Sports Emotional Reaction Profile

Tutko & Tosi (1976) developed the Sports Emotional Reaction Profile (SERP) to help athletes construct awareness of their emotions following scenarios in a game. The Sports Emotional Reaction Profile contains 42 statements to test the following seven traits; *Desire, Assertiveness, Sensitivity, Tension Control, Confidence, Personal Accountability, and Self-Discipline.* The SERP is scored from 6 to 30, but a score too high or too low may be troublesome. If a score is over 25 or under 10, a close examination to the particular trait should be noted. Scoring too high or too low in one area can be problematic. (1). *Desire:* To strive for the outcome in realistic goals. A low score in desire is representative that the individual is disinterested in the outcome. A score that is too high is an indication of being overly goal oriented. *(2). Assertiveness:* The level of self-determination an athlete has to succeed to succeed. A low assertiveness score likely indicates the athlete is intimidated by other players, and high levels in assertiveness translate into aggression in competition. *(3). Sensitivity:* The interpretational emotion of success and unsuccessful performances. A low sensitivity score is representative of resiliency, and a high score is characterized by outside emotional influence affecting performances. *(4). Tension Control:* The ability to handle stressful situations. A low tension control score is relatable to lowered performance, while high tension control is an asset to performances. *(5). Confidence:* The athlete's belief in their ability. A low confidence score is indicative of low self-esteem and lack of ability. A score too high is associated with insecurities and affects performance by the athlete feeling the need to prove their worth. *(6). Personal Accountability:* To have humility during unsuccessful moments. Low accountability is generally associated with blaming others. Those with high personal accountability blame themselves for their lack of success. *(7). Self-Discipline:* The ability to endure hardships and commit to a goal. A

low self-discipline score is associated with indecisiveness, while high self-discipline athletes are very persistent (Tutko & Tosi, 1976).

A notable study measured gender differences among males and females using the SERP to determine what characteristics are more likely to lead to success for both sexes in a controlled experimental basketball game. Confidence and assertiveness were higher among males compared to the female group. Notably, a trend was indicative between both the male and female winners and losers in both groups. Winning males and females reported similar results over the participants who lost in both groups (Croxton, Chiacchia, & Wagner, 1987). Tutko and Tosi (1976) have extensively looked into combinations of personality traits that affect athletic performances, and the authors outlined a number of combinations in their book Sports Psyching: *(1.) High Confidence*—High sensitivity. A belief in abilities, but easily backs down. *(2.) High Desire*—Low Self Discipline. Desires success, but lacks development towards success. *(3.) High Desire*—Low Tension Control. Desire to be successful, but chokes during high pressure. *(4.) High assertiveness*—High Personal accountability. Highly assertive towards others, but feel bad about it (Tutko & Tosi, 1976).

Profile of Mood States

The Profile of Mood State (POMS) is a self-administered questionnaire containing 65 adjectives (e.g., "Active," "Hopeless," "Rebellious") to determine the participant's mood states on the following; Tension, Depression, Anger, Vigor, Fatigue, Confusion, and Overall Emotional State. Each of the 65 adjectives are scored from 0-4 points using five descriptors; "Not at all," "A little," "Moderately," "Quite a bit," and "Extremely." The participant answers the questions based on how he or she feels over the past week (McNair, Lorr, & Droppleman, 1996). Norms for the

Profile of Mood sub categories among elite athletes; Total Mood Disturbance = 7.14, Anger = 6.24, Confusion = 4.00, Depression = 4.38, Fatigue = 5.37, Tension = 5.66, Vigor = 18.51 (POMS, 2015).

William Morgan (1985) has extensively researched how to predict athletic performance based on the mood state of the athlete. Morgan's model states "success in sport is inversely correlated with psychopathology, or simply, success in sport is closely related to a positive mood state. Morgan found athletes who score lower than the population norms in tension, depression, anger, fatigue and confusion and above the population norms in vigor are more successful athletes. Notably, the trends the athlete has below and above the norm is referred to as an "iceberg profile" (Morgan, 1985; Terry & Lane, 2000). Training stress can have an acute effect on athletes over time. One study looked at collegiate swimmers POMS scores at the beginning, during, and end of the season while they were tapering for conference. The swimmers reported the highest amount of vigor during the beginning of the season, and slowly decreased over time until the athletes tapered for conference. As training stimulus decreased the swimmers mood state increased (Williams, 1985). Terry and Lane (2000) looked into athlete norms in recreational, club, and international level athletes. As a whole all three groups of athlete's mood states represented an "iceberg profile," however their POMS "iceberg profile" did not increasingly shift with their ability level. Terry and Lane (2000) found recreational athletes POMS scores were more positive than club athletes, and this was likely due to training stress induced to the club athletes. However, international level athletes, who train at a higher volume than club athletes, had the most positive POMS score as a group. Terry and Lane (2000) explained the international athletes positive score using the Control of Effect Theory; "it is suggested that positive mood responses are associated with the achievement of performance

goals" (p. 105). Thus, international athletes more readily achieve their performance goals compared to club athletes, which enhances the international athlete's mood state (Terry & Lane, 2000).

The effectiveness of mindfulness meditation on undergraduate students has been investigated using Profile of Mood States to measure the outcome. In a short intervention of exposure to mindfulness, three separate one hour sessions spread out over 3 days, participants were able to see significant changes to their overall mood state. The researchers found with very little exposure to mindfulness that when compared to a control group that the mindfulness meditation intervention had profound effects in minimizing total mood disturbance, fatigue, confusion, and depression measured by POMS (Zeidan, Johnson, Gordon, Goolkasian, 2010).

Athletic Coping Skills Inventory (ACSI-28)

The Athletic Coping Skills Inventory was originally developed in the 1990s to identify psychological traits in athletes that prevent injuries. Later the ACSI was used to identify psychological skills in athletes. By identifying psychological skills, coaches, sports psychologists, and athletes develop a baseline for the athlete's psychological skills. Many performance enhancement programs rely heavily on psychological skills, and mediations can take place by developing a baseline (Smith, Smoll, Schutz, & Ptacek, 1995). The Athletic Coping Skills Inventory contains 28 statements, and measures the following seven subscale traits; coping with adversity, coachability, concentration, confidence and achievement motivation, goal setting and mental preparation, peaking under pressure, and freedom from worry. The seven subscale traits can be summed to form a *Personal Coping Resource* score. Each trait is scored ranging

from 0 to 12. The statements are answered in the following format "almost never," "sometimes," "often," and "almost always" (Smith, et al., 1995).

How the ACSI relates to athletic performance in high school students? A sample of 762 high school athletes from various sports teams volunteered to complete the ACSI to measure their psychological skills. The athlete's coaches rated their athletic performances and physical abilities. Based on how the coach rated their abilities, and how their performances matched their abilities each athlete was put into one of three groups by their coach: (1). *underachievers,* talent rated higher than performance, (2). *normal*, talent matched performance, (3). *overachievers,* performance exceeded talent. The researchers found that physical sports skills acted independently on performance and did not indicate advanced psychological skills. However, when the results were analyzed within the 3 subgroups of performers the overachievers scored higher in every category on the ACSI, and scored significantly higher than the underachievers and normal groups in coachability, concentration, coping with adversity, and the total coping resource score. The underachievers and normal groups were not significantly different in any of the subscale categories. In this sample of high school athletes psychological skills were a strong indicator of performance in athletes exceeding their abilities perceived by their coach (Smith, et al., 1995). Smith and Christensen (1995) investigated professional baseball player's ACSI scores and compared their physical abilities with their psychological skills. The researchers found the elite baseball player's psychological skills scores to be significantly indicative of performance success, and specifically the athletes confidence and achievement motivation was the strongest indicator of success (Smith & Christensen, 1995; Smith, et al., 1995).

Athlete Identity Measurement Scale

The identity of an athlete is a very critical element to an elite athlete. Many elite athletes are consumed by their sport, and make sacrifices in many aspects of their life to pursue excellence. Athlete identity has been defined as "the degree to which an individual identifies with the athlete role" (Visek, Hurst, Maxwell, Watson, 2008). Elite level athletics take a major time commitment to become successful, and many times athletes surround their lives with training, competition, and recovery in order to achieve success. The discipline and desire to reach the top level takes an extraordinary drive, but this over the top drive may seamlessly curbside an athlete's priorities in other critical areas of their lives (Brewer, 2001). One may assume, how much an athlete identifies themselves with their sport positively correlates with success and achievement, however this is not necessarily the case.

The Athlete Identity Measurement Scale (AIMS) has been used in previous research to measure how the athlete relates their identity to their sport. Scores on the Athlete Identity Measurement Scale can range from a low of 7 to a high of 49. AIMS contains the following seven questions; (1). I consider myself an athlete., (2). I have many goals related to sport., (3). Most of my friends are athletes., (4). Sport is the most important part of my life., (5). I spend more time thinking about sport than anything else., (6). I feel bad about myself when I do poorly in sport., (7). I would be very depressed if I were injured and could not compete in sport (Visek, et al., 2008). The AIMS instrument allows participants to respond on a Likert-type scale with 7 possible outcomes ranging from 1 to 7, strongly disagree to strongly agree respectively. Normative scores for elite athletes with desirable identity scores in their respective sports generally are found in the range of 35 to 45 points (Brewer, & Cornelius, 2001). AIMS scores in elite and recreational athletes may fluctuate both high or low on the AIMS based on the

individual. A high AIMS score means the athlete values the sport in their life to a high degree, and a high AIMS score may correlate with how emotionally disturbed the individual will become if they cannot participate in their sport (Lockhart, 2010). Additionally, researchers investigating athlete's identities have found that athletes who identify themselves with their sport performance tend to fluctuate in self-esteem and individual identity. Injured athletes who score high on the AIMS have a hard time accepting injuries, and not being able to perform their sport questions their identity as an athlete (Lockhart, 2010).

The Myers-Briggs Personality Test

Many sports psychologists use the self-scoring Myers-Briggs Type Indicator (MBTI) to create awareness and discovery for their athlete's individual personality and how other personalities differ from their own (Veach & May, 2005). The MBTI measures personality type using a series of questions, and based on how the questions are answered a corresponding one of two letters is given for each personality characteristic. There are 8 possible letters, and 16 personality types. The letters corresponding to the personality characteristic are as follows; "E" Extraversion or "I" Introversion, "S" Sensing or "N" Intuition, "T" Thinking or "F" Feeling, and "J" Judging or "P" Perceiving (Myers & McCauley, 1985).

When examining the personalities of college student-athletes (n=174) compared to regular students (n=91) using the Myers-Briggs Type Indicator researchers found there was significant difference in personality types with all 16 being representative in both groups. Upon further examination of trends in each group personality traits among the student-athlete and student groups there were noteworthy significances. The student-athlete group reported higher frequencies of extraversion and sensing than the student group who reported higher frequencies

of introversion and intuition. The authors believe extraversion and sensing to be important qualities because of the nature of team sports where communication and reading the game are highly desirable characteristics (Reiter, Liput, Nirmal, 2007).

USA Cycling Ranking Score

The governing body USA Cycling created an algorithm in 2012 to determine rider rankings in order to stage riders at the start line of races. The algorithm is currently incorporated to create a ranking system for the following cycling disciplines; road, criterium, cyclocross, time trial, and cross country. Individual rankings are based off their best finishes in a 12 month period. In order to rank individual races, USA Cycling creates a race quality for each race. To create a race quality USA Cycling takes the best 5 ranked riders of the top 10 finishers, and those 5 rider's individual ranks are averaged and multiplied by 90 percent. To distribute ranking points for each rider the midpoint is determined by taking the average individual rankings of finishers. The race quality value is then subtracted by the midpoint, multiplied by 2, divided by the number of finishers, and this value is subtracted by 1. Individual rankings are determined from finishing place, number of points per place and race quality: the race quality value plus finish place minus one multiplied by points per place for the event. In short "*Race Quality Value* = (Average of 5 best ranked riders in race's top 10) x 0.9, *Points per Place* = (((Avg. ranking of all finishers) – (Race Quality)) x 2) / (total number of finishers – 1), *Rank Points* = Race Quality + ((rider's placing – 1) x Points per Place)" (Farrell, 2012).

Conclusion

Among elite athletes the separation of physical strength and skill is miniscule, but among

this small separation some athletes consistently outperform their peers. Psychological skills and a PST program may be the intervention to equalize the playing field. Many athletes work on physical skills daily, but the mental skills are often looked over and seldom practiced. An effective PST program must include regular deliberate practice to be effective (Murphy, 2005). Athletes are beginning to recognize the importance of psychological skills, but structured PST programs are relatively new to most athletes.

CHAPTER THREE

METHODOLOGY

Introduction

The purpose of this study was to investigate whether or not elite cyclists will report higher levels of self-efficacy after participation in a PST (psychological skills training) program when compared to a control group of elite peers. It was hypothesized that elite cyclists experiencing a PST program would report higher self-efficacy for mental skills training than elite cyclists who did not participate in a PST program. Furthermore, the intent of this study was to develop a success profile designed to predict high level performance for elite cyclists based upon participation in a comprehensive PST program. This chapter discusses the methods and procedures of the study. The statement of the problem, subjects, instruments, protocol, data collection and analysis will be presented.

Statement of the Problem

The purpose of this study was to assess the efficacy of developing and implementing an in-season Psychological Skills Training program to increase performance, mood state, and self-efficacy mental skills for in-season elite cyclists. Additionally, the goal of the study was to develop a success profile for elite cyclists after completing a comprehensive PST program.

Research Hypotheses

The study implemented the following hypotheses:

H1: Elite cyclists experiencing a PST program will report higher self-efficacy for mental skills training than elite cyclists who do not participate in a PST program.

H2: Elite cyclists experiencing a PST program will be more successful in competition than elite cyclists who do not participate in a PST program.

H3: Elite cyclists experiencing a PST program will report less mood disturbance on the Profile of Mood States instruments than elite cyclists who do not participate in a PST program.

H4: It is possible to develop a success profile to predict high level performance of elite cyclists based upon participation in a comprehensive PST program.

Subjects

The participants in the Psychological Skills Training group were comprised of collegiate cyclists. The participants were recruited from Lindenwood University's road cycling team during the spring 2015 season. Participants within the treatment group included 5 professional road cyclists, 5 Road National Champions, and 1 Xterra World Champion.

The participants in the control group were comprised of 19 collegiate cyclists and 9 elite cyclists with similar demographics to the treatment group. All participants volunteered to participate in the study. Among the control group there were 5 professional cyclists, 7 National Champions, and 1 Pan American Games Cross Country Mountain Bike Champion.

Cyclists were required to participate in a minimum of five cycling road race events during the 12-week psychological skills training program. The researcher contacted all of the participants, and the head coach of Lindenwood's cycling team. Respective coaching staff all agreed to allow their athletes to participate in this study. Each participant was required to give a

written informed consent using a form approved by Lindenwood University's Institutional Review Board (IRB) prior to their involvement in the study.

A total of 26 cyclists in the treatment group and 31 in the control group completed the study. One cyclist in the treatment group and 3 cyclists in the control group dropped out after the pre-testing, and were not included in the data analysis. Following the collection of all post-test data, a total of 25 cyclists in the treatment group and 28 in the control group had completed all of the pre-test, intermittent, and post-tests and the data was included in the statistical analysis. Four athletes dropped out because of injury, and lack of commitment to the study.

Table 1: Subject Characteristics: Gender of Treatment and Control Group

Variable	N	% of group
Treatment Group Gender		
Male	22	88
Female	3	12
Total	25	100
Control Group Gender		
Male	24	85.7
Female	4	14.3
Total	28	100

The treatment group and the control group were relatively similar in size and gender demographics.

Table 2: USA Cycling Category for Treatment and Control Group

Variable	N	% of group
Treatment Group USA Cycling category		
Category A	15	60
Category B	8	32
Category C	2	8
Control Group USA Cycling category		
Category A	25	89.3
Category B	3	10.7
Category C	0	0

USA Cycling classifies collegiate cyclists into five categories; A, B, C, D, and E. Category A cyclists consist of USA Cycling (USAC) road category Pro, 1, 2, and 3, category B cyclists consist of USAC categories 3 and 4, and category C cyclists consist of USAC category 4 cyclists. Cyclists must place within the top 10 in their respective category to upgrade in a USA cycling category. The treatment group and the control group were relatively similar in size and USA cycling category demographics.

Table 3: Subject Summary; Age and Training Age of the Treatment Group and Control Group.

Variable	N	Std. Dev.	Minimum	Maximum
Chronological Age				
Treatment Group	21.04	3.30	18	35
Control Group	23.18	2.54	18	28
Training Age				
Treatment Group	6.72	3.98	1	16
Control Group	6.36	2.88	3	13

The age of the cyclist is represented in number of years old. Training age is represented in number of years the participant has been training for cycling. The treatment group and the control group were relatively similar in size and age demographics.

Table 4: Myers-Briggs Personality Indicator of the Treatment Group and Control Group.

Variable	N	% of group
Treatment Group Personality Type		
ESFJ	1	4
ESTJ	1	4
ESTP	2	8
INFP	2	8
INTJ	1	4
ISFJ	3	12
ISFP	5	20
ISTJ	6	24
ISTP	4	16
Control Group Personality Type		
ENFP	2	7.1
ESFJ	3	10.7
ESFP	1	3.6
ESTJ	1	3.6
ESTP	3	10.7
INFJ	1	3.6
ISFJ	3	10.7
ISFP	1	3.6
ISTJ	9	32.1
ISTP	4	14.3

The Myers-Briggs Type Indicator measures personality type using a series of questions, and based on how the questions are answered a corresponding 1 of 2 letters is given for each personality characteristic. There are 8 possible letters, and 16 personality types and the letters corresponding to the personality characteristic are as follows; "E" Extraversion or "I" Introversion, "S" Sensing or "N" Intuition, "T" Thinking or "F" Feeling, and "J" Judging or "P" Perceiving (The Myers & Briggs Foundation, 2015).

Table 5: Myers-Briggs Personality Indicator Treatment Group and Control Group Combined.

Variable	N	% of group
Total (Treatment & Control N=53) Personality Type		
ENFP	2	3.8
ESFJ	4	7.5
ESFP	1	1.9
ESTJ	2	3.8
ESTP	5	9.4
INFJ	1	1.9
INFP	2	3.8
INTJ	1	1.9
ISFJ	6	11.3
ISFP	6	11.3
ISTJ	15	28.3
ISTP	8	15.1

The Myers-Briggs Type Indicator measures personality type using a series of questions, and based on how the questions are answered a corresponding 1 of 2 letters is given for each personality characteristic. There are 8 possible letters, and 16 personality types and the letters corresponding to the personality characteristic are as follows; "E" Extraversion or "I" Introversion, "S" Sensing or "N" Intuition, "T" Thinking or "F" Feeling, and "J" Judging or "P" Perceiving (The Myers & Briggs Foundation, 2015).

Table 6: Threats to Internal Validity

Threats	Controlled	Explanation
History	Yes	Short term intervention allowed comparisons made over 12-weeks
Testing	Yes	Same people administered SERP and ACSI pre- and post-test
Instrumentation	Yes	Same SERP and ACSI Pre- and post-test used with objective evaluation of scoring was used for both tests
Statistical Regression	No	All participants were college students between ages of 18 and 35
Selection Bias	Partially	Participants were invited by convenience sample method to be a part of the study
Morality	Yes	A total of 3 participants dropped out of their sport or failed to participate in post-testing
Casual Time Order	No	Data was collected within timely data collection window as defined by research proposal
Diffusion	Yes	Experimental group participated on the same team, and received PST at the team
Demoralization	No	Control group was not administered any negative treatment or treated unfairly
Compensatory Rivalry	Yes	Control and experimental groups remained mutually excusive
Compensation	No	Neither group was provided compensation for participation
Maturation	Yes	Short term intervention allowed comparisons made over 12-weeks.

Table 6 provides a summary of the threats to valid inference. All of the threat tests were conducted and controlled as well as possible.

Instrumentation

The treatment group and control group both participated in pre- and post-testing at the beginning of the spring road cycling season and at the culmination of the collegiate road racing season and the 12-week PST program respectively. The pre- and post-test included an Athletic Coping Skills Inventory (ACSI) and Sports Emotional Reaction Profile (SERP). The ACSI measures seven psychological skills (coping with adversity, coachability, concentration, confidence and achievement motivation, goal setting and mental preparation, peaking under pressure, freedom from worry) (Smith & Christensen, 1999). The SERP measures seven psychological skills (desire, assertiveness, sensitivity, tension control, confidence, personal accountability, self-discipline.) (Tutko & Tosi, 1976). Both the treatment group and the control group completed a Profile of Mood State (POMS) assessment six times over the course of the psychological skills training program. The POMS assessment measures seven psychological states (tension, depression, anger, vigor, fatigue, confusion, and overall state) (Terry & Lane, 2000). The Post-PST Questionnaire (P-PSTQ) was completed at the time of the post-test by the treatment group and the control group. The P-PSTQ measures how individuals identify themselves with the following; with their role as an athlete, how often the PST program was implemented, and how valuable each individual perceives sports psychology's usefulness in elite training points (Brewer, & Cornelius, 2001).

To identify if the PST program had a significant impact on the treatment group the cyclist's race results and their USA Cycling race ranking results were recorded and averaged. To determine race result rankings USA cycling uses the following algorithm. "*Race Quality Value* = (Average of 5 best ranked riders in race's top 10) x 0.9, *Points per Place* = (((Avg. ranking of all finishers) – (Race Quality)) x 2) / (total number of finishers – 1), *Rank Points* = Race Quality +

((rider's placing – 1) x Points per Place)" (Farrell, 2012). Each participating cyclist's 2014 and 2015 race result rankings were compared individually and collectively as a group

Research Design

This exploratory study examined the outcomes of a 12-week psychological skills training program for elite cyclists among Lindenwood University's cycling team. A control group was formed consisting of cyclists with the same demographic make-up as Lindenwood's cycling team. Both the experimental and control group were pre-tested and post-tested using the Assessment of Personal Sport Psychological Skills and the Sports Emotional Reaction Profile. Intermittently throughout the course of 12-weeks, the cyclists Profile of Mood States was measured 6 times. To measure the effectiveness the PST program, the cyclists completed a Post-PST Questionnaire. In order to compare the cyclist's race results their 2014 and 2015 USA Cycling ranking results were compiled. Each of the participating cyclist's race result rankings were determined in the three road cycling disciplines; criterium, road racing and time trial.

Over the course of the 12-week program, the experimental group received emails with supplemental material (e.g. YouTube videos recorded by the primary investigator and videos covering psychological skills) to introduce the PST program. Team meetings were used to facilitate the pretest and post-test, as well as provide an educational setting for the cyclists to learn more about psychological skills needed in cycling. The experimental group received weekly emails which containing the psychological skills training on Monday mornings. The content of the email included a brief outline of the psychological skill and a link to a YouTube video with further information about the psychological skill. Weekly mindfulness and relaxation sessions were available on a voluntary basis along with team yoga once a week.

Psychological Skills Training Intervention Program

Week 1:

Introduction Email
***Purpose*:** The cyclists in the treatment group will be introduced to a variety of psychological skills training at the elite level.
***Description*:**
1. An email was sent out to all of the participants containing the video.
2. Within the context of the email, participants were asked to watch the video, Olympics 2012 - The Importance of Sports Psychology, to introduce psychological skills training prior to the cycling team's first team meeting.

Introduction video: Olympics 2012 - The Importance of Sports Psychology
***Purpose*:** The cyclists in the treatment group will develop awareness and further the understanding of how widely accepted sports psychology principles are, used by the world's top performers.
***Description*:**
1. The BBC network looks into the importance of sports psychology during the 2012 London Olympics.
2. Among the interviewed athletes were Michael Johnson, Carl Lewis, Chris Boardman, Sir Matthew Pinsent, and John Edwards.
3. Each of the athletes discussed how they used sports psychology in the moments prior to competition and during their top performances.
4. Sports Psychologist Tom Bates provides further explanation of how top performers continue to excel.
https://www.youtube.com/watch?v=d8DSzLpEru0

Psychological Skills Training: Goal setting introduction email
***Purpose*:** The cyclists in the treatment group will be able to formalize goals related to improving their cycling performance through writing process, performance and outcome goals.
***Description*:**
1. An email was sent out with the cyclists in the psychological skills training program, and the contents included with a video outlining the basics in goal setting and a visual description of a goal card.
2. The cyclists were given a three by five notecard to create and write down one process goal, one performance goal, and one outcome goal related to cycling.
3. The participants were asked to reply to the initial contact email with where they placed their goal card in order to be reminded of their goals.

Psychological Skills Training: Goal setting video
***Purpose*:** The cyclists in the treatment group will be able to understand the importance and differences between process goals, performance goals, and outcome goals.
***Description*:**
1. The contents of the Psychological Skills Training: Goal setting introduction email contained a link to the PST: Goal Setting video.

2. The video explains in detail goal setting is explained and the importance of setting goals is emphasized to the participants.
3. The three different types of goals developed were outcome goals, performance goals, and process goals. Outcome goals contain global achievement standards. Performance goals have a standard, but are also measurable and contain a time component. Process goals are the persistent day-to-day tasks that take us one step closer to our goals. Process goals make it possible to achieve performance, and outcome goals.
http://youtu.be/2ivxbkIYDew

Week 2:

Psychological Skills Training: Motivation with Eric Thomas Introduction email
***Purpose*:** The cyclists in the treatment group will be able to define what their "why" is, and be able to explain how their "why" influences their performance.
***Description*:**
1. An email and Facebook message was sent containing Eric Thomas' motivational video. The video outlines goal setting principles from the previous week's psychological skills training. Eric Thomas poses the question "what's your why?"
2. The participants were posed with the question as to what their "why" is, and to share their "why?"

Psychological Skills Training: Motivation with Eric Thomas; video
***Purpose*:** The cyclists in the treatment group will watch the video and be able to question their reasoning 'Why?" behind their goals.
***Description*:**
1. Eric Thomas delivers a captivating message and asks the simple question "why?" Eric Thomas passionately believes that knowing your why will give you the drive to be successful in any endeavor you face.
2. Thomas outline stories of Mike Tyson, who never lost a fight, until Buster Douglas had a bigger reason why to win. Concentrating on your reason why cultivates an internal drive that Eric Thomas believes will only lead to success if you're persistent.
https://www.youtube.com/watch?v=GJWIRyUAur8

Week 3:

Psychological Skills Training: Arousal Control Introduction Email
***Purpose*:** The cyclists in the treatment group will be introduced to breathing techniques to help control anxiety and perform under pressure.
***Description*:**
1. An email was sent to cyclists in the treatment group introducing arousal control.
2. The email included a NBC News segment YouTube video where sports psychologist Dr. Leah Lagos helps an Olympic rower with breathing techniques to control performance anxiety.

3. The cyclists in the treatment group were informed they would receive further training on the techniques introduced in the video at the next team meeting.

Psychological Skills Training: Arousal Control: NBC News: New York Sport Psychologist Leah Lagos Helps to Enhance Performance of Olympic Rower **Script**
***Purpose*:** The cyclists in the treatment group will be able to understand how working with a sports psychologist on their breathing techniques can have a positive affect towards improving their performance.
***Description*:**
1. NBC's Lisa Carberg interviews 2012 Olympic Rower, Sarah Trowbridge, and sport psychologist, Dr. Leah Lagos discuss how Trowbridge used sport psychology and biofeedback to help her prepare for the London Olympics.
https://www.youtube.com/watch?v=q9Nsm1U0CpY

Psychological Skills Training: Arousal Control: Team Meeting.
***Purpose*:** The cyclists in the treatment group will be able to understand why it is important to calm your nerves before a competition.
2. The cyclists in the treatment group will be able to perform the breathing technique demonstrated in the video using a four second inhalation, holding for two seconds, and exhaling for four seconds.
***Description*:**
1. During the team meeting an introduction was given to the cyclists about controlling anxiety.
2. The introduction outlined principles to enhance the cyclist's visuals of their worst and their best performances, with their best performances emphasized more.
3. The video was then shown to the participants. The video's contents established the purpose of the breathing technique. The breathing technique can be utilized to establish a state of calmness, confidence, and focus in any environment.
4. Participants were asked to follow along with the video and participate in the breathing exercises.
5. The first breathing exercise was diaphragmatic breathing, or belly breathing, the participants were instructed to inhale through their nose, fill their belly with air, and to exhale slowly blowing all of the air out of their mouth.
6. The second breathing exercise was box breathing. The participants were instructed to inhale through their nose for 4 seconds, hold the inhale for 2 seconds, and exhale through their mouth for 4 seconds.
7. The box breathing technique was practiced in sequence four consecutive times in a row.

Week 4:

Psychological Skills Training: Visualization/Imagery: Introductory Email
***Purpose*:** The cyclists in the treatment group will be able to understand how visualization can be used when practicing a skill, preparation for execution of a plan, and how visualization decreases arousal states prior to a competition.
***Description*:**
1. An email and Facebook notification were sent to the cyclists in the treatment group to provide

an introduction and an explanation on how visualization/imagery is useful in cycling.
2. The explanation outlined how imagery can be used when practicing a skill, preparation for execution of a plan, and a decreased arousal state prior to a competition.
3. Two videos Visualisation - Mental Rehearsal and Steve Backley OBE | Visualization story for In Mind, In Body were sent out as supplemental material to further the cyclists understanding of visualization and imagery.

Psychological Skills Training: Visualization/Imagery: Visualisation - Mental Rehearsal
***Purpose*:** The cyclists in the treatment group will be able to understand how deliberate visualization can develop stronger and faster pathways in the brain to enhance a sports related skill.
***Description*:** A deeper understanding of visualization is depicted as a young gymnast visualizes and executes her routine. Overtime with deliberate practice, the gymnast's visualization creates stronger and faster neuron connection pathways in her brain. Through stronger and faster connections the gymnast becomes smoother through her movements during her routine.
https://www.youtube.com/watch?v=vD06AfbmFlY

Psychological Skills Training: Visualization/Imagery: Visualisation - Mental Rehearsal
***Purpose*:** The participants will be able to understand how visualization is utilized by top world class athletes.
***Description*:**
Olympic Javelin thrower, Steve Backley, explains how he used visualization to his advantage in the 1996 Olympics.
https://www.youtube.com/watch?v=aBT5xMJmE74

Week 5:

Psychological Skills Training: Motivation: Introductory Email
***Purpose*:** The cyclists in the treatment group will be able to understand how persistent and consistent behaviors are part of the process to become successful in training and racing.
***Description*:**
1. An email was sent Monday morning of week five to motivate the participants.
2. The email outlined a story about Cal Ripken Jr. who played the most consecutive games in baseball history, and how he was persistent and kept pushing through the process to achieve a successful career in baseball.
3. A supplemental video was attached to the email featuring Eric Thomas' video Blueprint to Success: Cal Ripken. The YouTube video portrays the story of Cal Ripken Jr. and explains more in depth how his persistence eventually lead to success.
https://www.youtube.com/watch?v=J2LhkKRvQyA

Psychological Skills Training: Motivation:
Eric Thomas- Blueprint To Success Cal Ripken
***Purpose*:** The cyclists in the treatment group will be able to understand how persistence and consistency lead to successful outcomes.
***Description*:**

1. Eric Thomas' video Blueprint to Success: Cal Ripken portrays the story of Cal Ripken Jr. and explains more in depth how persistence eventually leads to success. Eric Thomas relates to Cal Ripken by explaining how he overcame failures through persistence.
2. Eric Thomas also explains how he is intrinsically motivated to push himself towards his goals.
3. Thomas explains how his peer group was impressed by his accomplishments, but he had not met his goals, and in turn he was more motivated than ever.
https://www.youtube.com/watch?v=J2LhkKRvQyA

Psychological Skills Training: Team meeting: Introduction to Mindfulness
***Purpose*:** The cyclists in the treatment group will be able to demonstrate the ability to practice mindfulness by cultivating awareness for the present moment during the team meeting.
***Description*:**
1. An introduction to mindfulness was presented to the participants at their bi-weekly team meeting.
2. Over the past three weeks the participants have been practicing breathing techniques in preparation for mindfulness meditation.
3. The cyclists practiced mindfulness meditation body scan by the primary investigator.
4. The participants were provided with a practical explanation of how mindfulness practices can be used to increase cycling performance.

Week 6:

Psychological Skills Training: Email Introduction to Self-talk & Psychological Skills Training: Self-Talk YouTube Script
***Purpose*:** Cyclists in the treatment group will become more aware of their self-talk by providing an example of when the participant influenced their negative self-talk to positive self-talk.
***Description*:**
1. Cyclists in the treatment group were emailed Monday of week 6 and were asked to watch a YouTube video about self-talk created by the primary investigator.
2. The YouTube video explains how self-talk is an internal dialogue we constantly have with ourselves, and how the participants can drastically be influenced by self-talk.
3. Positive and negative self-talk are both outlined in the YouTube video, and a strategy is outlined to overcome negative self-talk with positive self-talk through the use of breathing techniques.
4. Participants were asked to participate by sharing how they overcame negative self-talk with positive self-talk.
https://www.youtube.com/watch?v=77r9_CfRbzA

Week 7:

Psychological Skills Training: Self Talk: Email
BELIEVE IN YOURSELF - Motivational Video (ft. Jaret Grossman & Eric Thomas)
***Purpose*:** The cyclists in the treatment group will be able to understand how positive affirmations

impact self-concepts, and how the magnitude of the positive affirmations affect self-confidence.
***Description*:**
1. The cyclists in the treatment group were sent an email containing a motivational video on self-talk and positive affirmations featuring Jaret Grossman and Eric Thomas.
2. The video provides explanations of how self-talk and positive affirmations impact your self-concepts, and how much you believe in yourself is directly related to your self-confidence.
3. During the second half of the video, Eric Thomas explains how developing an awareness of your thoughts, when your effort is low, can greatly impact how you approach your next effort.
https://www.youtube.com/watch?v=AjZ0KbJcav0

Week 8:

Psychological Skills Training: Introduction to Confidence: Email Script
***Purpose*:** The cyclists in the treatment group will be able to provide an example of how they developed an awareness for their self-talk, and transformed their self-talk into positive self-talk.
***Description*:**
1. On Monday of week 8 of the PST program the PST cyclists received an email with an educational YouTube video, Psychological Skills Training: Confidence, recorded by the primary investigator on how to develop self-confidence.
2. Within the context of the email, the cyclists were asked to become aware of their internal self-dialogue.

Psychological Skills Training: Confidence: Psychological Skills Training: Confidence
***Purpose*:** The cyclists in the treatment group will be able to understand how the interpretation self-talk consequently increases self-confidence.
***Description*:**
1. The primary investigator recorded an educational video for the experimental group on how to develop self-confidence.
2. The video's contents explains the differentiation between the interpretations of self-talk to build self-confidence.
3. Examples are provided in the video related to cycling.
https://www.youtube.com/watch?v=HvFWBpQWhR4

Week 9:

Psychological Skills Training: Confidence: Email & Video: Game Changer: Amy Cuddy, Power Pose
Purpose: The participants will be able to understand how body language shapes our confidence.
***Description*:**
1. The cyclists in the treatment group were sent an email containing a video on how to use body language to become more confident.
2. The contents of the video include Amy Cuddy, a Harvard social psychologist and professor, who discusses ways to help people become more powerful. Her research participants were found

to have higher levels of testosterone and lower levels of cortisol after only two minutes in a "power pose." Cuddy explains how increased testosterone is associated with having increased confidence and assertiveness.
https://www.youtube.com/watch?v=zmR2A9TnIso

Week 10:

Psychological Skills Training: Introduction to Focus: Email
***Purpose*:** The participants will be able to understand how focusing is a decision by developing an awareness of how the cyclists have applied the refocusing skill towards cycling.
***Description*:**
1. The cyclists in the treatment group received an email containing a video segment of Dr. Michael Gervais' presentation on "Focusing is a Decision."
2. Focus as a skill was explained within the context of the email. A further explanation of how focusing develops a presence of mind to the moment, and a connection to mindfulness meditation is made.
3. The participants were asked to become aware of their focus to become more cognizant of their concentration ability.

Psychological Skills Training: Introduction to Focus: Focusing is a Decision Video
Purpose: The participants will be able to understand that refocusing is the underlying skill during extended periods of focus.
Description:
1. Dr. Michael Gervais explains how "Focusing is a Decision" and what you focus on and when you focus is essential for peak performance. When an athlete is present in the moment our mind and body is calm, and a presence allows athletes to achieve optimal performances.
2. Gervais further explains how enhancing psychological skills such as imagery, self-talk, and meditation can elicit a presence of mind to enhance focus and refocus.
www.youtube.com/watch?v=iuhy4DDX1qg

Week 11

Psychological Skills Training: Flow: Email & Video
Flow 101: 5 of the World's Best Athletes Reveal the Secrets of the Zone, How Far Will You Go for Greatness? - The Dark Side of Flow | Rise of Superman.
***Purpose*:** The cyclists in the treatment group will understand how psychological skills can enhance the flow state.

***Description*:**
1. An email was sent Monday of week 11 to the cyclists in the treatment group.
2. A description of flow was outlined in the email to the treatment group, and an outline of how psychological skills enhance flow was described.

3. The cyclists in the treatment group were asked to "Go back to a race where you had the flow state you've experienced and recount what it felt like.

4. The email contents included the YouTube video: Flow 101: 5 of the World's Best Athletes Reveal the Secrets of the Zone.
a. The adventure and extreme athlete's explained their anecdotal renditions of the flow experience with explanations of the athletes felt during their optimal state.
b. The athletes provide an explanation of why the athletes put themselves in harm's way because it was to experience the highly autonomous state of flow.
5. The email contents included the YouTube video: How Far Will You Go for Greatness? - The Dark Side of Flow | Rise of Superman
a. The adventure and extreme athletes explained their anecdotal renditions of how flow is a highly sought after state.
b. The athletes provide an explanation of how flow allows athletes to make decisions without thinking. Their mind reacts without analyzing the movement, and from their intuition the adventure athletes continue to make the right decisions.
https://www.youtube.com/watch?v=aiechBcdYhg
https://www.youtube.com/watch?v=qjSbgQ46GjE

Week 12:

Psychological Skills Training: Optimal Performance: Email & Video

***Purpose*:** The cyclist in the PST group will be able to understand how being successful during the process of training and smaller competitions prepares the cyclist to be successful when the race is on the line at bigger competitions.
***Description*:**
1. The cyclists in the PST group received an email Monday morning of week 12.
a.) The email briefly outlined how flow leads to optimal by enhancing focus to the present.
b.) An introduction to high performance psychologist Dr. Michael Gervais is provided in the email.
c.) The goal for the athletes is to be familiar with "golden moments," moments of success combined with celebration, to familiarize yourself with success.
2. Within the context of the email the cyclists in the PST group were asked to watch Dr. Michael Gervais on the golden moment.
a.) Michael Gervais explains how living present and understanding how moments are interconnected will connect individuals with the present and their smaller successes.
b.) Gervais explains how working towards mastery is about the process equally as much as the success to gain experience in your craft.
https://www.youtube.com/watch?v=sNWKgQpJV3s

Mindfulness

***Purpose*:** The cyclists in the treatment group received weekly arousal control training following

weekly team yoga practices to further develop their ability to become present and to help regulate their anxiety and worrying behaviors.

***Description*:**

1. The treatment group was invited to participate in weekly mindfulness sessions on Wednesday nights following the cycling team's yoga practice.
2. Over the course of the 12-weeks intervention the cyclist's met 10 times. The primary focus during the mindfulness session was focusing on their breath and bringing attention to the present.

A. Diaphragmatic Box breathing: 1 relaxation sessions.

***Purpose*:** The cyclists in the treatment group will be able to experience a more relaxed and calm state of mind through the relaxation breathing techniques.

***Description*:** The participants are guided through box breathing, a deep diaphragmatic breathing technique to experience a decreased state of arousal during the first yoga session.

B. Progressive muscle relaxation (PMR): 3 relaxation sessions.

***Purpose*:** The cyclists in the treatment group will be able to develop an understanding of how their muscles carry tension, and how they can relieve their muscles from tension through the guided practice of progressive muscle relaxation.

***Description*:**

a.)The participants are guided through progressive muscle relaxation during relaxation yoga on three separate occasions over the course of three weeks.

b.) Following the PMR the treatment group received an email containing supplemental material containing a YouTube video by the primary investigator. The progressive muscle relaxation script is an excerpt from Applied Sport Psychology: Personal Growth to Peak Performance (Williams, 2006, pp. 293-294). The progressive muscle relaxation allows the participants to scan their body for tension and release the tension by contracting their muscles, followed by relaxation.

c.) Psychological Skills Training Progressive Muscle Relaxation
https://www.youtube.com/watch?v=NfaPGwmtOx4

C. Mindfulness body Scan: 6 relaxation sessions.

***Purpose*:** The cyclists in the treatment group will be able to gain a further understanding of how focusing on their breathing can perpetuate their thoughts to the present.

***Description*:** The participants are guided through a body scan during mindfulness sessions on 6 separate occasions over the course of the 12-week PST program.

Data Collection Procedures

Data collection was handled over the course of a four-month period between February and May of 2015. All participants were pre-tested 1-week prior to the 12-week psychological skills training program. The treatment group pre- and post-test was given via hard copy with the

primary investigator's thesis chair present. The control group sent their pre- and post-test submissions via email and a link to a survey generated through surveymonkey.com. Both the treatment group and the control group sent their Profile of Mood States results to an email address not accessible to the primary investigator. All data submissions were coded, and the primary investigator was given access to the data after all data was submitted. The purpose of the universal identification number was to distinguish between pre- and post-test data. The post-test data was collected one week after the completion of the twelve week psychological skills training program.

Data Analysis Procedures

Data was analyzed using Statistical Package for the Social Sciences (21.0). Initial observations were made through a descriptive statistics analysis and data cleaning was performed by running basic frequency analyses. In order to assess differences between the treatment group and control group a series of independent sample t-tests were performed. As part of the analysis, the researcher dummy coded a success variable. After assessing race results in 2015 compared to 2014 results, the researcher established success as improving by over 15% in any of the three major categories of cycling (Road Race, Time Trial, or Criterium). This success variable was used in order to help build a regression model for predicting success based upon the ASCI-28 as the dependent variable. The results of these analyses is presented in Chapter Four. In addition, hypothesis four was answered through a forward regression analysis to assess the predictive qualities of the Sports Emotional Reaction Profile. For purposes of analysis, statistical significance was set at .10. This study was of an exploratory nature and utilized a fairly small

sample size. Due to the nature of the study it was deemed acceptable to raise the risk of making a Type I error.

Summary

This was an exploratory study examining the outcomes of a 12-week psychological skills training program to measure successful race results and psychological indicators among members of the Lindenwood University's cycling team. All of the subjects completed pre-intervention and post-invention tests for psychological skills. The hypotheses tested were that the subjects in the experimental group would increase their psychological skills self-efficacy, and race results. In addition an attempt was made to build a predictive model for success.

CHAPTER FOUR

RESULTS

Introduction

The purpose of this study was to develop a success profile for elite cyclists after completing a comprehensive Psychological Skills Training Program. Furthermore, the goal of the study was to ascertain the extent to which an in-season Psychological Skills Training Program can improve self-efficacy for elite cyclists compared to a group of peers not participating in a PST intervention.

Analysis of Data

Analysis of data was performed using Statistical Package for the Social Sciences (SPSS 21.0). In order to address the research hypotheses a number of different statistical tests were used. To explore differences between treatment and control group, paired samples t-tests and independent samples t-tests were performed. In order to build a predictive model, a forward linear regression model was built looking at the ability of the Sports Emotional Reaction Profile, Athletic Coping Skills Inventory, Training Age, and Profile of Mood States to predict season success. The next section displays tables obtained from the statistical analyses.

Table 7: Paired Sample T-Tests for Athletic Coping Skills Inventory for Treatment Group

Scale	Mean	Std. Dev.
Scale Total Score		
Pre-Test	56.32	10.62
Post Test	59.16*	11.29
Coping with Adversity		
Pre-Test	7.28	2.05
Post Test	8.12**	2.22
Coachability		
Pre-Test	10.28	1.13
Post Test	9.80	2.08
Concentration		
Pre-Test	8.28	1.76
Post Test	8.76	2.30
Confidence & Achievement Motivation		
Pre-Test	8.04	1.57
Post Test	8.48	2.36
Goal-Setting & Mental Preparation		
Pre-Test	7.68	2.46
Post Test	8.20	2.50
Peaking under Pressure		
Pre-Test	8.16	3.03
Post Test	8.80	2.59
Freedom from Worry		
Pre-Test	6.60	2.14
Post Test	7.00	3.03

*p<.10; **p<.05; ***p<.01; ****p<.001

Total score on the Athletic Coping Skills Inventory could range from 0 to 84 possible points. The inventory was comprised of seven subscales that had scores with possible ranges from 0 to 12 points. Six of the subscales for the ASCI-28 improved for the experimental group when

comparing pre-test to post test. However, only one of these subscales suggested a statistically significant change (Coping with adversity – $\underline{t}$ =-2.43, $\underline{df}$ = 24, $\underline{p}$ = .023). The overall scale total increased from 56.32 to 59.16 suggesting a statistically significant change for the treatment group ($\underline{t}$ = -1.79, $\underline{df}$ = 24, $\underline{p}$ = .086).

Table 8: Paired Sample T-Tests for Athletic Coping Skills Inventory for Control Group

Scale	Mean	Std. Dev.
Scale Total Score		
Pre-Test	55.14	9.41
Post Test	54.71	10.58
Coping with Adversity		
Pre-Test	6.96	2.33
Post Test	6.93	2.24
Coachability		
Pre-Test	9.68	1.66
Post Test	9.50	1.73
Concentration		
Pre-Test	8.25	2.32
Post Test	8.25	1.87
Confidence & Achievement Motivation		
Pre-Test	8.75	2.22
Post Test	8.43	2.54
Goal-Setting & Mental Preparation		
Pre-Test	7.53	2.76
Post Test	6.75*	3.03
Peaking under Pressure		
Pre-Test	7.71	2.65
Post Test	7.50	2.33
Freedom from Worry		
Pre-Test	6.25	2.96
Post Test	7.36**	2.71

*p<.10; **p<.05; ***p<.01; ****p<.001

Six of the subscales for the ASCI-28 decreased for the control group when comparing pre-test to post test. However, one of these subscales suggested a statistically significant change (Freedom

from Worry – t =-2.55, df = 27, p = .017). Additionally, Goal Setting & Mental Preparation subscale decreased significantly from pre-test to post test (t = 1.81, df = 27, p = .082).

Table 9: Independent Sample T-Tests for Athletic Coping Skills Inventory for Change Score

Scale	Mean	Std. Dev.
Scale Total Change Score		
Treatment Group	+2.84*	7.92
Control Group	-4.27	6.17
Coping with Adversity		
Treatment Group	+.84*	1.72
Control Group	-.04	2.03
Coachability		
Treatment Group	-.48	2.02
Control Group	-.18	1.42
Concentration		
Treatment Group	+.48	1.66
Control Group	0	1.74
Confidence & Achievement Motivation		
Treatment Group	+.44	1.89
Control Group	-.32	1.87
Goal-Setting & Mental Preparation		
Treatment Group	+.52*	2.00
Control Group	-.79	2.29
Peaking under Pressure		
Treatment Group	+.64	2.40
Control Group	-.21	2.31
Freedom from Worry		
Treatment Group	+.40	2.40
Control Group	+1.10	2.30

*p<.10; **p<.05; ***p<.01; ****p<.001

Change score was calculated by subtracting pre-test from post test for total ACSI-28 scale and the seven subscales. For the treatment group there were positive changes from pre-test to post test for all subscales with the exception of Coachability. When compared to change scores of the

control group, three independent sample t-tests were shown to be statistically significant. These included: Overall Scale ($t = 1.685$, $df = 51$, $p = .098$); Coping with Adversity Subscale ($t = 1.683$, $df = 51$, $p = .098$); Goal Setting & Mental Preparation ($t = 2.192$, $df = 51$, $p = .033$).

Table 10: Independent Samples T-Test for ACSI-28 Based upon Season Success

Variable	Mean	Std. Dev.
Scale Total Score		
Measurable Improvement in Athlete	61.35***	10.50
Negligible Improvement in Athlete	52.44	9.89

*p<.10; **p<.05; ***p<.01; ****p<.001

A successful athlete was defined as an athlete that improved upon their USA Cycling rating in 2015 by over 15% as compared to their 2014 rating. The rating scale in the Road Race, Individual Time Trial, and Criterium for the period in 2015 defined within the bounds of the PST program was the time period used. For purposes of this analysis the treatment and control groups were combined. For total score on the Athletic Coping Skills Inventory the success athletes scored an average of 61.35 (N=26). The athletes that showed little or no improvement scored an average of 52.44 (N=27). The independent samples t-test suggested that there was a statistically significant difference between athletes in the two groups based upon success in the 2015 season ($t = 3.180$, $df = 51$, $p = .003$). For the purposes of building a predictive model, success as measured by the previously mentioned criteria was used as the dependent variable. It is assumed that there is a positive relationship between athlete success and mental skills efficacy as reported through the Athletic Coping Skills Inventory.

Table 11: Independent Samples T-Test for PST Program Participation Based upon Nationals Collegiate Qualification

Variable	Mean (%)	Std. Dev.
PST Program Participation		
Collegiate Nationals Qualifier (N =10)	74.20*	18.52
Collegiate Nationals Non-Qualifier (N=15)	62.73	15.21

*p<.10; **p<.05; ***p<.01; ****p<.001

Athletes that qualified for Collegiate Nationals participated significantly more in PST program and season activities than the non-qualifying athletes. ($t = 1.693$, $df = 23$, $p = .10$). Percentage of involvement was based upon self-report and attendance at planned PST activities during the in-season training program. Range of participation for athletes in the treatment group was between 34 and 100% over the course of the 12-week program with a mean participation rate of 68%.

Table 12: Independent Samples T-Test for Validity Questions Regarding Sport Psychology

Question	Mean	Std. Dev.
Sport Psychology is a valuable part of elite training		
Treatment Group (N=25)	6.64**	.64
Control Group (N=28)	6.04	.10
On a scale of 1 to 10 how would you rate the importance of Sports Psychology in cycling		
Treatment Group (N=25)	9.08	1.19
Control Group (N=28)	8.86	1.18

*p<.10; **p<.05; ***p<.01; ****p<.001

Participants were asked to rate their feelings about sports psychology on two validity questions. The first was a 7-point Likert scale question ranging from 1 = strongly disagree to 7 = strongly agree. Both the treatment and control group believed favorably in sport psychology as being an important part of elite training. However, the self-report for the treatment group was significantly higher than the control group ($t = 2.58$, $df = 51$, $p = .013$). On the second 10-point rating scale, 1 = strongly disagree to 10 strongly agree, both groups again averaged favorable responses regarding the importance of sport psychology in their discipline. This was not a significant difference between the two groups.

Table 13: Paired Sample T-Tests for Discipline Race Results Based upon Group Membership

Scale	Mean	Std. Dev.
Individual Time Trial		
Treatment Group 2014	519.28	52.38
Treatment Group 2015	509.98	57.20
Control Group 2014	436.93	70.15
Control Group 2015	465.34	64.28
Road Race		
Treatment Group 2014	385.89	125.67
Treatment Group 2015	395.19	133.94
Control Group 2014	342.54	118.74
Control Group 2015	345.20	124.65
Criterium		
Treatment Group 2014	224.27	152.58
Treatment Group 2015	213.71	129.62
Control Group 2014	165.72	83.88
Control Group 2015	134.93***	62.58

*p<.10; **p<.05; ***p<.01; ****p<.001

Over the duration of the PST program during the collegiate season in 2015, the treatment group showed improvement in both the Individual Time Trial and the Criterium but change was negligible in the Road Race. For the control group, the only improvement was seen for the Criterium but this was statistically significant in terms of improvement registering a change from 165.72 to 134.93 ($t = -3.093$, $df = 22$, $p = .005$). It should be noted that a lower score is more desirable on the USA Cycling ratings for each category.

Table 14: Paired Sample T-Tests for Sports Emotional Reaction Profile for Treatment Group

Scale	Mean	Std. Dev.
Desire Subscale		
Pre-Test	20.36	3.51
Post Test	19.88	3.55
Assertiveness Subscale		
Pre-Test	19.92	2.92
Post Test	20.76**	2.40
Sensitivity Subscale		
Pre-Test	13.76	3.15
Post Test	14.44	3.24
Tension Control Subscale		
Pre-Test	23.72	3.17
Post Test	23.72	2.79
Confidence Subscale		
Pre-Test	24.32	3.37
Post Test	24.16	2.62
Personal Accountability Subscale		
Pre-Test	18.52	3.12
Post Test	19.52	2.66
Self-Discipline Subscale		
Pre-Test	22.80	2.86
Post Test	21.80**	3.16

*p<.10; **p<.05; ***p<.01; ****p<.001

Total score on the subscales for the Sports Emotional Reaction Profile could range from a low of 5 points to a high of 30 points. For the Sensitivity subscale, normative acceptable scores for elite athletes are generally reported as being between 10 and 15 points. For the remaining six subscales, scores of 20-25 points are generally deemed to be within desirable parameters conducive to a well-adjusted emotional profile for elite athletes. Two of these subscales changed

significantly from pre-test to post test. The Assertiveness subscale increased from 19.92 to 20.76 (t =-2.02, df = 24, p = .05). Additionally, the Self-Discipline subscale decreased significantly from pre-test to post test moving from 22.80 to 21.80 points (t = 2.02, df = 24, p = .05).

Table 15: Paired Sample T-Tests for Sports Emotional Reaction Profile for Control Group

Scale	Mean	Std. Dev.
Desire Subscale		
Pre-Test	19.39	2.83
Post Test	20.54***	2.70
Assertiveness Subscale		
Pre-Test	20.39	2.83
Post Test	20.36	2.93
Sensitivity Subscale		
Pre-Test	15.25	4.15
Post Test	14.07**	2.98
Tension Control Subscale		
Pre-Test	23.53	3.87
Post Test	23.43	3.08
Confidence Subscale		
Pre-Test	23.54	4.58
Post Test	23.32	3.81
Personal Accountability Subscale		
Pre-Test	19.50	3.31
Post Test	19.29	2.49
Self-Discipline Subscale		
Pre-Test	22.21	2.69
Post Test	22.29	2.73

*p<.10; **p<.05; ***p<.01; ****p<.001

Of the seven subscales, two changed significantly from pre-test to post test. The Desire subscale increased from 19.39 to 20.54 ($t =$ -2.90, $df = 27$, $p = .007$). Additionally, the Sensitivity subscale decreased significantly from pre-test to post test moving from 15.25 to 14.07 points ($t =$ 2.36, $df = 27$, $p = .05$)

Table 16: Independent Sample T-Tests for Sports Emotional Reaction Profile for Change Score

Scale	Mean	Std. Dev.
Desire Subscale		
Treatment Group	-.48	3.28
Control Group	+1.14**	2.09
Assertiveness Subscale		
Treatment Group	+.84	2.08
Control Group	-.04	2.36
Sensitivity Subscale		
Treatment Group	+.68**	2.41
Control Group	-1.18	3.04
Tension Control Subscale		
Treatment Group	0	2.70
Control Group	-.10	2.69
Confidence Subscale		
Treatment Group	-.16	2.19
Control Group	-.21	3.48
Personal Accountability Subscale		
Treatment Group	+1.00	3.23
Control Group	-.21	2.82
Self-Discipline Subscale		
Treatment Group	-1.00	2.47
Control Group	+.07	2.97

*p<.10; **p<.05; ***p<.01; ****p<.001

Change score was calculated by subtracting pre-test from post test for each of the seven subscales. When compared to change scores of the control group, two independent sample t-tests were shown to be statistically significant. These included: Desire Subscale ($t = -2.17$, $df = 51$, $p = .034$); Sensitivity Subscale ($t = 2.44$, $df = 51$, $p = .018$).

Table 17: Independent Samples T-Test for Athlete Identity Measurement Scale

Question	Mean	Std. Dev.
Total Scale Score for Athlete Identity Measurement Scale		
Treatment Group (N=25)	39.80	4.72
Control Group (N=28)	38.82	4.85

*p<.10; **p<.05; ***p<.01; ****p<.001

Scores on the Athlete Identity Measurement Scale can range from a low of 7 to a high of 49. Normative scores for elite athletes with desirable identity scores in their respective sports generally are found in the range of 35 to 45 points. (Brewer, & Cornelius, 2001). The negligible difference among the control and treatment groups indicates both groups identify themselves as elite cyclists.

Table 18: Independent Sample T-Tests for Profile of Mood States Average Score over Six Periods

Scale	Mean	Std. Dev.
Total Scale POMS Score		
Treatment Group	8.17	17.08
Control Group	17.87*	21.21
Anger Subscale		
Treatment Group	4.72	4.59
Control Group	6.36	4.11
Confusion Subscale		
Treatment Group	5.05	2.65
Control Group	6.02	2.88
Depression Subscale		
Treatment Group	4.12	4.49
Control Group	6.67*	5.27
Fatigue Subscale		
Treatment Group	4.78	2.68
Control Group	5.90	3.11
Tension Subscale		
Treatment Group	6.15	3.12
Control Group	8.23*	4.59
Vigor Subscale		
Treatment Group	16.59	4.48
Control Group	15.49	4.64

*p<.10; **p<.05; ***p<.01; ****p<.001

The control group had statistically significantly higher scores for total POMS scale (t= -1.821, df=51, p=.075) and on the subscales of depression (t= -1.883, df=51, p=.065) and tension (t= -1.904, df=51, p=.063) Norms for the Profile of Mood sub categories among elite athletes; Total Mood Disturbance = 7.14, Anger = 6.24, Confusion = 4.00, Depression = 4.38, Fatigue = 5.37, Tension = 5.66, and Vigor = 18.51 (POMS, 2015). Total mood disturbance is calculated by

finding the sum of the subcategory scores; tension, depression, anger, fatigue, confusion and subtracting vigor score.

Table 19: Regression Model for Predicting Success Using Sport Emotional Reaction Profile

Variable	SerpTC	SerpCon	SerpSD	ASCI-28	β	SR^2
Self-Discipline				.446*	.29*	.21
Confidence			.279*	.755*	.45*	.29
Tension Control		.608*	.270*	.665*	.36*	.22
Mean	23.57	23.72	22.06	56.81	$R^2 = .71$*	
SD	2.93	3.30	2.52	11.04		

*p< .001

Four of the seven subscales from the Sports Emotional Reaction Profile were found to be significantly correlated to the overall Athletic Skills Coping Inventory (ASCI-28). These subscales included sensitivity, tension control, confidence, and self-discipline. These correlations were all at $p < .001$. After performing a forward regression model analysis only three of these four subscales remained to explain total variance in the chosen model. Results of this regression analysis is presented above.

CHAPTER FIVE

DISCUSSION

This exploratory study examined the efficacy of an in season psychological skills training program (12-weeks) on self-efficacy for mental skills, race results, mood disturbances, and building a predictive model of a successful cyclist. Lindenwood University's cycling team received the PST program and another group of elite cyclists were invited to participate in the study during the Spring 2015 competitive season. Cyclist's psychological skills were assessed utilizing the ACSI-28 (Athletic Coping Skills Inventory), SERP (Sports Emotional Reaction Profile), AIMS (Athlete Identity Measurement Scale), and POMS (Profile of Mood States) inventories prior to the intervention and again 12-weeks later. Notably, POMS was intermittently tested 6 times during the PST program. Cyclists in the treatment group completed a weekly psychological skills program, and were sent supplemental material to coincide with team meetings. This discussion section will present significant findings and an interpretation of the study results will be provided. Limitations of the study will be presented along with suggestions for future research and associated practical implications.

Results and Rationales

H1: Elite cyclists experiencing a PST program will report higher self-efficacy for psychological skills training than elite cyclists who do not participate in a PST program.

In order to test this hypothesis, the cyclists in the control and treatment groups were surveyed using the Post-PST questionnaire containing validity questions regarding sports psychology. Participants were asked to rate their feelings about sports psychology on two validity questions. The first was a 7-point Likert scale question ranging from 1 = strongly disagree to 7 = strongly agree. Both the treatment and control group believed favorably in sport

psychology as being an important part of elite training. However, the self-report for the treatment group was significantly higher than the control group, and scored 6.64 versus 6.04 out of 7 (t = 2.58, df = 51, p = .013). On the second 10-point rating scale, both groups again averaged favorable responses regarding the importance of sport psychology in their discipline (Control Group μ = 9.08; Treatment Group μ = 8.86). This was not a significant difference between the two groups. The treatment group likely valued sports psychology more than the control group because of their participation in an extensive 12-week psychological skills training program. However, the control group was comprised of elite cyclists, who valued sports psychology, and likely due to their elite training status many of the cyclists in the control group have been exposed to, or are currently incorporating, psychological skills in their training regimen.

Further supporting the hypothesis that the cyclists in the treatment group will inherently increase their self-efficacy towards psychological skills was the increase in the treatment group's Athletic Coping Skills Inventory-28 total score. The total score measures personal sport psychological skills in the following seven categories: Coping with adversity, coachability, concentration, confidence and achievement motivation, goal setting and mental preparation, peaking under pressure, and freedom from worry. Following the 12-week psychological skills training program the overall total score increased from 56.32 to 59.16 suggesting a statistically significant change for the treatment group (t = -1.79, df = 24, p = .086). This increase informally suggests the treatment group cyclists' self-efficacy towards psychological skills increased. Notably, elite athletes' psychological skills may experience a ceiling effect on the ACSI-28, and a positive change to an elite athletes score shows the PST program is able to surpass their aptitude.

H2: Elite cyclists experiencing a PST program will be more successful in competition than elite cyclists who do not participate in a PST program.

Over the duration of the PST program during the collegiate season in 2015, the treatment group showed improvement in both the individual time trial and the criterium but change was negligible for the 2015 road race results. For the control group, the only improvement was seen for the criterium but this was statistically significant in terms of improvement registering a change from 165.72 points to 134.93 points ($t = -3.093$, $df = 22$, $p = .005$). It should be noted that a lower score is more desirable on the USA Cycling ratings for each category. The treatment group was comprised of one collegiate cycling team, and in collegiate cycling the team is often working for one or two riders to win or place well in the race. Many of the cyclists on the team sacrifice their own individual results for one or two team leaders, and this may have differentiated the individual's scores to effect the mean score. The only race where individuals are racing by themselves is the individual time trial, and negligible changes were made from the 2014 to 2015 season. The treatment group was comprised of individuals on multiple teams and in different races across the United States. The control group's criterium USA cycling rating score was significantly lower from 2014 to 2015. The reasons for this are unclear. However, in this part of the United States, the criterium event is popular and contested at multiple competition venues. Elite cyclists like this event because there is more of an individual focus and allows the cyclist autonomy to improve personal race performance.

Notably, the control group's average race ranking results in all three disciplines were lower in the 2014 season compared to 2015. This suggests the control group's overall ability was greater than the treatment groups. Further supporting the control group's greater ability is their USA cycling category demographics. The control group was comprised of 89.3% category A, 10.7% category B, and 0% category C. Whereas the treatment group was comprised of 60%, 32%, and 8% categories A,B, and C respectively. Category A cyclists consist of USA Cycling

(USAC) road category Pro, 1, 2, and 3, category B consists of categories 3 and 4, and category C cyclists consist of category 4 cyclists. With the influx of cyclists racing in the more advanced categories the mean score of race rankings would be lower.

H3: Elite cyclists experiencing a PST program will report less mood disturbance on the Profile of Mood States instrument than elite cyclists who do not participate in a PST program.

To measure mood disturbance the cyclists in both the control and the treatment group completed the Profile of Mood States instrument 6 times over the course of the 12-week psychological skills training program. The mean scores were taken from both groups total mood disturbance and each of the subcategories. Total mood disturbance (TMD) is calculated by finding the sum of the subcategory scores; tension, depression, anger, fatigue, confusion and subtracting vigor score. Norms for the Profile of Mood sub categories among elite athletes; Total Mood Disturbance = 7.14, Anger = 6.24, Confusion = 4.00, Depression = 4.38, Fatigue = 5.37, Tension = 5.66, Vigor = 18.51 (POMS, 2015). The control group had statistically significantly higher scores for Total Mood Disturbance, depression, and tension. TMD; control group = 17.87 & treatment group = 8.17 (t= -1.821, df=51, p=.075). Depression; control group = 6.02 & treatment group =4.12 (t= -1.883, df=51, p=.065). Tension; control group = 8.23 & treatment group = 6.15 (t= -1.904, df=51, p=.063). Markedly, the treatment group scored a more favorable score in the remaining categories; anger, confusion, fatigue, and anger. It should be highlighted that this exploratory study has a relatively small sample size and potentially masks the significance of the results. With a larger sample size the significance may have increased in the remaining subcategories.

Among the results addressed in this research a substantial finding was that the group exposed to a 12-week psychological skills training program negatively correlates to a decreased total mood disturbance. This correlational finding suggests that certain aspects of the PST program were able to increase positive emotional outcomes for the treatment group. Of the psychological skills introduced in the PST program, the skills that may have a significant outcome on emotions are; mindfulness, flow, confidence, arousal control, and self-talk. Each of these psychological skills overlaps into a deeper preceding layer with mindfulness at the center. Mindfulness is the non-judgmental awareness of the surrounding environment and ourselves. Grounded into mindfulness practices is arousal control, breathing practices, and focusing on your breath to reduce stress (Kabat-Zinn, 1994). With mindfulness, increasing non-judgmental awareness self-talk becomes increasingly more positive, and positive self-talk regulates a shift to an enhanced confidence (Balague, 2005). Mindfulness enhances flow, and flow is being intrinsically absorbed by the experience (Moen, et al., 2015). To further support how incorporating psychological skills enhances mood states researchers have implemented short mindfulness interventions to measure effects on Profile of Mood Scores. Three separate hour long mindfulness sessions over three days have been shown to decrease total mood disturbance, fatigue, depression, and confusion when compared to a controlled group of undergraduate students (Zeidan, et al., 2010). Throughout the PST training program the treatment group was exposed to mindfulness practices a minimum of once a week for the duration of the program.

H4: It is possible to develop a success profile to predict high level performance of elite cyclists based upon participation in a comprehensive PST program.

Multiple linear regression analysis was implemented in order to form a model to predict high scores for mental skills competency (as measured by the ASCI-28). Total composite score

on the ASCI-28 was used as the dependent variable. An independent samples t-test found athletes that had a successful elite cycling season based upon USA-Cycling race results scored statistically higher on the ASCI-28 when compared to the non-successful athletes. Therefore, the principal investigator has looked to develop a predictive model to assess the predictive quality of other psychometric assessments that might have the potential for predicting athlete success. The variables used in the analysis included all seven subscales from the Sports Emotional Reaction Profile (SERP), composite score on the Athlete Identity Measurement Scale, training age, and chronological age. Basic descriptive statistics and regression components are shown in Table 19.

The three predictor-model was able to account for 71% of the variance in total ASCI-28 score, $F(3,49) = 40.60$, $p < ,001$, $R^2 = .71$. Based on this analysis it is possible that athletes who control tension, who are more self-disciplined, and who manifest the greatest confidence are likely to score highest on the Athletic Skills Coping Inventory (ASCI-28). These cyclists are thus in a more favorable position to be successful in elite cycling competitions. This is not to say that the remaining four subscales in the SERP (desire, assertiveness, sensitivity, and personal accountability) are not important, it is just that they might not be as predictive of psychological skills competency. As a coach of a collegiate team, having athletes work through a PST program that targets confidence and teaches arousal regulation would seem to be an important focus. Maintaining a high level of structure that rewards self-discipline to training and competition would also seem to be influential as suggested by the predictive model. A regression model was also run including the six subscales for the Profile of Mood States (POMS). Only one subscale contributed anything significant to the model variance when considered in combination to the SERP subscales. This was the POMS subscale for confusion. Athletes who were able to handle emotionally difficult situations were likely to score higher on the ASCI-28.

Limitations of the Study

The study was an experimental study investigating many nuances in elite cyclists and sports psychology. Being a quasi-experimental design there were limitations to the study that should be addressed. First, the control group may have been exposed to psychological skills training in their own training. Two questions ("Sport Psychology is a valuable part of elite training" and "On a scale of 1 to 10 how would you rate the importance of Sports Psychology in cycling") were used to rate the control and treatment groups feelings in the posttest evaluation. The answers showed that the treatment group rated both questions higher than the control group, but the control group also held the belief that sports psychology is an important part of elite training.

Secondly, participants in the experimental group were unable to participate in all aspects of the PST program. The range of participation for cyclists in the treatment group was between 34 and 100% over the course of the 12-week program with a mean participation rate of 68%. Additionally, it should be highlighted that the 10 members of the 25-member road team had significantly higher participation in the PST program. The Nationals Team Qualifiers completed 74.20% of the program and the Non-Qualifiers completed 62.73%. Participation may have been underrepresented due to some of the PST program's self-reported participation. Some student-athletes had obligations to class when team meetings and PST sessions took place. Ideally the mean score for participation rate would have been in the 85 – 100% range for the treatment group.

Additionally, the small sample size in both the control (N=28) and the treatment (N=25) groups concealed the significance of statistical findings. Trends could be observed in the Athletic

Coping Skills Inventory-28, an instrument that measures psychological skills, had a negative ACSI-28 total change score (-4.27) and the treatment group had positive ACSI-28 total change score (+2.84) (-- $t = 1.685$, $df = 51$, $p = .098$). With a greater sample size the statistical significance would have likely increased.

Furthermore, the individual race results from 2014 and 2015 were incomplete data sets. Road cycling contains three separate disciplines in of itself, road racing, criteriums, and individual time trials, not all of the participants competed in all three disciplines.

Recommendations and Implications of the Future

PST Program Strengths & Weaknesses

One of the ways the PST program was presented to the cyclists was through videos. Every Monday morning during the 12-week PST program the cyclists would receive a video on PST. Many of the videos were found on YouTube.com, but the primary investigator also made educational PST YouTube videos of himself with the cyclists as the focused audience. Of the videos sent out during the 12-week program, the cyclists were more receptive to the videos the primary investigator made, and this was evident in the self-reported participation of video viewership. Outside of the videos, the primary investigator made, the videos that were successful in captivating the treatment group were motivational videos. One in particular was Eric Thomas's Focus speech. Thomas delivers his content with tenacity, and with energy to inspire: 'Find that reason to wake up every day and go get it! Everybody's got a dream, everybody's got a goal, but when you write your why down. What your why does for you, it says you can't quit, you can't give up, you can't stop." This segment was highlighted to the cyclists following a week focused on goal setting. The cyclist's participation following this video was very high.

Additionally, the cyclists did not show interest towards educational-style videos. The educational videos were rich in content, but may not have provided the stimulus to capture the attention of the treatment group.

Mindfulness meditation was firmly incorporated into most weeks of the in-season PST program. The cyclists took part in weekly mindfulness practices. The primary investigator provided the cyclists with implemented strategies to incorporate mindfulness. The focus of the strategies was to be present, calm, and confident in any situation or environment ([Wisdom 2.0], 2014). Through mindfulness the cyclists were led to many teachable moments throughout the in-season PST program. When asked to give a reflection on how mindfulness impacted the cyclists, the cyclists unanimously responded positively. One cyclist responded with "I thought that it was a very effective tool for relaxation. After my participation in the exercise, I felt calm and more confident with myself." After the first session many of the cyclists responded with similar recounts as the quoted cyclist above. Mindfulness relaxation was incorporated in 2 team meetings, 9 sessions of weekly team yoga, and 3 of the primary investigator's videos throughout the semester.

Future PST Program Design

Mindfulness meditation practice was a key component of the in-season PST program, and in a future program mindfulness would be at the center of the PST program. Increasing one's ability to heighten their skills through mindfulness practice is a crucial element in sports. Mindfulness allows individuals to incorporate psychological skills effortlessly. Being rich with a presence in mindfulness allows an individual to flourish in their environment with a calmness and confidence in any situation ([Wisdom 2.0], 2014). Calmness and confidence are two critical

elements of an elite athlete's psychological skills training. Practicing mindfulness allows a presence in the moment, while performing in the moment at peak performance, otherwise known as flow state. Flow state is synonymous with being in "the zone," and "the zone" is where actions and reactions are effortless (Jackson & Csikszentmihalyi, 1999). Additionally, the psychological skill self-talk is indirectly learned and managed through mindfulness. Mindfulness brings a non-judgmental awareness to thoughts and feelings that the thinking mind has to filter through, and it is through this filter where self-talk can be managed. The thinking mind does not have to accept negative self-talk. Merely, the thinking mind acknowledges that this thought exists, and a presence of being in the moment is maintained (Kabat-Zinn, 1994)

In order to incorporate mindfulness into an in-season PST program, a multitude of mindfulness outlets would be structured for the participants to receive an ample amount of mindfulness training. Group mindfulness sessions with a sports psychologist and their teammates would be at the forefront, as well as individual mindfulness training sessions and take home mindfulness workbook experiences. Each of the mindfulness activities would indirectly influence a psychological skill. Additionally, goal setting, visualization, and motivational messages would be incorporated into the psychological skills training.

Researcher Observations

As the primary investigator, I wore many hats along the process of completing this research. It was a unique and rewarding experience to be invested in the team who received the psychological skills training. On the team, I was a teammate, a graduate assistant, and a member of the national's squad. As a graduate assistant on the team, I was already in a leadership role where the members of the team knew and trusted me. With mutual trust established and knowing

the cyclists as individuals it was a great transition to developing and leading an in-season psychological skills training program. As a whole the cyclists were excited about the new skills they would be learning over the course of the 12-week program. The head coach of the team already had a culture established where exploration and growth are possible, and the coach regularly encouraged the team to utilize the psychological skills they were learning.

At the beginning of the program the cyclists were very receptive of implementing the PST program. To no surprise is that the highest attendance for completing the PST was the first 3-weeks of the 12-week program. From here attendance tapered off, only to pick up again towards the middle of the program, and stayed steady until the end. Among the PST program skills the cyclists valued learning about was mindfulness practices, specifically the arousal regulation. The cyclists learned how to control their stress and anxiety through breathing exercises. Once a week the team would meet for yoga, and at yoga is where the cyclists did their first body scan. When a group of people open their eyes from a body scan it is a remarkable sight. Their faces were completely relaxed, if a gust of wind blew, their arms would have flailed. It was powerful to see. Many of the cyclists came up to me and personally thanked me with a gratitude and sincerity that is only voiced when someone has truly been helped. Following the mindfulness sessions, I had several cyclists explain how they had begun focusing on their breathing not only before races, but also before giving a presentation in class. One cyclist explained how, "I felt an instant wave of calm come over me once I focused on my breath. I was able to speak effortlessly afterwards." This was inspiring to me to know the PST program had crossed paths with their lives outside of cycling.

What tools would be appropriate for assessing mental skills in the future?

Going forward with the psychological skills training program it is pertinent that the athletes be tested on their ability to use psychological skills. The Athletic Coping Skills Inventory-28 is a valid instrument used to measure psychological skills in athletes. Through a linear regression analysis a predictive model was implemented to predict high scores on the ASCI-28 based upon USA-Cycling results. The cyclists who had more successful results also scored statistically higher on the ASCI-28 total composite score ($F(3,49) = 40.60$, $p < .001$, $R^2 = .71$). As a result, a predictive model was created to assess the quality of other psychometric instruments to predict success in athletes. The following variables were used in the predictive model; Sports Emotional Reaction Profile (SERP), composite score on the Athlete Identity Measurement Scale, training age, and chronological age. The predictive model determined that athletes who scored high on the Sports Emotional Reaction Profile in self-discipline, confidcence, and tension control are likely to score the highest on the ASCI-28 composite score. Therefore, it is imperative when testing athletes on either the SERP or the ASCI-28, that both instruments are used in collaboration.

Intuitively, an explanation can be provided on why cyclists who were successful possessed confidence, self-discipline, and tension control. Athletes who are confident answer questions pertaining to confidence on the SERP, a sports scenario inventory, and also have a high degree of confidence in their answers. Success in sports leads to an increased self-efficacy in your ability to perform sport specific skills. An increase in the athletes' self-efficacy transcends confidence in other aspects of athletes' lives (Bandura, 1977). Thus, their belief in their psychological skills, abilities related to their sport, and overall confidence would increase. Another characteristic that highly predicted success was self-discipline. A highly self-disciplined

athlete has likely gained confidence from their training. An athletes' trust in training is necessary for an athlete to exude confidence. The athlete needs to believe that they have controlled everything within their power of control. The self-disciplined athlete is controlling their training, nutrition, recovery, and balancing their lives in accordance. Trusting your training and believing you possess the tools to be successful, in short self-discipline and confidence, lead to a reduction of tension in competition. A self-disciplined athlete has learned strategies to control tension, e.g. mindfulness, diaphragmatic breathing, and progressive muscle relaxation. Consequently, learning how to control tension leads to increased chances of success, increased self-efficacy, and increased confidence. Additionally, coaches, trainers, and athletes may benefit extensively on a psychological skills training program focused on increasing confidence, self-discipline, and tension control.

Another instrument that provided useful data over the course of the 12-week PST program was the Profile of Mood States inventory. POMS measures the mood state of the athlete and provides a total mood disturbance score. Cyclists who were in the PST program had lower POMS scores in all of the categories compared with the control group. The control group and treatment group were compiled, and those cyclists who met the criteria of a successful season were grouped. The more successful cyclists had significantly lower tension, depression, and total mood disturbance when compared to the cyclists who showed negligible improvement from 2014 to 2015 based off their USA cycling results ranking.

Although it is useful to understand how your athletes respond to situations in different sporting contexts, the Sports Emotional Reaction Profile was unable to display the traits of a successful athlete. A ceiling effect is likely to have occurred from pre- to posttest in the SERP subcategories because of the cyclist's elite status. Another, useful tool for the athlete to learn

about themselves is the Myers-Briggs personality profile. The Myers-Briggs personality profile was unable to measure psychological skills, but did provide noteworthy results in the number of cyclists who are introverts. When the control and treatment group were combined, 43% of the sample was either of the ISTJ or ISTP personality type. The Myers-Briggs has 16 personality types with a widespread distribution among the population in each of the categories. The personality type ISTJ comprises of 11-14% of the population, while ISTP comprises of 4-6% of the population (Myers, & McCaulley, 1985).

Conclusion

Participation among elite cyclists in a 12-week long psychological skills in-season training program has shown to positively correlate self-efficacy toward psychological skills and emotional state. Based on USA-Cycling race results and parameters measured in the ASCI-28, a predictive success model was created using a linear regression analysis to filter highly correlative variables using other psychometric instruments. High scores in confidence, self-discipline, and tension control on the SERP were highly predictive of success. Further research may allocate an increased statistical significance with a larger population.

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APPENDICES

Institutional Review Board

Psychological Skills Training Program

Research Instrumentation

APPENDIX A

675940-1

LINDENWOOD UNIVERSITY

Institutional Review Board Disposition Report

To Christopher L. Curran

CC: Dr. Paul Wright

Mr. Curran's revised IRB proposal was reviewed and accepted on 12/19/2014. The committee appreciated the significant effort that went into this proposal and we wish Mr. Curran the best of luck with his data collection.

Sincerely,

_____ _____

Institutional Review Board Chair Date

APPENDIX B

Introduction to psychological skills training: Email & Video Script

Hello!

I hope you all are as excited as I am for the psychological skills training! We will be graced by Coach Paul Wright's presence at the meeting, and he will introduce psychological skills training. Prior to the meeting please watch this video produced by the BBC network on the Importance of Sports Psychology.

Olympics 2012 - The Importance of Sports Psychology
https://www.youtube.com/watch?v=d8DSzLpEru0

Introduction video *Olympics 2012 - The Importance of Sports Psychology* Script

Narrator: This is a place in the Olympic park that very few people get to see. It's a dressing room much like any other; white walls, a few benches and coat hooks. But it's in places like this, the nooks and crannies, where gold medals will be won and lost. This is the inner sanctum where the last few crucial moments are spent before stepping out into the megawatt light of the competition arena just a few yards down that corridor. It is here where athletes perform their highly secretive routines, designed to take them into the zone. Here you will see some truly bizarre things. Some athletes in half trances pacing from foot to foot, others with their eyes closed visualizing optimal performance, some athletes enact bizarre superstitions, others offer silent prayers. In many ways this is one of the most surreal places in sport, but also perhaps one of the most fascinating. Often the final few moments before competition are highly solitary. You're alone with your thoughts, or perhaps your demands. But in many sports solitude is impossible. You're required to spend those final moments not on your own, but right up close with your competitors. And it is here in the dreaded call room that the mind games go into overdrive.

Michael Johnson: From my perspective these are the seven guys I've got to do battle against that are standing in my way to achieve my objective of gold medal.

Carl Lewis: I never thought it was personal, I didn't think they were trying to destroy my dreams or trying to beat me. They were simply trying to win, I don't own winning, I just wanted to win.

Tom Bates: The interesting thing is that champion athletes, top athletes, gold medal athletes, the gold medal mindset if you like, that type of athlete will not see pressure as a problem, they will see it as a privilege.

Michael Johnson: I quite enjoyed it actually, because the pressure was so high at that point, all other things being equal, it's the person who handles that moment and the pressure at that particular time best that is going to have their best performance. There was one competitor who asked us all to pray together, I'm not going to pray with you. Most of the guys did it, I didn't do it, I'm not going to do that. I'm about to go to battle.

Narrator: The brutal irony of elite sport is that however good you are, however many sacrifices you've made, it all counts for nothing, if you cannot deliver when it really matters. Four years of preparation for just a few defining moments of action. This is in many ways the ultimate sliding doors moment. So the key question is do the psychological rituals the athletes use in the dressing room and continue to use right out here in the arena actually work. In short what do we really know about the dark art of performance psychology?

Michael Johnson: You're already under a tremendous amount of pressure knowing the significance of the moment, and this what you have been training for, for so very long. And this is what you have been preparing for, and it is a dream come true to be there, and now you're just

that close.
Chris Boardman: You will always have an internal voice saying this is dangerous run away, run away
Sir Matthew Pinsent: A psychologist would always say you are in control of the controllables. You're not in control of the weather, you're not in control of the opposition, you're not in control of the TV audience or the crowd, or the event. That's all beyond you.
Michael Johnson: You can only control how you perform when the gun goes off.
Sir Matthew Pinsent: You narrow it all the way down to something incredibly simple
Jonathan Edwards: It is sort of ironic, now as I have lost my faith, but my faith I think gave me perspective. To somehow to a degree, disassociate myself from the outcome..
Carl Lewis: You have to do the best you can, and let the chips fall as they may.
Chris Boardman: I can only be as good as I'm going to be, and when I cross the line I'll see what that got me. That's a very calming, focusing, and quite inspiring thought.
Narrator: Performance psychology is to a large extent is about the elimination of doubt. In many circumstances doubt is a rather sensible thing. If someone is trying to flog you an insurance policy it makes sense to doubt whether what they are saying is true. But in sport, doubt is catastrophic. If you don't believe you're going to nail a four handle, or score a penalty, you're almost certain to miss. That's why visualizing a brilliant performance is so important. If can help to eliminate doubt. Superstitions can do the same kind of thing. They provide reassurance and boost self-belief.
Tom Bates: Superstition is a very interesting phenomenon. In particularly in the world of sports psychology because what we are actually saying thoughts become things, and what we think affects the way we feel ultimately affects the way we behave, and ultimately in the sporting context perform.
Narrator: A similar kind of thing happens in the field of medicine. A sugar pill with no pharmacology whatsoever can have incredible effects reducing pain and anxiety, even eliminating nausea as long as you believe it will. As Jonathan Edwards put it in a slightly different context, any belief can have astonishing powerful effects, providing it held with sufficient conviction.
Jonathan Edwards: Maybe that's the key here. You need to find something that works for you. Every athlete is an individual, and you can take out the training manual and you can take out the sports psychology book and you can say Michael Johnson did this, and Carl Lewis did this, and Muhammad Ali did this. And you can go on and on through the greats, but none of them are who you are, and you have to find your own way.
Narrator: Delivering under pressure is a rather brutal thing. But also a profoundly subjective one. Many athletes are overcome with nerves others reflected with terrible self-doubt. Is it any wonder that they reach for the particular ritual that makes sense to them that provides a sense of reassurance and control? Prayer, superstition, visualization take your pick what is certain is that minute difference between victory and defeat on the biggest stage of all, is often to be found not in skill or effort, but in the recesses of the mind.
https://www.youtube.com/watch?v=d8DSzLpEru0

Psychological Skills Training: Goal setting Email & Video Script
I am excited to announce this is our first of many psychological skill training videos! I took my time and prepared you all a short video outlining the basics in goal setting. Please let me know

when you watched the video by responding to the question so I can mark you down as "watched."
I appreciate all of your feedback :)
Focus on goal-setting strategies, writing of goals and goal support taught by Chris Curran
http://youtu.be/2ivxbkIYDew (6:01)
Here is the Challenge,
The challenge is to write down one outcome goal, one performance goal, and one process goal somewhere you can see them every day. (I have mine written down on the back of my phone case on notebook paper. When I see my phone, I see the notebook paper, and I'm constantly reminded of my goals.) To earn the challenge points you'll have to respond to this email with where you wrote down your goals on your goal card to see them every day.

Psychological Skills Training: Goal Setting
How's everybody doing? We're going to be diving into some psychological skills training today. But, first I want to thank Clif Bar for graciously providing us with a few different products for you guys to have. And you guys will be getting/receiving this year for participating through little different various incentives that you guys will get this year. So, our first psychological skills video is on goal setting.
Goal setting, it's not all that hard, but first we need to understand it. And a lot of you probably already have goals, and you all probably have outcome goals. These standards you have for the season. But, there are different types of goals as well. The outcome goals are global perspective, so it's our standard. What we want to do that year. It could be win a race, win this, and win that. And the next kind of goal that we have are performance goals. Now you might say a performance goal is an outcome goal. But, it's kind of grey there. A performance goal has that time component, and it's real measurable. So, we are going to know what we're doing. Maybe we are lifting weights, and lifting a certain amount of weight or maybe we are hitting a certain amount of watts per kilogram. Or, a certain amount of distance in a certain amount of time. In track cycling this can be a lot easier. But in road cycling a win, you might not be the strongest guy that day, but you outsmarted them. Or you have better teammates and team tactics. And we'll kind of get into that too. And the process goals, the process goals are these everyday little things. The day-to-day things that we're doing
So, let's go back up to the outcome goals. The outcome goals are standards. The standard that we have. So we could say our standard this year is to win U23 National Road Race on June 24, 2015. I need to do things in order to get there. But in order to achieve that goal, and get any type of reward that we get from achieving our goals we need to have those performance goals and process goals underneath. The process goals are great because we know through performance goals that we're going to get there. So performance goals, if we set a standard, if we say "hey I want to do 5 watts per kilogram by June 15, 2015. We are going to know exactly when we're supposed to peak, and we're peaking. So we are going into that time trial or road race and we're ready to go. Underneath performance goals are process goals. And these process goals are these little itty-bitty goals. You could have 5 process goals in one day, and you could achieve every single one of them. What process goals really do, I think these are the most important, and these are really what we should be focusing on as far as goals. It's good to have the global standard, and the performance standard, but if we're not focusing in on the process, and you'll learn that people who are really in tune with the process are really successful.
What is a process goal? It's kind of doing that little everything that nobody else is doing. Maybe

you're doing planks right immediately after your ride. You're doing left plank, right plank, and two front planks, and you're just doing those. The little bit, just a little bit more than the next guy. Maybe you're getting to bed by eleven P.M. every single night. Not six days a week. You're getting to bed, seven days a week at eleven P.M. Another one, maybe you're not eating right. Maybe you're eating a lot of candy a lot of junk food. You could just eat spinach, or better yet, you could eat a Kids Clif Bar, that we're going to be providing. Another process goal that you can really focus in on is getting a recovery drink after every single ride. We have Clif Shot drink, you can drink Clif shot drink after every single ride. After every single ride. And that's a process goal. Maybe not every single ride. Maybe it should be more so like after every single hard ride because that would instill more of a glycogen replenishment, and what have you.

So, through these process goals we know that focusing on the process leads to the outcome and the performance that we want to achieve. One of the things I wanted to touch on real quick is that when Michael Jordan was playing basketball, he didn't score this outrageous amount of points over everybody else to be the greatest basketball player of all time. On average he scored one extra point. It's not like he was scoring 10 or 11 more. He scored one more basket. One more basket. One more basket. One free throw, and he is considered the greatest basketball player of all time. He's just doing that extra little bit during that game. So think about that. Let it resonate. Because we really need to focus in on these process goals, these day-to-day goals, set those weekly goals, and the results you will achieve are immeasurable.

http://youtu.be/2ivxbkIYDew

Psychological Skills Training: Motivation with Eric Thomas; Email Script

WARNING: This video captivates, motivates, and facilitates greatness.

Some of you have heard Eric Thomas' voice overs on YouTube or maybe you've heard one of his full speeches. He is one of the most passionate presenters I have ever seen. Eric Thomas often delivers inspirational messages to the NFL, NBA, and NCAA teams, as well as Fortune 500 companies. This is one of his 100's of videos on YouTube.

There are many underlying principles in this video, and the content is rich with many takeaway messages. We have been concentrating on the psychological skill goal setting, however if something else resonates with you that Eric Thomas said please share your "why?" You can comment, FB message, or email reply. I encourage you to watch the video twice to catch everything Eric Thomas says

https://www.youtube.com/watch?v=GJWIRyUAur8

Psychological Skills Training: Motivation with Eric Thomas: Video Script

Eric Thomas -- Focus

I am a living witness if you are brave enough to dream it can happen. You have to be determined, no matter what it takes; you're not going to stop, you're not going to quit, you're not going to give up until you make your dreams become a reality. My goal when I leave this place, is to help you get that much closer to making your dreams become a reality. 2013 was the why, so what

happens is, as you grow, and as you develop, and you know as you improve yourself these new concepts start to come. And so, the why had always been a part of my life, but I was able to tap into… 2013 I was able to tap into that why in a way I had never tapped into that why before.

Are you excited? I am going to be a millionaire! I am going to change the world! I am going to do this for this person, I am gonna buy this for my mom. And, my children, and, I am going to put them through school. And you got all these great dreams, and then you get up in the morning and life punch you in your face. E.T. just like you, I get punched in the face! Now you don't always know about it! I don't always talk about it, cuz I don't want to discourage you. But, I've had multiple aunts, at least 2 or 3 aunts die of cancer in the last four of five years. We all get knocked out! Life hasn't been a crystal stair for Eric Thomas. I've had my hatters. I've had people who've come against me, who try to sabotage me! I am like the lion! I am not the gazelle! I don't need something external to motivate me! I find something within!
And you've got to do me a favor, you can't give up, you can't give in! Listen to me! If it was easy, everybody would do it! And if life's got you backed up, I need you to do what Buster Douglas did, Buster Douglas start fighting back. He said "I know you knocked out thirty other people before me, but I won't be the thirty-first." And finally they got to that round where Buster Douglas Knocked Mike Tyson out. And the world was shocked (gasp) Goliath has been knocked down. What happened? And they went to Buster Douglas, and they asked Buster Douglas, simply like what happened? And Buster Douglas said "listen to me, I am just going to be honest with you guys. Here's the challenge. The challenge was, it's real simple before my mother died she told the whole world that I was going to beat Mike Tyson. And two days before the fight, my mother died." Buster Douglas had, he had a decision to make. When his mother died, he could die with his mother, or he made a decision I can wake up and I can live for mom. And he knocked Mike Tyson out. Simply because his why is greater than that punch.
Find that reason to wake up every day and go get it! Everybody's got a dream, everybody's got a goal, but when you right your why down. What your why does for you, it says you can't quit, you can't give up, you can't stop. If there's no money, you go make up some, you go print it. If nobody is giving you an opportunity you create it. But what I can't do, is I can't let my son down, I can't let my wife down, I can't let my parents down, I can't let my city down. And for you, your problem is you're just focusing on your dreams and your goals, and you're not focusing on why! Why! Why do you want this? Why do you get up in the morning? Somebody said "ET why do you wake up at three o'clock?" Why not? If all I have to do is get up at 3 o'clock in the morning, and my family can live like they want to live. And I can change the world! Three o'clock! Have you lost your mind? I'll get up at three every day! Why? Because my why is greater than my sleep.
What makes a person average is their focus! Like an average person is focused on getting paid. That's why they average. A person who is good, he's focusing on I want to make my boss happy, a person whose great his focus is what need can I meet. His focus is different. Same human being, but his focus is entirely different. Your concentration is supposed to change. And so what you're focusing on throughout the course of the day, it has to change; what you're looking at, what you're reading, what you're watching, and the conversations you have! You must now be focused on your why, and you must be focused on your dreams, and you must be focused on your goals. When you are great you don't focus on a week, when you are great you don't focus on a month, when you are great you don't focus on a year. I'm not saying there is anything wrong with planning. But what I am talking about is you concentrate on the twenty-four hours

that's in front of you, and you nail it! "Thank God it's Monday!" (Clapping).
https://www.youtube.com/watch?v=GJWIRyUAur8

Psychological Skills Training: Arousal Control: Email Script

To learn more about controlling anxiety and performing under pressure I have included some short videos for you. At tonight's meeting we will be going over a few techniques to control anxiety. The techniques may help you to become calmer, confident, and focused in any environment.
NBC News: New York Sport Psychologist Leah Lagos Helps to Enhance Performance of Olympic Rower
https://www.youtube.com/watch?v=q9Nsm1U0CpY
Enjoy!

Psychological Skills Training: Arousal Control: Video Script
NBC News: New York Sport Psychologist Leah Lagos Helps to Enhance Performance of Olympic Rower
News Anchor: In tonight's be healthy when Gilford's Sarah Trowbridge was rowing in the Olympics in London she had an extra coach on the sidelines. A mental coach. Sarah did what did what some professional athletes do she underwent biofeedback. Helping her lower the stress when the pressure is on. Sarah Trowbridge says rowing feels like flying across the water, but when she went all out in competition something wasn't always happening
Sarah Trowbridge: I could have these wonderful amazing performances, but I just felt I could hit a higher level on a more consistent basis. And, I just didn't always have the tools to do that it felt like.
Dr. Leah Lagos: What we are going measure with this is your respiration rate.
News Anchor: She sought the help of Dr. Lagos who uses something called biofeedback to help elite athletes stay calm under pressure
Dr. Leah Lagos: And A gentle inhale through the nose.
News Anchor: Dr. Lagos hooked Sarah up to a computer system which monitors her heart rate and breathing.
Dr. Leah Lagos: And A gentle inhale through the nose.
News Anchor: Watch the pink line mirroring her breathing
Dr. Leah Lagos: Taking a gentle inhale and an exhale
Sarah worked for 10 weeks with Dr. Lagos doing homework; mental and physical exercises and one on one sessions.
Dr. Leah Lagos: Everybody! It doesn't matter if you're a 6 year old golfer or a 30 year old rower at the US Olympics. Everybody has stress, and this gives all of them a way to manage and deal with it.
News Anchor: Sarah says instead of any stressful thoughts while rowing she would focus on things that got her excited, like trying a new sport. I just noticed consistently better control over my anxiety, over my thoughts, my body, and my heart rate.
News Anchor: And she started winning more. Biofeedback is used for PTSD and depression but Dr. Lagos, a clinical and sports psychologist applied it to college and professional athletes.

Breathing is the key.
Dr. Leah Lagos: Breathing process. Breathing at your resonate frequency, which is a specific frequency, it's not just for relaxation. If I wanted you to relax, I would send you to the spa.
News Anchor: This was Sarah's first week. The high blue bars on the right of each group, is her so-called busy brain at work. Hurting her focus. Now, look at week 10 that bar is down, and the purple bar on the left is way up. She's calm, focused, and confident. A perfect state to compete
Sarah Trowbridge: To have better control over your thoughts as well as your body, I mean that's a pretty winning combination.
News Anchor: And Sarah is now an assistant rowing coach at Yale. She's a real competitor, and isn't ruling out trying for an Olympic medal in Rio in 2016.
https://www.youtube.com/watch?v=q9Nsm1U0CpY

Psychological Skills Training: Arousal Control: Team Meeting Scipt
First, I want to thank you for your time you've spent taking the assessments and watching the videos I have sent out. You all have spent a lot of time on it, and I appreciate it.
First, I would like to ask you all to think about something…..
Think you yourself how you feel performing at your absolute best…
And now,
Think to yourself how you feel when everything is going wrong..
Our Focus is to make you perform more consistently at your best. In the video you watched the Olympic rower Sarah Trowbridge, was able to focus on her breathing with a sports psychologist. She used an instrument called biofeedback. Biofeedback is an instrument which measures your respiration rate and heart rate variation. Biofeedback can be used to monitor your breathing with the goal to make you aware of the respiration rate that allows you to calm yourself before competition begins. As a result of her working on her breathing technique, Sarah felt more composed before competitions. As a result of her newfound calm state she performed more consistently, and started winning consistently.
Our focus is to have you perform more consistently at your best, and provide you with strategies to help you thrive in any environment.
Today we are going to introduce techniques to control anxiety, but these techniques can also clear your mind, or help you fall asleep.
In sports and in life there is so much chaos outside of our control... Much of the chaos is uncontrollable, and we need to make an effort to control the controllables.
The controllables are all of the little things leading up to our next competition (training, recovery nutrition, race day nutrition, and bike maintenance, all of these things)
The process and process goals we have outlined are also the controllables. However the process is ever expanding. As athletes we have control of our environment by understanding the process.
If we can generate confidence, calmness, and focus in any environment we'll become more successful.
In order to generate confidence, calmness, and focus in any environment we'll need to rely on something we possess that has everlasting stability, and it is also something we have complete control over.
Yes, yes I know what you're thinking… It is a riddle.
So, let me ask you. What is stable within us, it rises... and falls, of which we have complete control over, but often we do this subconsciously? It is our breath.

We are able to manipulate and control our breath, but at the same time our mind allows us to breath with a balance and flow through internal responses automated by our nervous systems. Although it may not seem as if we are in control of our breath, we are in complete control of this function.

Let's start by creating an awareness of your breathe.

Are you a Chest breather or a diaphragmatic or belly breather? In endurance sports belly breathing is incredibly important. Your diaphragm is responsible for expanding and contracting your lungs.

If everyone would, place your hands on your belly at the naval….. With each inhale through your nose, notice if your belly is causing your hands to rise….. If you're breathing,,, and your chest is rising, fix this by making an effort to breathe through your belly which will allows your hands to rise. Breathing through your belly will lower your heart rate and your anxiety.

Close your eyes. Make yourself Comfortable, sit straight up with a strong but relaxed back. Bring your attention to your breath, and become aware of your breath as you inhale through your nose and exhale through your mouth. .

We are going to start by taking a few deep breaths. You'll inhale for 4 seconds, hold the inhale for two seconds, and exhale for 4 seconds. Try to time your breath to take in or out as much air as possible at the end of the count

When I say "inhale", let's begin by, consciously letting our belly expand,

Inhale through your nose for four seconds,

2, 3, 4.

Hold for two counts

Hold, hold

Exhale through your mouth for four seconds,

2, 3, 4.

Inhale through your nose for four seconds,

2, 3, 4.

Hold, hold

Exhale through your mouth for four seconds,

2, 3, 4.

Inhale through your nose for five seconds,

2, 3, 4, 5

Hold, hold

Exhale through your mouth for five seconds,

2, 3, 4, 5

Last one. Inhale through your nose for six seconds,

2, 3, 4, 5, 6

Hold, hold

Exhale through your mouth for six seconds,

2, 3, 4, 5, 6

If you feel anxiety, nervous, or your heart starts racing use this strategy. And, by focusing on our breath, we are able to come back to a stable environment where we can generate confidence, calmness, and focus while chaos is going on all around.

Our breath is much like the calm in the hurricane's eye of the storm. The chaos surrounding us before competition is to the hurricane waves churning and the winds gusting. But in the eye of the storm there is a slight breeze blowing, and the water is calm and. Confident. Focus on your

breath and you will become more calm and confident.
Hold, hold
Thank you for the time you've spent here together. Taking deep breaths and using this technique can generate a sense of calmness when stress arises. You can use it before public speaking engagements, job interviews, competitions, or before the next time you want to approach that girl or guy you've been too nervous to approach.

Psychological Skills Training: Visualization/Imagery: Introductory Email Script
Hello!
Visualization/Imagery: I'm very excited about this topic. Please check out the videos below. There will be more on this topic later this week :)
Visualization is very powerful. What you see yourself doing in your minds-eye leading up to your performance has a major influence over your actions and behaviors.
Visualization influences your actions by firing your brain's neural pathways. Although your body is not moving during a visualization your brain is sending the same signals to activate your muscles. This is very helpful in criterium racing to practice the technical course at speed in your mind.
Your behaviors can also be heavily influenced by lessening the anxiety, nerves, and your perceived effort. I've worked with one athlete in the past who visualizes how excruciating the pain is during the most challenging point in the race. During the visualization she tells herself "it's supposed to hurt. It hurts because you're going fast." By drastically changing her outlook on her next race, she was able to decrease her anxiety towards an unsuccessful performance, while making a successful performance more attainable.
Understanding how to utilize visualization can have a major impact on your performances. The good news is we can improve upon your visualization skills drastically if we practice deliberately.
Visualisation - Mental Rehearsal
https://www.youtube.com/watch?v=vD06AfbmFlY
Steve Backley OBE | Visualization story for 'In Mind, In Body
https://www.youtube.com/watch?v=aBT5xMJmE74

Psychological Skills Training: Visualization/Imagery: Video Script
Visualisation - Mental Rehearsal
Narrator: It's a learning method called visualization. Rebecca won't have to move a muscle, rather she'll rehearse the entire sequence in her brain. Rebecca stands still and concentrates. She visualizes every stage of the summersault; the moment she releases the bar, the instant she twists her body, and the second she catches the bar, and she does this over and over again.
Rebecca: Visualization does help you when you when you're learning a new move. You can go through it in your brain before you actually have to do it yourself.
Narrator: Scientist have discovered there is a region of the brain that's activated when we imagine our body movement. When Rebecca rehearses the move in her mind, she is creating pathways through her brain cells as if she were actually doing the summersault. All without moving a muscle. It means when she does perform it for real it should be easier, because the pathways are already in place.

Narrator: Will it work? Rebecca has repeatedly visualized each tiny twist and turn of the summersault in her mind. But has she established strong enough pathways to make her body to do it for real.
Rebecca: Each time I do the move it gets better, it becomes more automatic so I can think about it less and think more about what happened on the last one and try to correct it again on the next one. When you start to do it in the competition you do get more nerves. You just have to tell yourself you've done it millions of times and you know how to do it.
Narrator: Visualization helped Rebecca establish new pathways in her mind that enabled her body to complete the summersault. Understanding how to use her mind more effectively, has given Rebecca a real chance of being selected for the Olympic team and winning a medal.
https://www.youtube.com/watch?v=vD06AfbmFlY

Psychological Skills Training: Visualization/Imagery: Video Script
Steve Backley OBE | Visualization story for 'In Mind, In Body
So, my name is Steve Backley. I am a retired javelin thrower and competed at the highest level of sport. Went to 4 Olympic Games, had a wonderful time. But also, learned a lot of skills along the way, and one of which was around the whole aspect of visualization. The concept that you preempt the future by thinking, seeing, and feeling what the future might hold in your mindseye. And I probably did that naturally as an athlete, as a youngster. You know dreamed about the future, and whatever it might hold for me, but then kind of learned some pretty powerful skills along the way and crystallized the concept of visualization to really hone in on the detail. And I had some pretty amazing experiences doing this. One in particular was around the 1996 Olympic Games in Atlanta. Where I had a bit of misfortune in rupturing my achilles tendon just 14 weeks out from the Olympic Games. I woke up in my hospital bed thinking that the games was all over. But I had a great team of people around me. I didn't have all the answers, and was very happy to take input from others. The first of those were my physio, my doctor who did the surgery, and another guy on the scene at that time really helped me. A guy called Paul McKenna, who is a stage hypnotist, but also a wonderful sports psychologist. And he helped me visualize, and by visualize I mean kind of seeing in full color, HD or 3D, in absolute clarity, my perfect throw. And I mean, in absolute clarity. To the point where we broke down the throw to 6.23 seconds. Not 6.24 and not 6.22. It was a matter of getting it absolutely dead on. And we practiced it, and when I first started I was okay, but I realized I was improving it by practice. Which is a bit of an insight itself. And before long I was able to get that down to plus or minus one one-hundredth of a second. Which amazed me. And then, I had this quite weird opportunity, well opportunity… I am overselling it now. I had the difficult situation of getting ready for the Olympic Games without any physical preparations. I wasn't able to go do the sprinting, the jumping, the throwing, the power work or the strength work that a javelin thrower would need to do. What I did is I would lie on the high jump mat when the other guys were warming up and I would visualize. And I remember them looking at me thinking that "what's he doing? What's he doing?" And literally what I was doing was seeing that throw over and over again in my minds-eye. And then, as an Olympian in the Olympic Games you get your turn. Your name comes up on the clock, the clock starts, and you get one minute to deliver your throw. And I remember standing in that first round of the Olympic Games, and I would be wrong to say that I was full of "Yes and this is going to work, I visualize, and I've got Paul McKenna on my side." There was an element that was part of me that said "Really? Is that, is that going to work? Are you sure?" And, I guess my mind was

what it was, it questioned. But, it also it answered by saying "What other Options do you got?" And, really what else can you do other than visualize and make it as clear as possible. And now is the time. And, I remember the blinkers kind of coming on, and zoning into that perfect feeling of the perfect throw. And the feeling is key for me. And a little mantra that Paul taught me was first of all to 'see it' in my minds-eye. Then turn that into a 'feeling', and that was a really important step. I had to feel that. And again the last one was probably more important again. And that was to 'trust it'. "See it, feel it, trust it" became the daily mantra prior, but also at that moment of the pressure of the first round of the Olympic Games. I'll never forget, I pressed the go button, and it was almost like my body knew what to do. It knew, it almost took over. It fell into the exact position, the exact rhythm, with the exact timing, the exact balance and coordination. All those minor details that I preempted in my minds-eye. It did it for me. And, the javelin jumped out of my hand, and amazingly it was leading the Olympic Games. It wasn't enough to win. I was pleased just to be there, but it was enough to come away with a silver medal. And, you know I had a lot of experience as an athlete; world records, gold medals, European Champions, and so on. But that silver medal at that Olympic Games, I know look back on and realize it was probably my best achievement. And also, it was a wonderful experience to kind of understand that it was other people. It was about taking on a new skill. Taking ownership of it, and testing it to the absolute maximum. So, I am very thankful to be taught it, shown it, learned it, and delivered using it.

The great news about visualization is that anyone can do it. You don't need anything. It's free. And I Guess that the other great new that the worst thing that could happen is nothing. It's a great place to start. It's not going to have a negative impact. It can only have a positive one. And I guess it comes down to how much we trust it, how much we can buy into it, and completely immerse ourselves in seeing whatever we chose to see. And if we completely immerse ourselves, and buy into that, whoever we are, whatever our circumstances we can possibly get to the next rung on the ladder, and that's a great place to be.

https://www.youtube.com/watch?v=aBT5xMJmE74

Psychological Skills Training: Motivation: Introductory Email Script

Good Morning!

I wanted to share a quick message with all of you this morning:

Cal Ripken Jr. holds the record for most games played in a row in Major League Baseball, and holds many other baseball stats record due to his ability to show up and play the game. When interviewed by Bob Costas he asked Ripken "was ever a time… (where) you said I just don't feel like playing today."

"There were a lot of those moments where you thought wouldn't it be nice that I wouldn't have to play today. And then there is sort of a guilt feeling where you are doing something wrong. You push a little further, and say let's see what happens. And, normally when you say we'll see what happens, lets' go out, something good would happen. And that's what I associated, when you felt the worst, I always associated that good things were on the horizon. And, by and large they happen that way. So, I thought it was a good indication that the worse I felt, that I was going to have a good game, and a lot of times I did."

Persistence and consistency are key, and are critical components in the process to becoming successful. You may feel bad, you may feel tired, and you may not feel like doing the hard work out, but persist, persist, and persist again. And you will take yourself to the next level.
During a race you may be struggling, you may be fighting to hang on to the wheel in front of you, but just push a little further, and a little further and you may be surprised what YOU are capable of :) The process will take you there. Love the process!
Eric Thomas- Blueprint to Success Cal Ripken
https://www.youtube.com/watch?v=J2LhkKRvQyA

Psychological Skills Training: Motivation: Video Script
Eric Thomas- Blueprint To Success Cal Ripken
Eric Thomas: So my final one, give me my guys name. Cal Ripken, can you raise your hand if you've ever heard the name before. Alright, so this is what I want you to do. My older guys got to help me out, I think it's somewhere between 2139 games, I think I'm real close, If I aint on that. Two-thousand-one-hundred-thirty-nine. What does that mean? He showed up! He showed up! And played how many games? Two-thousand-one-hundred-thirty-nine games he showed up. You better catch that! He was considered one of the best in the game because he did what? He showed up! Now, I am here to tell you. You show up to that many games, and that's the beautiful thing about this sport, you gotta grind! This aint football baby! Football you get Sunday, I'll see you next Sunday. This is every single day, and sometimes they ask you to do two. Right, it's a whole 'nother level. You gotta grind! He came every day to grind. Now watch me, you come up on a regular basis and you playing, you gotta life, some stuff happens, some stuff happens with my man. Someone in his family died, I'm sure him and his wife had some challenges, his son got sick. Right, I'm sure there was a lot that happened in those 2139 games.

Bob Costas: "Was there ever a time maybe you weren't hurt, it's late in the season maybe, your team is out of the pennant race, it's a day game after a night game on the road. For whatever reason you didn't sleep the night before, aches and pains, you come to the ballpark tired and you say you know what I just don't feel like playing baseball today.
Cal Ripken: "There were a lot of those moments that you thought wouldn't it be nice that I wouldn't have to play today. And then there is sort of a guilt feeling that starts to come over that you are doing something wrong. Then you push a little further, and say let's see what happens. And, normally when you say we'll see what happens, lets' go out, something good would happen. And that's what I associated, when you felt the worst, I always associated that good things were on the horizon. And, by and large they happen that way. So, I thought it was a good indication that the worse I felt, that I was going to have a good game, and a lot of times I did."
Eric Thomas: But he showed up he did what? Oh yawl got to talk to me. He did what? He showed up to every single game, and that's what I need you to do for me in life! I'm not the best. ET is a high school dropout. I was homeless for 2 and a half years out for two and a half years I slept in abandoned buildings. I slept in cars. I'm not the best. I' not the brightest. It took me 12 years to get a four-year degree, and I'm running circles around the dude who graduated from Michigan State as summa cum laude. You know that guy that they pumped up. He was the smartest dude at Michigan State. I don't know what he's doing right now. He might be working for some fortune 500 company clocking in every day. I'm making ten to fifteen grand. Getting better and better every day. We wrote a book, and we sold five or six-thousand copies in less than

six months, and we just ordered ten thousand more. Fortune 500 company just bought two thousand.
I'm not the smartest. But you will not outwork me. I wake up every morning at 3:00 A.M. We got home from the University of Cincinnati at 2:45. I still didn't go to bed. At 3:00 I went on my walk, my hour and a half walk with God. Came back in, did some work. Are you hearing me? You might be smarter, your family might come from privilege, your daddy might own a company, but you will not outwork me! You will not have more drive than I have! More passion than I have. And I'll beat you every single day, because I got passion. You will not wake up in the morning because you're spoiled. You will not get up before 8:00! You will not get up before 6:00! I will out rep you! Every push up! Every day I'm going. I'm doing more and more each day. I'm trying to do them until I can't do them no more. I'm doing sit-ups every day. I will out work you.
And I'm telling you go out there, and like Kyle, you show up. They can't out work you. If you win 7-0 they can't out work you. But you know what happens? You start doing well, and guess what you start doing? Miami Dolphins call me, and people say E you're about to go speak to the Dolphins. The Colts just called me. Prince Fielder himself had his people call. He wants me to come there next week work with him. When he called me people said "E how do you feel about it?", and I said "I'm more hungry than I've ever been before." I am upset that the tigers called me. I am trying to get the whole American league. I just don't want to talk to one team. I wanted that whole side to call, right? And, saying we want to beat the National League this year, and what can you do to help us? The Dolphins called, I don't want the Dolphins, I want the whole NFL. And because I taste it, one team, it lets me know, because one team wants me to speak, and I know that others want me to speak as well. Now I'm hungry!
https://www.youtube.com/watch?v=J2LhkKRvQyA

Psychological Skills Training: Team meeting: Introduction to Mindfulness: Meeting Script
Tonight, one of psychological skills I would like to introduce to all of you is a concept called mindfulness. Have any of you ever heard of mindfulness? Mindfulness is an awareness, awareness of your breath, which we have talked about. Really all you need to know is that it's awareness of being in the moment, and perpetuating that moment and always being there, and not necessarily directing it, but to actually being. They call this Non-doing.
At the last meeting I asked you guys to think about your optimal performance. I want you guys to go back to that, and think about that for a second. When you're in that zone, or whatever you want to call it. Whether it was in cycling or any other performance that you're doing. They call that state that you're in zone, a flow state of optimal performance. How do we achieve that, how do we get, how do we stay there, and how do we live in that moment.

We get there by being fully present, and being fully aware. We think back to the optimal performance, and think back to the best race of the year. You're in that zone, and you get distracted, and you see someone you know, and you're thinking about them. But then you come right back, and you're right back in that zone, and it doesn't distract you. When you're racing you look over and someone takes you out of the moment when you're in a turn, but you know exactly what to do in that moment. And how do we achieve that, and how do we perpetuate that? It's just by practicing mindfulness.

Essentially mindfulness is being in the zone, and the more we can practice being mindful, the more we can be in the zone, and the more we can actually experience optimal performances. I like to think of it as if you're on the group ride or if you're in the race, and someone is going for an attack, and you just go with him or her, and you don't think about it. Reacting in the moment, rather than hesitant thinking, over thinking and analyzing.

I wanted to do something for all of you, and part of mindfulness incorporates a body scan. In the previous weeks we've worked on breathing techniques, and similarly during the body scan you'll be thinking about different parts of your body. I would like all of you to put your feet flat on the ground, and take a minute to take yourself away from your cell phones if that distracts you. We don't want interruptions during this time. Put your hands relaxed or down at your sides, wherever you need them.

Close your eyes gently, very slowly, and draw awareness to your breath. Take a few deep breaths. Take a moment, and become aware of your breath… And the sensations in your body… If there's any tightness just let it go. Bring your awareness to your physical sensations, especially the sensations of touch, pressure, where your body makes contact to the chair, and your feet at the ground. Remind yourself this is an intentional practice. You're not supposed to feel any more relaxed. It may happen but it may not. Focus on the practice as best you can. Bring an awareness and sensation to each part of your body that is making contact. Take a deep breath, and feel the physical sensation of the lower abdomen. Become aware of the changing patterns, in the abdominal wall as you're breathing. Take a deep breath in, and out. Take a moment to feel the sensation of the breath again. Bring your attention and bring awareness down the left leg into the left foot, out to the toes of the left foot, focus on each of the toes. And in turn notice a sense of contact between each of the toes. A sense of tingling, warmth, and no particular sensation. When you're ready feel or imagine the breath entering in your lungs and going down to your left leg into your foot, and breathe out. Imagine your breath come all the way up your left foot and left leg into your abdomen. Do this with the right leg. Take a deep breath and imagine the breath going down your right leg into your right foot. As you exhale breathe the sensation out of your right foot and right leg. Practice this one more time. And when you're ready let go of your toes and bring an awareness to the bottom of your left foot. Bring an awareness to the sole of your foot, the heal, and the sensation where the heal makes contact. Being aware of the breath in the background. Allow the awareness to expand to the rest of your foot to the ankle, to the top, right into the ball of the sole. Take a slightly deeper breath, directing it down your whole right leg into your foot, into you calf, into your shin, and into your knee. And do the same for the left foot. Take a deep breath and imagine sensation go all the way down your right leg, right calf, and right shin, ankle, toe. When you become aware of tension in any part of your body, breathe into that tension. If it's in your neck, breathe into the tension in your neck, and allow that tension to go. Your mind will inevitably wonder, come back. Acknowledge it, and let that come back to the moment focus on your breath. Become aware of the body as a whole and your breath flowing freely in and out of the body. Take a deep breath, and before opening your eyes recognize this is a practice that can be done anytime of the day or when you're training or even when you're racing.

This is one of the things you can do when you're on your bike, and thinking back to when you're experiencing tension during the race you can come back to the moment. You can actually perceive pain as less, when you can think about your legs as a whole and breathing and being in that moment. You're not thinking of other things as your mind is wandering, coming back to that

zone, and being in that state of mind where everything is clear. It's going to be a lot easier with everything you do.

Teasdale, J., & Williams, J. (2013). The Mindful Way Workbook an 8-Week Program to Free Yourself from Depression and Emotional Distress. New York: Guilford Publications.

https://www.youtube.com/watch?v=xqjXROdSTNI

Psychological Skills Training: Self-talk: Email & Video Script

Email Introduction to Self-talk:

Hello! I made this video for everyone in order to introduce self-talk :) The video explains how we can drastically be influenced by our self-talk, and how you can utilize strategies to influence your self-talk.

Provide an example of how you have become more aware of your self-talk and have made a change to influence your negative self-talk to become positive.

As always please let me know when you have watched the video. Thank you!

https://www.youtube.com/watch?v=77r9_CfRbzA

Psychological Skills Training: Self-Talk

Hey guys! We are going to introduce another psychological skill today. Self-talk, what is it? What are you talking about? I talk to myself all the time. It's this internal dialogue, this constant rapport that we have. And, everyone does it but we have to recognize it, and listen to it. That's the biggest key in self-talk is really paying attention to what we are saying to have influence over us. Influence over our thoughts, and our feelings. Do you have thoughts of positive or negative self-talk? Positive self-talk would be "man it's Monday, I'm ready. We are going to go, and we are going to get ready for the week, and just nail it" Or do you have thoughts of "man its Monday, I'm tired, raced all weekend, I have to go to class." Get that out of your head, but how do you do that? How do you change those thoughts?

Before we get into that, I want to give you some more examples positive and negative self-talk. More positive self-talk would be "I am going to go for it, I am going go for it, I am going to get in the break today, I am going to tackle anything, I am going to chase it down today, and we're going to go. It doesn't matter who it is, where it is, up a hill, down a hill through a hill.

What's negative self-talk? Negative self-talk is "man I don't know if I can do that. That's though, he's here today, he's fast, and he's good. What if I can't do it? How do I do it?" These are all things that get us down, and bring us down further. We have to be in control of this. And, I realize it's hard to be positive all of the time, because sometimes we are so critical of our mistakes as athletes. And as athletes you are very hard on yourselves, but watch what you are saying to yourself because if you're saying these negative things all the time like "I am just terrible at sprinting, I just can't sprint at all." If you keep saying that to yourself, you keep saying that, and it is just going to keep affecting it and keep affecting it. Or if you say "I can't climb, there is a hill there, it doesn't matter I can't go up it." That mindset is going to be influenced, and we just have to reverse that. How do we reverse it? We have a positive outlook on it. There is a hill today. I am going to position myself in a way that I know I can get up the hill. I am going to make it up the hill today. Or "I am going to be in the sprint, I am going to follow wheels, I know exactly what I am going to do."

How do we come up with this, how do we change this, and how do we control it? First, I want you to recognize that thoughts become feelings, and the thoughts that we have that become feelings, become actions. And you might say to yourself, that's a weird concept, where are you getting this from? It makes sense when you think about it. Because the thought that you have influences how you feel, so if you think I can't sprint, you feel that you cannot sprint, you're not going to be in that mindset, and you are going to get this I can't spring mentality, and you go into the sprint, and you can't sprint. But if you say I am going to sprint today, you feel that you can sprint today, and it comes back with I am sprinting, and I am going. The same thing applies to the hill. I am going to get up the hill today, you have that thought, and it becomes a feeling, and it really takes action, and then it becomes this action. But, how do we control that? How do we make this reversal from this negative to this positive? And, so much when it is hurting really bad in cycling, we get constantly get down on ourselves. We have these thoughts of this really hurts, this is hard, or what do we do? I have said this before, and I know we have practiced breathing techniques a lot, but it all comes back to breathing. We have a control system, and we can filter it through this control system. So our breath is our filter, think of it as that way. We can take these negative thoughts, and when we have negative thoughts we can take a deep breath and come into the moment. And be calm, be present, and be mindful. And, then you can think more clearly when you are calm. And you have these positive outlooks that are essential for success in those situations. As we know the smaller the success the greater successes we have in the future. So if we keep attaining small success, these small minute changes over time they lead to great grand success. Success in whatever, in cycling, in relationships, in school, in work, and anything across the board. We can have an influence, and no matter what, and how bad it is you just have to tell yourself "I am going to make it." You have to have that mindset, you have to have that reality, and just accept it.
https://www.youtube.com/watch?v=77r9_CfRbzA

Psychological Skills Training: Motivation Video & Email Script
Email Script:
Nice job to everyone who raced in Michigan, Texas, Alabama, and California! Here is a great video that depicts how powerful and influential self-talk and positive affirmations can be on your actions. Enjoy! :)
"Think about what you're thinking about, when your effort is low."-Eric Thomas
https://www.youtube.com/watch?v=AjZ0KbJcav0

BELIEVE IN YOURSELF - Motivational Video (ft. Jaret Grossman & Eric Thomas) Script:
Your brain is like a circuit switch. Once you believe you are something, you actually embody it. You embody that feeling. If you were God forbid in a coma, and you woke up, and you really didn't have a memory. And you were told that you used to be a Navy Seal, and they want you back now when you're healthy. Do you think you would act differently, and hold yourself differently, conduct yourself differently, have a different self-concept of who you are, than if you were told that you were a piano instructor. Being successful in life is all about having the proper belief system in who you are, and truly believing that you are something unique, that you are something special in that field. If you truly believe inside of you that you are one of the best actors in the world, you will be entirely different, than if you're like I hope I am good. Your expressions will be totally different, your tone of voice, you'll talk in a more convincing fashion.

You use your natural voice instead of a scripted one, you'll be more emphatic, and you'll be more real, more relatable. Our brain is like a circuit, and so if we introduce it with the proper wiring you're going to go straight to your target. If you're unsure about who you are, then your dreams, your goals, they will never become a reality.
Everyone has mental doubts in life, internal conflicts. Even the most successful people that you look up to, but they don't live there, its how you handle those negative thoughts in that exact moment, and overwhelm them with positive action, and that comes with this utmost confidence in yourself that you can handle the situation, trust in yourself that you are better than the moment.
The greats think differently, the greats see differently. Right. The greats have a different worldview the greats approach the game in a totally different way. So I need you to do me a huge favor. I need you to think about, what you're thinking about when your effort is low. Because if you can get this, if you can get this, you can get any success you want in life. You can have anything you want in life if you can get this. The next time you give a low effort, right. You give a 70 percent, or 50 percent, or 30 percent. I want you to think about, what you're thinking about when your effort is low. If your effort is low, you're probably not thinking about the opportunity, you're probably thinking about the obligation. And when you think about: ET, how do you stay pumped up? ET, how do you stay on fire? ET, How are you always driven? Even in the midst of trials and tribulations, even in the midst of your hatters of people trying to break you, and tear you down. ET, how do you stay strong? I keep thinking about the opportunity, every single day. I am thinking about the opportunity, and I am not looking at this thing as an obligation. I am not looking at this thing as something I have to do. Or that I am forced to do, something that someone is making me do. Every time I wake up, I am thinking I am alive baby! This is the day! This is an opportunity! If you want what you you've never had before. If you want to do what you've never done before, if you want to be what you've never been before, change your mentality! And I want you to see that effort goes up when you look at it as I have an opportunity of a lifetime. But you should be excited about the fact that you have an opportunity.
https://www.youtube.com/watch?v=AjZ0KbJcav0

Psychological Skills Training: Confidence: Email Script
Hello!
Our next psychological skill is Confidence. Self-confidence can only be developed by you, your-SELF. Check out the video, and like always, please let me know when you watched it. (100 points, there will be a giveaway prize at tonight's meeting.)300 points- Give an example of how you have developed an awareness for your self-talk, and shifted it towards a positive self-talk to consequently increase your self-confidence.
Thanks :)
Psychological Skills Training: Confidence
https://www.youtube.com/watch?v=HvFWBpQWhR4

Psychological Skills Training: Confidence: Video Script
Psychological Skills Training: Confidence
Our next psychological skill is self-confidence. If we can understand how confidence works we can unlock hidden potential in our abilities. Confidence isn't that complicated.

There is often a misunderstanding that comes from the idea that confidence is built upon by our past successes. But it actually comes from what we say to ourselves, and this is where that self-confidence is generated. Yourself. It is the interpretation of yourself is actually where self-confidence comes from. Self, self-talk, and it's through us that we are able to develop this. So it is through that internal dialogue, through that self-confidence, and it's all dependent on how you look at or interpret everything going on around you.

For example, if someone comes up to you and says "hey, you look great! You have really been putting the time in this year, this is awesome! You're great!"

Someone with a positive interpretation of themselves will think, you know what they're right I do look good, and I have been putting the time in. And their self-confidence sky rockets.

But if that same person says the same thing, and he says

"Hey, you look great! You have really been putting the time in this year, and it really shows!

And you think what the heck is he talking about, I feel like crap, and I look terrible. This makes your self-confidence spiral downward.

Think about that, those two different interpretations of that very simple positive affirmation that someone giving us. But if we look at it as a positive and a negative, and though that interpretation, and that's how we build that self-confidence is through those interpretations of ourselves.

When we take part in self-talk we are doing one of two things, we are either building self-confidence through those interpretations of our self-talk or wrecking our self-confidence.

Becoming aware of our inner dialogue is so critical. To grow and develop as individuals we need to be mindful of our thoughts and what we are saying or thinking to ourselves before, during and after our races.

Okay great we have created an awareness but how do we shift our thoughts to positive?

We develop credibility. You have to do the work. You have to do the work. We train, train and train. You do every single workout on your training plan, you give 100% and more during your efforts, and you do all the little things with recovery and nutrition… you know those process goals we talked about. Once you have developed this credibility, you'll know you have done everything in your power to get yourself ready.

Trust your training. You have to. You have done the preparation, the work, the day in day out hard work to get you to this point. Now go out there and get something from it. Be confident, be ready, because you are ready.

https://www.youtube.com/watch?v=HvFWBpQWhR4

Psychological Skills Training: Confidence: Email Script

Confidence Email:

Good morning!

In order to be more confident you must embrace confidence or "fake it until you become it."

How do you embrace confidence in any situation or environment?

Amy Cuddy, a Harvard social psychologist discusses how in this short 5 minute video.

Game Changer: Amy Cuddy, Power Pose

https://www.youtube.com/watch?v=zmR2A9TnIso

Game Changer: Amy Cuddy, Power Pose Script:

Power is expressed through these highly specific evolved non-verbal displays. I think it is interesting to look at images of Obama where he will be leaned back with his feet up on his desk. And, you know really spread out when he is sort of in his own space. Powerlessness, on the other hand is expressed through very opposite non-verbal displays. One that comes to mind is an image on Michelle Obama on the cover of Vogue. Where she is all sort of crossed up and making herself really small, which to me doesn't even fit her. It doesn't suit her.

I'm Amy Cuddy, and I am a social psychologist and professor at Harvard Business School. My main collaborator in this research Dana Carney and I were having a conversation after teaching MBA students at two different schools. One of the things that we noticed was that the students who were participating a lot had different body language than the students who were not participating a lot. Who tended to be women and nonwhite men, what we were really interested in knowing was whether or not you could change their body language and actually changed the way they felt and behaved. Testosterone is known as the dominance hormone. It's associated with confidence and assertiveness. Cortisol on the other hand is known as the stress hormone, and that is associated with an inability to adapt in highly stressful situations. People looking at primate hierarchies notice that one member of the hierarchy becomes more powerful within a short period of time that member's testosterone level rises, and his cortisol level drops. So we started wondering if you pose as if you have power will your body and your mind change in a way that looks as you have power. So in short we were really asking can you fake it until you make it?

So to test the predictions we had people come into the lab we took a saliva sample to get their baseline hormone levels. After that we randomly assigned them to one of two conditions. It was a high power pose condition or a low power pose condition. So what we found after just two minutes of high power posing or low power posing you get these changes in testosterone, cortisol, and risk taking behavior in ways that are consistent with actually having power in the real world. The lab is set up for psychophysiological studies so we are measuring things like heart and respiratory rate in addition to the hormone measures. What we know is that sitting or standing in these high power poses causes these changes that are consistent with having power. What we want to know now is how far does that go outside the lab? What can you do with that? Where can you take that?

What we were interested in was not turning Gordon Geckos into bigger Gordon Geckos. What we were interested in were these students who were sitting quietly, even if they were really smart, but they were lacking the confidence to really get in there. And we knew that would be a problem for them not only in the classroom but after they leave school in job interviews, leading team meetings, just sort of in life in general. If you think about what people are doing before a job interview, what you picture probably is someone sitting in a chair hunching over their iPhone or Blackberry. They're making themselves small. What we are finding so far, and this is ongoing research is that people who sit or stand in these high power poses for just a couple of minutes they are evaluated more positively overall. And they are more likely to get the job. People started asking us are you recommending that we just, you know put our feet up on our desk, and our hands behind our head when we're in a job interview? We were not recommending any of those things. This was not about what you do during the interaction, this is what you do before the interaction. They should be finding the space even if it is a bathroom stall to expand and make themselves as big as possible. Walk up and down the hallway swinging your arms, stand on your toes. I've heard from a world class violinist, who know power poses before he performs and says it's dramatically improved his performances. I've heard from an older person, a retiree, who uses

power poses before she goes in to talk to her doctor. I can't believe the range of applications. I am learning so much. When I was 19, I was in a really bad car accident and had a very serious brain injury. I had doctors telling me you probably aren't going to finish college. The neuropsych testing was suggesting the same thing that I had lost IQ points, a significant percentage of my IQ points, and I finally decided that the doctors were wrong. I didn't have to accept things as they appeared to be. So I think it is that same irrational, stubborn and optimist in me that lead me to believe that you could make this kind of change. This is a really tiny tweak, something so small that you can change and get a pretty big effect. You know we don't know how long it lasts but it is a pretty big effect. What are the other tiny tweaks that you can make that can change and improve your life, and other people's lives.
https://www.youtube.com/watch?v=zmR2A9TnIso

Psychological Skills Training: Focus: Email Script
Focusing is a decision, and Dr. Michael Gervais explains how refocusing is a skill. Being focused brings others a presence of you being 100% presently with them. We can learn to be present and train our thoughts not to wonder, and training to refocus can have tremendous impacts on your performances. Meditation and Mindfulness practices are based on this principle. When your mind begins to wonder, draw an awareness to your wandering mind, refocus, and come back to the moment.
Skill: Refocus: When we are focused and our minds begin to wonder, we then become aware of our wandering mind, and refocus on the task to remain focused. Develop an awareness of your wandering mind and you will become more focused.
https://www.youtube.com/watch?v=hwycUri4Mn4&index=13&list=PLvuj4IAWmJGFJLjT6rlk5 1rX-Ugp5K6iD (1:32)

Psychological Skills Training: Focus: Video Script
Focusing is a Decision
Focusing is a decision, and once we ask people to focus its pretty simple. Now the challenge is helping them guide their own mind or having them understand where to guide their own mind. To focus on the right thing in the right way at the right time, and that's part of this formula. Now, if focusing is a decision, what's the skill behind it? It's pretty simple. It's refocusing. Our minds are always wandering. It's the nature of how our minds work. They wander from idea, to distraction, to element in the environment. They're always moving so it's really challenging to get our minds to become still. But refocusing is the skill. Okay, so how do you do it? As soon as you notice you're off that you are thinking of something that is not powerful or taking you in the wrong direction. It's very simple, you just have the awareness of your own activity of your mind. And that's really something that is critical this, the foundation of having mental skills and mental abilities is that you can see, you can observe and watch the activity of your own mind. And if you don't like how it's going you refocus back to something that you do like. Now what will happen is that your mind will probably wander again quickly and this is why the art of meditation, the art of imagery, the art of becoming aware of your own dialogue is at the center of what we are doing. And, that is the skill of being able to refocus.
https://www.youtube.com/watch?v=hwycUri4Mn4&index=13&list=PLvuj4IAWmJGFJLjT6rlk5

1rX-Ugp5K6iD

Psychological Skills Training: Flow: Email & Video Script:

Email Script:

Psychological Skills Training: Flow: The state of optimal concentration or "in the zone." Using techniques such as visualizing where you are going, generating confidence, using mindfulness meditation to generate calmness, and refocus are all tools to enhance your ability to control flow. Psychological skills have infinite growth, and understanding this allows us to grow and be our very best, and ultimately we will experience flow.

"We call this experience flow because the sensation for it is that every action, every decision leads seamlessly fluidly to the next. And technically defined as a state of consciousness where we feel our best and perform our best"

"You're in a state of absolute awareness without any effort."

In the two short videos below athletes explain their flow experiences (Featuring many Red Bull Extreme Sport Athletes).

Go back to a race where you had the flow state you've experienced and recount what it felt like.

Flow 101: 5 of the World's Best Athletes Reveal the Secrets of the Zone

How Far Will You Go for Greatness? - The Dark Side of Flow | Rise of Superman

Flow 101: 5 of the World's Best Athletes Reveal the Secrets of the Zone

Mike Horn: You have about an inch in between you that is life,

Travis Rice: And then you see the valley floor thousands of feet below you. I was sliding out of control, I was going towards the crowd.

Dean Potter: I can remember still what the rock looked like right when I grabbed the rope, the shine of the rope. Something in me knew I was maybe going to die right then.

Chase Jarvis: You're in a state of absolute awareness without any effort.

Danny Way: it is definitely the highest form of concentration I have ever experienced.

Steven Kotler: And I am just perceiving things much more clearly, much more slowed down than normal.

Robbie Maddison: It's when you are fully in sync, when you are making perfect decisions.

Jimmy Chin: Pretty much everything falls away.

Danny Way: It's a superior form of consciousness.

Travis Rice: It's basically where life makes sense.

Steven Kotler: We can use the action and adventure sport athletes as case studies, and we can apply this knowledge across all demands of society.

Steven Kotler: We call this experience flow. Because it is the sensation is that every action, every decision, leads seamlessly, fluidly to the next and is technically defined as a state of consciousness where we feel our best, and we perform our best.

Travis Rice: You have to find a state of mind where you're able to make fast decisions that you aren't even aware that you're making.

Steven Kotler: Pattern Recognition, future prediction, information processing these skills are massively amplified. So flow heightens an electrical performance, it heightens creative performance, it heightens physical performance.

Jimmy Chin: A lot of athletes that I work with basically wouldn't feel like they were alive if they didn't have it.

Dean Potter: It's the only reason I am putting myself in harm's way is for the heightened awareness.
Danny Way: It's hard to put words to it, but it's addictive. And that is what drives me to come back and do it again.
Steven Kotler: Every action, every decision, leads seamlessly, fluidly to the next.
Danny Way: Being able to take those steps, slow them down, watch the video tape in your head, and once you have connected all of the dots, pushed the play button, and it speeds back up, and then you roll it away.
Steven Kotler: Time delay. Sometimes it slows down, like in a car crash you get that freeze frame effect. Sometimes it speeds up and 5 hours pass by in five minutes.
Mike Horn: The moment that everything slows down is that perfect moment of flow, and nothing is rushed. Because a second is a hell of a long time.
Chase Jarvis: I think everyone has tapped into flow at some point in their life. That time where time stood still yet everything happened with infinite clarity.
Travis Rice: That is the best part. Kind of letting go and seeing where it takes you. Knowing that you have the capability to make those decisions, but kind of letting it happen.
Jimmy Chin: When it becomes your purpose, some people are going to get it, some people won't.
Steven Kotler: So the question is at The Rise of Superman is what the hell is going on? Where is this coming from? And the answer is that these athletes have become better at hacking the state of flow than anybody else in the history of the world.
https://www.youtube.com/watch?v=aiechBcdYhg

How Far Will You Go for Greatness? - The Dark Side of Flow | Rise of Superman
Mike Horn: When I wanted to become the first person in the world to circumnavigate the world following the Arctic Circle, a lot of people said "Mike, the first winter you will not survive because its dark. You'll get depressive, you'll eventually commit suicide." But what people forgot was that, that's where I wanted to be.
Steven Kotler: Flow is the secret to ultimate human performance. But it is a dangerous secret.
Danny Way: After being that focused for that long the chemical release you have is very addictive.
Dean Potter: I went down to Mexico to one of the deepest open air pits in the world. I was really nervous for some reason. Something in me knew I was going to maybe die right then. But I jumped anyways.
Steven Kotler: The state feels like the meaning of life for a good reason. The neurochemicals that underpin flow are among the most addictive on earth. Flow is essentially cocktails of five of the most potent drugs into one experience.
Jimmy Chin: People who aren't in that space will be like "So, how was your trip?" You don't even go into it, you're like "I guess it was pretty good." And, you talk to other people who have been there and they know exactly why your eyes are glazed over.
Dean Potter: I was basically falling to my death and I grabbed ahold of this orange rope, about 300 feet before the cave's floor, and I managed to stop myself in free fall on a rope.
Steven Kotler: Because of the neurochemicals involved people will continuously seek it out, even at great personal expense to themselves.
Travis Rice: I was standing on a cornice, which basically snapped next to me. And, the thing was so big that when it peeled away, I got sucked in behind it. Realizing that there was big ice chunks

coming down, and trying to dig my board in, and I ended ups actually buried about to my neck. It wasn't until a couple of minutes later until the real reality of what had happened kind of came in.
Steven Kotler: After all of those neurochemicals have drained out it takes a little while for them to replenish, so on the backend of flow state people come from this crazy amazing high down to this very deep low.
Dean Potter: I can barely string sentences together, I become stupid. I guess clinically depressed.
Jimmy Chin: The rewards, whether that's chemically in your body or what it does for your life, or what it does for your career. You know, there are a lot of rewards to attaining the flow state.
Steven Kotler: Flow is built around autonomy, mastery, and purpose. These are three of the most powerful intrinsic motivators. This is a dangerous edge to walk.
Dean Potter: This year 20 something wing-suiters all lost their lives. Dying is not worth it. I have been struggling with that a lot.
Jimmy Chin: If you cross the line, it's unacceptable, because you should be able to manage that risk.
Dean Potter: I don't want to be that guy who got lucky, and I have been that guy who got lucky for a lot of years. I want to be that guy who is such a wizard of strategy, and knows myself, and I am comfortable enough to say "Nah, I'm not going. I want to live."
https://www.youtube.com/watch?v=qjSbgQ46GjE

Psychological Skills Training: Optimal Performance: Email Script
Last week we introduced flow, a state where you are engulfed in the process of an activity and your focus is on overdrive, and in this video high performance psychologist Dr. Michael Gervais explains how moments of mastery or flow are in abundance in our everyday lives. Our goal is for you to recognize the "golden moments" or opportunities to experience growth and development towards mastery in your lives. Being familiar with and understanding moments of mastery and celebration can take the pressure off of the "big" moments we have in our lives if we prepare to be great often.
This video explains how we can familiarize ourselves with being successful.
Dr. Michael Gervais on the golden moment
https://www.youtube.com/watch?v=sNWKgQpJV3s

Psychological Skills Training: Optimal Performance: Video Script
Dr. Michael Gervais on the golden moment: Michael Gervais on the golden moment. Script

Interviewer: Gold medal match, when you're watching no they're on the verge of winning their third straight gold medal, what was like for you when they clinched it?
Michael Gervais: That's a great question. It's a great moment and it's to soak that moment in. And it's a reflection of all the work that's going in on the day in and day out basis, where they're fighting and competing to figure out how to be good and great. And, to be a high quality person along the way and so to see that unfolding to be part of that energy and to see the joy, and feel the joy: to be part of that as well I mean this is why we get to do and pursue self-mastery. It's because the joy about moment is great and as a greater joy I want to take a minute share; which is that moment is really not fundamentally different than any moment where we're celebrating

mastery and that can happen today. It can happen and in a big moment if you will on the Olympics but it can happen every day we're trying to figure something out. And we get it. And we learn, and we stumble and we fall, and we learn, and we stumble and we fall. And then we finally kind of work towards mastery. That's a celebration in of itself. And so, the moments great and to build experiences along the way as many as we can that's the real gem. That's what we want to do.
https://www.youtube.com/watch?v=sNWKgQpJV3s

Diaphragmatic Box breathing
Lie down on your back, and when you're ready, go ahead and close your eyes, We are going to start by taking a few deep breaths.... Now we are going to focus our breathing… You'll inhale for 4 seconds, hold the inhale for two seconds, and exhale for 4 seconds. Try to time your breath to take in or out as much air as possible at the end of the count When I say "inhale", let's begin by, consciously letting our belly expand;
Inhale through your nose for four seconds,
2, 3, 4.
Hold for two counts,
Hold, hold.
Exhale through your mouth for four seconds,
2, 3, 4.
Inhale through your nose for four seconds,
2, 3, 4.
Hold for two counts,
Hold, hold,
Exhale through your mouth for four seconds,
2, 3, 4.
Inhale through your nose for five seconds,
2, 3, 4, 5.
Hold for two counts,
Hold, hold,
Exhale through your mouth for five seconds,
2, 3, 4, 5.
Last one. Inhale through your nose for six seconds,
2, 3, 4, 5, 6.
Hold for two counts,
Hold, hold,
Exhale through your mouth for six seconds,
2, 3, 4, 5, 6.

Progressive muscle relaxation (PMR):
The progressive muscle relaxation script is an excerpt from Applied Sport Psychology: Personal Growth to Peak Performance (Williams, 2006, pp. 293-294).

"Sit or lie down in a comfortable position and try to put yourself in a relaxed state. Close your eyes and take a long, slow, deep breath through your nose…then exhale slowly and completely, feeling the tension leaving your body. Take another deep breath…relax as much as possible…remember not to strain to relax. Just let it happen. During the session, try not to move any more than necessary to stay comfortable. Particularly, try not to remove muscles that have already been relaxed.

As we progress through each of 12 muscle groups, you will first tense the muscle group for approximately 5 to 7 seconds and then relax for 20-30 seconds…

Begin with tensing the muscles in the dominant hand and lower arm by making a tight fist and bending your hand back at the wrist…feel the tension in the hand and up into the lower arm…relax by simply letting go of the tension…make another fist…relax. Just let the relaxation happen by stopping the contraction; don't put out any effort…

Next tense the muscles of the dominant upper arm by pushing your elbow down against the floor or back of the chair…feel the tension in the biceps without involving the muscles in the lower arm and hand…release the tension all at once, not gradually. Just let it happen. Let it all 10 go…tense now…release it…relaxation is no more than the absence of tension. [Perform same technique with opposite arm and hand.]

Turn your attention to the muscles in your face. Tense the muscles in your forehead by raising your eyebrows…feel the tension in your forehead and scalp…relax and smooth it out…[tense again]…allow your forehead to become smooth again…

Next squint your eyes very tightly and at the same time pucker your lips and clinch your teeth…feel the tension…relax…let the tension dissolve away…tense again…let all the tension go…your lips may part slightly as your cheeks and jaw relax.

Next tense the muscles of the neck and shoulders by raising your shoulders upward as high as you can while pulling your neck down…relax. Drop your shoulders back down and feel the relaxation spreading…let go more and more…tense…relax.

Next tighten your abdomen as though you expect a punch while simultaneously squeezing the buttocks together…relax, release the tension, let it all drain out…tense again…relax.

Turn your attention to your right leg. Tighten the muscles in your right thigh by simultaneously contracting all the muscles of your thigh…try to localize the tension to only your thigh…relax…tighten the right thigh again…release the tension – just passively let it drain out…

Next flex your ankle as though you are trying to touch your toes to your shin…relax. Simply release the tension…tense again…slowly release all the tension…

Next straighten your legs and point your toes downward…relax deeper and deeper…[tense again]…release all the tension… [Perform same technique with opposite leg and foot.]

Relax all the muscles of your body – let them all go limp. You should be breathing slowly and deeply…you may notice a sensation of warmth and heaviness throughout your body, as though you are sinking deeper and deeper into the chair or floor… Before opening your eyes, take several deep breaths…stretch your arms and legs if you wish. Open your eyes when you are ready."

Relaxation Yoga: Body Scan Script

Mindfulness is about being present. Being fully committed to where you are. Giving an acknowledgment to the thought for being a thought, and knowing your thoughts are not your

identity. Think about when you have thoughts that may destroy the moment, these thoughts turn into feelings which may affect your behavior. Being conscious of your thoughts for only being thoughts, is how we come back into the present moment.

A simplified version of mindfulness: How many times have you unconsciously looked at your cell phone, and you only to find yourself filling your subconscious with a slew of never ending false senses of reality? Our minds are attracted to these types of behaviors because it is easy, and numbing. We can develop an awareness of ourselves thinking about checking our cell phones, and not checking them only to come back to the moment. This is a simplified version of mindfulness.

Close your eyes gently, very very slowly, and draw awareness to your breath. Take a few deep breaths. Take a moment, and become aware of your breath… And the sensations in your body… If there's any tightness just let it go. Bring your awareness to your physical sensations, especially the sensations of touch, pressure, where your body makes contact to the chair, and your feet at the ground. Remind yourself this is an intentional practice. You're not supposed to feel any more relaxed. It may happen but it may not. Focus on the practice as best you can. Bring an awareness and sensation to each part of your body that is making contact. Take a deep breath, and feel the physical sensation of the lower abdomen. Become aware of the changing patterns, in the abdominal wall as you're breathing. Take a deep breath in, and out. Take a moment to feel the sensation of the breath again. Bring your attention and bring awareness down the left leg into the left foot, out to the toes of the left foot, focus on each of the toes. And in turn notice a sense of contact between each of the toes. A sense of tingling, warmth, and no particular sensation. When you're ready feel or imagine the breath entering in your lungs and going down to your left leg into your foot, and breathe out. Imagine your breath come all the way up your left foot and left leg into your abdomen. Do this with the right leg. Take a deep breath and imagine the breath going down your right leg into your right foot. As you exhale breathe the sensation out of your right foot and right leg. Practice this one more time. And when you're ready let go of your toes and bring an awareness to the bottom of your left foot. Bring an awareness to the sole of your foot, the heal, and the sensation where the heal makes contact. Being aware of the breath in the background. Allow the awareness to expand to the rest of your foot to the ankle, to the top, right into the ball of the sole. Take a slightly deeper breath, directing it down your whole right leg into your foot, into you calf, into your shin, and into your knee. And do the same for the left foot. Take a deep breath and imagine sensation go all the way down your right leg, right calf, and right shin, ankle, toe. When you become aware of tension in any part of your body, breathe into that tension. If it's in your neck, breathe into the tension in your neck, and allow that tension to go. Your mind will inevitably wonder, come back. Acknowledge it, and let that come back to the moment focus on your breath. Become aware of the body as a whole and your breath flowing freely in and out of the body. Take a deep breath, and before opening your eyes recognize this is a practice that can be done anytime of the day or when you're training or even when you're racing.

This is one of the things you can do when you're on your bike, and thinking back to when you're experiencing tension during the race you can come back to the moment. You can actually perceive pain as less, when you can think about your legs as a whole and breathing and being in that moment. You're not thinking of other things as your mind is wandering, coming back to that zone, and being in that state of mind where everything is clear. It's going to be a lot easier with everything you do.

Teasdale, J., & Williams, J. (2013). The Mindful Way Workbook an 8-Week Program to Free Yourself from Depression and Emotional Distress. New York: Guilford Publications.

Psychological Skills Instrument: Myers Briggs: Email & Script

Hello!

This is fun, and you may even learn something about yourself and others...

Instructions:

1. Follow along with the video.
2. Record the letter for the associated trait.
3. Remember to listen closely to the instructions.
4. Please Email or text your personality type (the four letters you receive) Thanks!

For example "introvert or extrovert" => this characteristic is defined by where you receive your energy. When you're around a lot of people does it energize you (extrovert) or do you need time by yourself to recharge to gain energy (introvert). Extrovert is associated with the letter "E" and Introvert is associated with the letter "I". Write down "E" or "I"

5. Please click the link and take the test :)

https://www.youtube.com/watch?v=WQoOqQiVzwQ (7:22)

6. If you would like to read about your personality type, see the link below.

http://www.typefinder.com/view/types

Discover Your Personality Type | Myers Briggs

Welcome! I'm so glad you've joined us to discover your personality type. This video will help you to understand the four key facets of personality based on the Myers Briggs theory, and you'll learn how to put these facets together to find your own, unique four-letter personality type. The Myers Briggs theory of personality is a way to describe differences in the way people think, make decisions, and approach the world around us. It can help you to understand why you communicate better with some people than with others, why some jobs seem more appealing to you, and why you approach relationships the way you do. Understanding your unique type opens up a wealth of knowledge about who you are and why you do the things you do. Myers Briggs type is based on four facets of personality. For each facet, you must decide which style you prefer out of two options. Are you Extraverted, or Introverted? Sensing, or Intuitive? Thinking, or Feeling? Judging, or Perceiving? We'll talk about each facet in depth so that you can better understand where your preferences lie. The first facet, Extroversion/Introversion, describes how you get your energy and where you prefer to focus your attention. Extroverts prefer to focus outward, on the world around them. They are energized by activities like meeting new people, talking about their ideas speaking in front of groups, and being in active environments. Introverts prefer to focus inward, on their own thoughts and impressions. They are energized by activities like thinking quietly, reading, listening to music, or talking with small groups of people they know and trust. Take a moment to think about which sort of activities you find more energizing. If you have a pen and paper handy, write down your preference for E or I.

The second facet, Sensing/Intuition, describes how you take in information about the world around you. Sensors focus on facts and details, and take in information using their five senses. Intuitives focus on meaning, interpretation, and possibilities, and take in information using their intuition. So how do you tell if you're a Sensor or an Intuitive? Let's try an exercise. Take a look at this cup. Think for a few moments about how you might describe it. If you have a pen and

paper, write down a few words to describe the cup. Now, let's take a look at the way Sensors and Intuitives might respond. Sensors tend to give facts about the cup. They might say, the cup is three inches high, it is white, and it's made of styrofoam. It's shaped like a cone and has a lip around the top edge. Intuitives are a different story. They might compare the cup to other things or make up a little story about the cup. An Intuitive might mention that styrofoam is bad for the environment, that these cups are very flimsy when filled with hot liquid, or that the cup reminds them of the Sunday school meetings they go to every week. Take a moment to think about how you take in information. Mark down your preference for S or N. The third facet, Thinking/Feeling, describes how you like to make decisions. Thinkers like to base their decisions on objective data and logical analysis. A Thinker might ask, what are the pros and cons? What are the logical consequences? What is the most reasonable course of action? Feelers like to base their decisions on their values and sense of what is right. They also like to consider relationships and the impact of choices on other people. A Feeler might ask, what is the right thing to do? How will other people feel about this decision? How can I create a sense of harmony and cooperation? Remember, Myers Briggs is about the style that you prefer. Most people use some Thinking and Feeling when they make their decisions, but usually feel more comfortable using one style over the other. Think about the type of information you trust most in making a decision: is it objective and logical, or values-based and personal?

Take a moment and mark down your preference for T or for F. The fourth and final facet of personality is Judging/Perceiving. This facet describes how you prefer to organize your life. Judgers are people who like to make decisions, and seek out structure and organization. They tend to like schedules and to-do lists and want to know what the rules of the game are before they start. They usually dislike surprises and last-minute changes and want to know what to expect. They get satisfaction out of finishing tasks. Perceivers are people who like to leave things open-ended, and want be free to be spontaneous and go with the flow. They tend to like flexibility and situations where there are not too many rules. They are excited by surprises and often enjoy responding to urgent situations. Perceivers are open to things happening in the moment, and get satisfaction out of having many options available.

Take a moment now and mark down your preference for J or P. Now it's time to put it all together. The four letters you have chosen are combined to create a code for your personality type. It might be INFP, ESTJ, ISTP, ENFJ, or any one of sixteen combinations. For each personality type, your preferences combine in a unique way to create an overall style of interacting with the world. Now that you've discovered your preferences, you'll want to see how they work together.

The next step is to read a personality type profile based on your four-letter code. This will help you to understand how the preferences work together, as well as help you verify that you selected the preferences that best suit you.

As a starting point, we recommend visiting our website, where we feature detailed descriptions for each of the sixteen personality types. For each type, you can read about common characteristics, key facts, top careers, relationships, and more. Get started by visiting www.personalitydesk.com/types.

Thank you for joining us today to discover your type. I hope this video has started you on a path to better self-awareness and a true understanding of yourself and others.

https://www.youtube.com/watch?v=WQoOqQiVzwQ

APPENDIX C

Assessment of Personal Sport Psychological Skills

DIRECTIONS: A number of statements that athletes have used to describe their experiences are given below. Please read each statement carefully, and then recall as accurately as possible how often you experience the same thing. There are no right or wrong answers. Do not spend too much time on any one statement.

Please circle how often you have these experiences when playing sports.

1. On a daily or weekly basis, I set very specific goals for myself that guide what I do.
   Almost Never Sometimes Often Almost Always
2. I get the most out of my talent and skill.
   Almost Never Sometimes Often Almost Always
3. When a coach or manager tells me how to correct a mistake I've made, I tend to take it personally and feel upset.
   Almost Never Sometimes Often Almost Always
4. When I'm playing sports, I can focus my attention and block out distractions.
   Almost Never Sometimes Often Almost Always
5. I remain positive and enthusiastic during competition, no matter how badly things are going.
   Almost Never Sometimes Often Almost Always
6. I tend to play better under pressure because I think more clearly.
   Almost Never Sometimes Often Almost Always
7. I worry quite a bit about what others think of my performance.
   Almost Never Sometimes Often Almost Always
8. I tend to do lots of planning about how to reach my goals.
   Almost Never Sometimes Often Almost Always
9. I feel confident that I will play well.
   Almost Never Sometimes Often Almost Always
10. When a coach or manager criticizes me, I become upset rather than feel helped.
    Almost Never Sometimes Often Almost Always
11. It is easy for me to keep distracting thoughts from interfering with something I am watching or listening to.
    Almost Never Sometimes Often Almost Always
12. I put a lot of pressure on myself by worrying about how I will perform.
    Almost Never Sometimes Often Almost Always
13. I set my own performance goals for each practice.
    Almost Never Sometimes Often Almost Always
14. I don't have to be pushed to practice or play hard – I give 100%.
    Almost Never Sometimes Often Almost Always
15. If a coach criticizes or yells at me, I correct the mistake without getting upset about it.
    Almost Never Sometimes Often Almost Always
16. I handle unexpected situations in my sport very well.
    Almost Never Sometimes Often Almost Always
17. When things are going badly, I tell myself to keep calm, and this works for me.
    Almost Never Sometimes Often Almost Always
18. The more pressure there is during a game, the more I enjoy it.

Almost Never Sometimes Often Almost Always

19. While competing, I worry about making mistakes or failing to come through.
Almost Never Sometimes Often Almost Always
20. I have my own game plan worked out in my head long before the game begins.
Almost Never Sometimes Often Almost Always
21. When I feel myself getting too tense, I can quickly relax my body and calm myself.
Almost Never Sometimes Often Almost Always
22. To me pressure situations are challenges that I welcome.
Almost Never Sometimes Often Almost Always
23. I think about and imagine what will happen if I fail or screw up.
Almost Never Sometimes Often Almost Always
24. I maintain emotional control regardless of how things are going for me.
Almost Never Sometimes Often Almost Always
25. It is easy for me to direct my attention and focus on a single object or person.
Almost Never Sometimes Often Almost Always
26. When I fail to reach my goals, it makes me try even harder.
Almost Never Sometimes Often Almost Always
27. I improve my skills by listening carefully to advice and instruction from coaches and managers.
Almost Never Sometimes Often Almost Always
28. I make fewer mistakes when the pressure is on because I concentrate better.
Almost Never Sometimes Often Almost Always

SCORING: This is the Athletic Coping Skills Inventory (ACSI), a measure of an athlete's psychological skills, developed by Smith, Schultz, Smoll, & Ptacek (1994). Determine your score on the following subscales by adding the scores on the question numbers identified. Also, note the following numerical scales associated with your ratings.

0 = Almost Never
1 = Sometimes
2 = Often
3 = Almost Always

Finally, note that an * after a question number signifies a reversed scored item (that is, 0 = Almost Always, 3 = Almost never, and so on).

SUBSCALES:

_____ ***Coping with Adversity:*** This subscale assesses if an athlete remains positive and enthusiastic even when things are going badly, remains calm and controlled, and can quickly bounce back from mistakes and setbacks.
(Sum Scores on Questions 5, 17, 21, and 24, and place the total in the blank provided).

_____ ***Coachability:*** Assesses is an athlete is open to and learns from instruction, and accepts constructive criticism without taking it personally and becoming upset.
(Sum Scores on Questions 3*, 10*, 15, and 27, and place the total in the blank provided).

_____ ***Concentration:*** This subscale reflects whether an athlete becomes easily distracted, and is able to focus on the task at hand in both practice and game situations even when adverse or unexpected situations occur.
(Sum Scores on Questions 4, 11, 16, and 25, and place the total in the blank provided).

_____ ***Confidence and Achievement Motivation:*** Measures if an athlete is confident and positively motivated, consistently gives 100% during practices and games, and works hard to improve his or her skills.
(Sum Scores on Questions 2, 9, 14, and 26, and place the total in the blank provided).

_____ ***Goal Setting and Mental Preparation:*** Assesses whether an athlete sets and works toward specific performance goals, plans and mentally prepares for games, and clearly has a "game plan" for performing well.
(Sum Scores on Questions 1, 8, 13, and 20, and place the total in the blank provided).

_____ ***Peaking Under Pressure:*** Measures if an athlete is challenged rather than threatened by pressure situations and performs well under pressure – a clutch performer.
(Sum Scores on Questions 6, 18, 22, and 28, and place the total in the blank provided).

_____ ***Freedom from Worry:*** Assesses whether an athlete puts pressure on him or herself by worrying about performing poorly or making mistakes; worries about what others will think if he or she performs poorly.
(Sum Scores on Questions 7*, 12*, 19*, and 23*, and place the total in the blank provided).

_____ ***TOTAL SCORE or SUM OF SUBSCALES***

Scores range from a low of 0 to a high of 12 on each subscale, with higher scores indicating greater strengths on that subscale. The score for the TOTAL SCALE ranges from a low of 0 to a high of 84, with higher scores signifying greater strength.

After taking the ASCI, write a few sentences summarizing your results for the TOTAL SCALE and individual subscales. What areas of Psychological Skills Training do you feel you need to work on in the future?

Post-PST Questionnaire

Name: _____

Please answer the following questions truthfully as general personal opinions toward athletic training identity, confidence, competence, and attitudes towards sport psychology. Questions are on a 7-point Likert scale ranging from 1=Strongly Disagree to 7=Strongly Agree. Please circle the response that best meets your personal judgment for each question.

	Strongly Disagree			Neutral			Strongly Agree
1. I consider myself an athlete.	1	2	3	4	5	6	7
2. I have many goals related to my sport.	1	2	3	4	5	6	7
3. Most of my friends are athletes.	1	2	3	4	5	6	7
4. My athletic career is the most important part of my life.	1	2	3	4	5	6	7
5. I spend more time thinking about my sport than anything else.	1	2	3	4	5	6	7
6. I feel bad about myself when I do poorly in my sport.	1	2	3	4	5	6	7
7. I would be very depressed if I could not continue in my sport.	1	2	3	4	5	6	7
8. I used the PST program on a daily basis.	1	2	3	4	5	6	7
9. I used the PST program on a weekly basis.	1	2	3	4	5	6	7
10. The PST program helped me compete at a higher level.	1	2	3	4	5	6	7

11. The PST program has helped me become a more successful athlete.

1 2 3 4 5 6 7

12. The PST program has helped me to develop mental strength.

1 2 3 4 5 6 7

13. I plan on using elements of the PST program in the future.

1 2 3 4 5 6 7

14. Sports psychology is a valuable part of elite training.

1 2 3 4 5 6 7

On a scale of 1 to 10 (1 being low and 10 being high) how would you rate importance of sport psych in cycling?

1 2 3 4 5 6 7 8 9 10

On a scale of 1 to 10 how would you rate your commitment to the PST program this semester?

1 2 3 4 5 6 7 8 9 10

Please feel free to include any comments about what you thought about participating in the PST program this semester? What specifically helped you?

_____

_____

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Thank you for your participation in this survey!