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Scott Barnicle

West Virginia University, [scott.barnicle@mail.wvu.edu](mailto:scott.barnicle@mail.wvu.edu)

Damon Burton

University of Idaho, [dburton@uidaho.edu](mailto:dburton@uidaho.edu)

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Research article

## Enhancing Collegiate Women's Soccer Psychosocial and Performance Outcomes by Promoting Intrinsic Sources of Sport Enjoyment

Scott P. Barnicle <sup>1</sup> and Damon Burton <sup>2</sup>

<sup>1</sup>West Virginia University and <sup>2</sup>The University of Idaho, USA

### Abstract

This study examined the effectiveness of an applied mental skills training (MST) intervention utilizing mental skills to enhance intrinsic sources of enjoyment (ISOEs) as a means of promoting self-confidence, motivational style, and athletic performance, while also decreasing trait anxiety. The intervention project was designed to increase intrinsic SOE using a systematic and individualized mental training protocol, and then examine its relationships to mental skills and soccer performance. A Division 1 collegiate women's soccer team was randomly assigned to treatment (n = 8) and control (n = 11) groups, equally distributed by academic year, position, and pre-season coach-evaluated starters and non-starters. Results revealed that the MST intervention significantly increased intrinsic enjoyment targeted psychological and competitive outcomes, both in practice and competition within the treatment group as compared to the control group. This study's support for the impact mental skills training may have had on ISOEs, as well as other psychosocial outcomes and athletic performance can serve to highlight a mental skill often overlooked by consultants and coaches.

**Key words:** Sport Enjoyment, Sport Psychology, Motivation

### Introduction

No matter the sport or activity, researchers (Boyd and Yin, 1996; Kimiecik and Harris, 1996; Scanlan et al., 2003; Stodel, 2004) suggest that participants should strive to enjoy whatever it is they choose to do. Enjoyment plays a pivotal role in many aspects of athletes' sport experience, such as performance expectations (Scanlan and Lewthwaite, 1986), social development (Wankel, 1993), attrition (Gould et al., 1984), and physical development and participation (Scanlan et al., 2003), yet a review of the literature did not find studies investigating sport enjoyment's impact on performance, nor any attempts to specifically examine how intrinsic sources of sport enjoyment may influence psychosocial outcomes. Sport enjoyment is often overlooked by parents and coaches as a significant predictor or mediator of performance, compared to other mental training skills (Burton and Raedeke, 2008). A better understanding of athletes' enjoyment, specifically their sources of enjoyment (i.e., intrinsic versus extrinsic; Wiersma, 2001), and their effects on psychosocial and performance outcomes is needed in sport in order to better examine its performance enhancement potential.

### Scanlan's and Wiersma's perspective of sport enjoyment

Research in the area of sport enjoyment is relatively sparse compared to other sport and exercise psychology constructs, yet significant contributions to the field have been made by several researchers (Kimiecik and Harris, 1996; Scanlan, 1992; Wankel, 1993; Wiersma, 2001). This study was specifically influenced by the work of two researchers; Scanlan and Wiersma. Scanlan and her colleagues' (1986, 1992, 1993, 2003) work paved the way for understanding the concept of sport enjoyment and the role it plays within youth sports, whereas Wiersma (2001) further identified intrinsic and extrinsic sources of sport enjoyment and developed an instrument to measure the use of these sources in athlete populations.

### Scanlan's conceptualization of sport enjoyment

Research regarding the construct of sport enjoyment is relatively limited in the social sciences, and most of the conceptual work in enjoyment has been conducted by Scanlan and her colleagues (Scanlan, 1992). Primary psychological correlates of Scanlan's previous definition included intrinsic motivation (Scanlan et al., 2003), aspects of flow (Csikszentmihali, 1975) such as personal perceptions of competence and autonomy, and the idea of enjoying both achievement and non-achievement activities (Scanlan and Lewthwaite, 1986). From a study which interviewed elite figure skaters (Scanlan et al., 1989), four major sources of enjoyment emerged: (a) social and life opportunities, (b) perceived competence, (c) social recognition of competence and (d) the physical act of performance. Furthermore, Scanlan et al.'s research (1989) suggested that enjoyment sources for elite and youth sport athletes were similar and contained many common dimensions, such as achievement recognition, competitive achievement, family/coach relationships, friendships, and mastery of the activity (Scanlan et al., 1989).

### Wiersma's sources of enjoyment

Building on Scanlan and Lewthwaite's work (1986), Wiersma (2001) developed and validated a self-report instrument designed to identify sources of sport enjoyment, or strategies that can help youth athletes to enhance their opportunities to do things they find enjoyable. The Sources of Enjoyment in Youth Sport Questionnaire (SEYSQ; Wiersma, 2001) was shown to successfully demonstrate where participants' enjoyment primarily fell within Scanlan and Lewthwaite's (1986) four-quadrant model (i.e., intrinsic versus extrinsic and achievement versus nonachievement). However, Wiersma (2001) proposed an expanded six-factor model of sport enjoyment, which also included the factors of effort expenditure (in-

trinsic) and positive parental involvement (extrinsic), both of which were demonstrated to be important enjoyment dimensions through confirmatory factor analysis.

**Intrinsic enjoyment sources**

Wiersma’s sources of sport enjoyment model (2001) consisted of three intrinsic sources of enjoyment, and three extrinsic sources of enjoyment. Similar to Scanlan and Lewthwaite’s (1986) inclusion of perceived competence in their model of sport enjoyment, Wiersma (2001) hypothesized self-referenced competency (SRC) as a primary intrinsic source of enjoyment, with athletes enjoying activities in which they assessed themselves to have an improved skill level. Next, competitive excitement (CE) was predicted to help athletes intrinsically enjoy an activity, with the rush and adrenaline present in competitive environments leading to a more enjoyable experience. Finally, effort expenditure (EE) was hypothesized to be an intrinsic source of enjoyment that comes putting forth maximal effort when practicing and competing. Through confirmatory factor analysis, Wiersma (2001) was able to support these hypotheses as well as the model of sport enjoyment, ultimately leading to the development of the SEYSQ.

**Extrinsic enjoyment sources**

Similarly, Wiersma (2001) conceptualized that sport enjoyment can also include three distinctly extrinsic sources. First, other-referenced competency and recognition (ORCR) is hypothesized to encompass how others view one’s performance capabilities, with enjoyment occurring when others view a performer as competent. Next, one’s

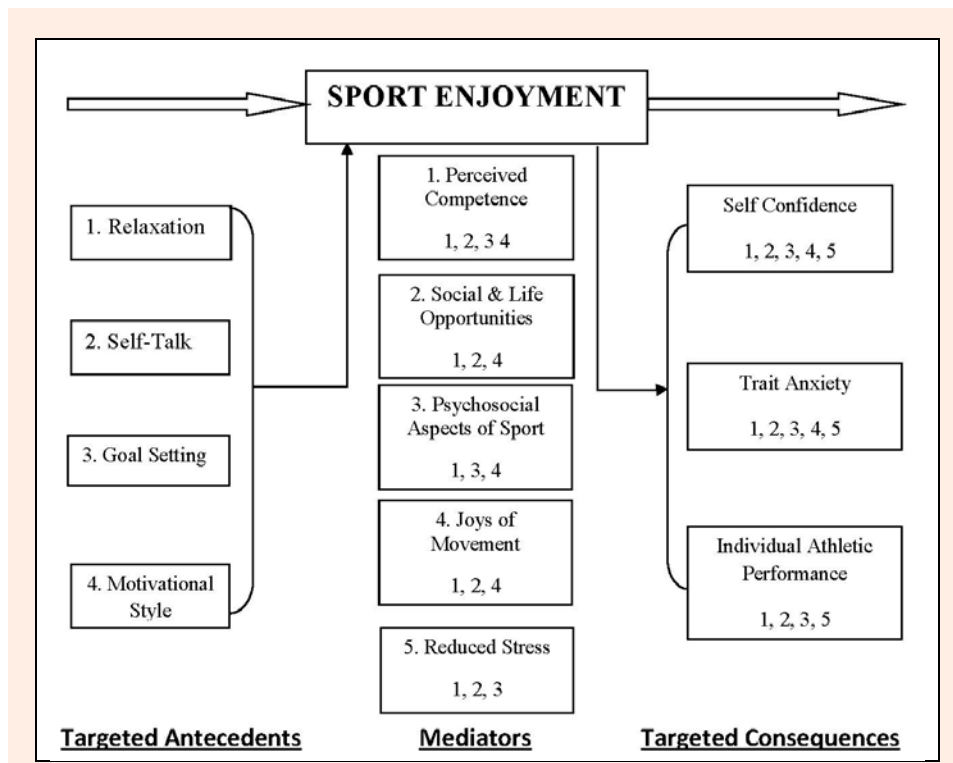
affiliation with peers (AWP) is hypothesized to provide a strong source of extrinsic enjoyment, because youth athletes enjoy playing with their friends and developing new friendships. Finally, positive parental involvement (PPI) is hypothesized to promote sport enjoyment when parents reward and reinforce young athletes’ positive sport experiences.

**Sport enjoyment research in soccer**

Because the current intervention study used a collegiate women’s soccer team as the sample population, the research of Garcia-Mas et al. (2010) provides insight into the dynamics of enjoyment in soccer. Garcia-Mas and colleagues (2010) examined the constructs of sport enjoyment and sport commitment within a large sample of elite Spanish youth soccer players, and they found enjoyment and sport commitment were significantly impacted by intrinsic motivation as compared to extrinsic motivation and amotivation. This finding is congruent with other sport enjoyment research within youth soccer (Ommundsen and Vaglum, 1991), as well as past research suggesting intrinsic motivation is a strong correlate of youth sport enjoyment (Boyd and Yin, 1996; Scanlan and Lewthwaite, 1986).

**Working model of sources of sport enjoyment as an intervention strategy**

This intervention study was guided by a Working Model of Sources of Enjoyment (WMSE; see Figure 1). This WMSE model conceptualizes that traditional mental training skills (i.e., goal setting, self-talk, imagery, relaxation) are antecedents/predictors of athletes’ intrinsic sources of



**Figure 1.** working model of sport enjoyment as an intervention strategy. Numerical notations signify predicted impacts.

sport enjoyment, whereas other mental skills (i.e., stress management, motivation, and confidence) and performance are consequences/products of intrinsic sources of enjoyment (ISOEs). This MST intervention focuses on creating and using ISOEs within the treatment group by pairing specific mental skills to enhance specific ISOEs, while simultaneously avoiding and hopefully decreasing extrinsic sources of enjoyment (ESOE).

The primary hypotheses are based on the mental training skills approach (Burton and Raedeke, 2008) that predicts greater development and use of mental skills should prompt the treatment group to experience and foster more ISOEs while experiencing a decline of ESOEs. In contrast, the control group should maintain or enhance their existing SOEs, while not enhancing their ISOEs throughout the season. Through a standardized MST program, the treatment group should enhance key mental training tools and skills during the education and acquisition phases of the intervention, and subsequent individualization during the implementation phase should fine-tune strategies to fit the needs of the individual athlete.

### **MST intervention process variables**

Through enhanced ISOEs (Wiersma, 2001), the WMSE hypothesizes targeted intervention outcomes (i.e., decreased trait anxiety, increased self-confidence, more desirable motivational styles, and increased athletic performance) as the primary results of the MST intervention. Because the WMSE focuses on process variables (i.e., mental skills; Burton and Raedeke, 2008) as primary intervention strategies, previous research studies (Birrer and Morgan, 2010; Burton, 1989; Cohn et al., 1990; Gould et al., 1999; Masters, 2014) suggest the positive impact MST interventions can have on this study's targeted intervention outcomes.

### **Goal setting**

Established as a pillar of mental training (Burton, 1989; Burton and Weiss, 2008), effective process-focused goal setting can impact perceived competence and autonomy in sport, thus significantly affecting sport enjoyment. The use of goal setting has also been shown to improve self-confidence and performance and decrease competitive anxiety (Burton, 1989), prompting the model to hypothesize a positive relationship between goal setting and ISOEs. This WMSE emphasizes that the personal control athletes can exert over process and performance goals should not only increase SRC, but should also promote greater EE. Although CE can be generated in several ways, an important aspect of creating a proper goal difficulty level (Burton & Weiss, 2008) is not to set goals so high that they create stress, but high enough to generate positive motivation to improve systematically.

### **Relaxation**

Similar to effective goal setting, using relaxation techniques can help manage performance stress and expectations as well as improve competitive performance by allowing effective arousal management (Birrer and Morgan, 2010). Athletes have their own ideal perfor-

mance state or optimal level of arousal/energy that facilitates peak performance (Hanin and Syrja, 1995; Lazarus, 2000) and the ability to enter a competitive environment in one's individual zone of optimal functioning has been shown to be essential in facilitating peak performance. The model hypothesized positive increases in SCR and CE. Conversely, unhealthy stress levels can lower athletes' self-confidence, perceived competence, social enjoyment and overall desire to perform (Scanlan, 1992), prompting this WMSE to hypothesize a positive relationship between relaxation and ISOEs.

### **Self-talk**

The concept of self-talk relates to the constant, inescapable flow of thoughts through our minds (Burton and Raedeke, 2008; Hardy, 2006). Self-talk patterns have been shown to have an effect on anxiety, concentration, self-confidence, self-efficacy, and performance (Hatzigeorgiadis et al., 2014). Burton and Raedeke (2008) have formulated several guiding principles to increase positive thought patterns including becoming more optimistic, realistic, and appraising problems as challenges. The WMSE hypothesizes that by increasing self-talk skills and effectively using them prior to and during practice and/or competition, athletes should experience increased EE, SRC, and decreased social pressure and stress (Hardy, 2006; Wankel, 1993), thus prompting positive competitive excitement.

### **Intervention outcomes**

Enhanced ISOE through the MST intervention is hypothesized to have facilitative impact on four outcome variables: stress and anxiety, self-confidence, motivational style, and athletic performance, both directly and indirectly through the three process variables.

*Stress and anxiety:* Research (Burton and Weiss, 1998; Martens et al., 1990) has shown the negative impact of stress and anxiety on performance due to reduced mental acuity, more negative and less positive emotions, greater tension and excessive arousal. The WMSE hypothesized that ISOEs should reduce unwanted trait anxiety levels that negatively affect intrinsic sport enjoyment as well as performance (Scanlan et al., 2003), yet increased ESOE may increase anxiety if athletes' place too much emphasis on ORC and support of others, which detracts from SRC and autonomy-supportive sources of enjoyment.

*Self-confidence:* The positive impact of self-confidence on athletic performance has been established, making self-confidence a vital mental training skill (Birrer and Morgan, 2010). Within this WMSE, treatment athletes' self-confidence levels should benefit from development of ISOEs. However, Vealey and Chase (2008) have shown self-confidence can develop through a healthy athletic environment, positive personal interactions with peers, and athletic success, all psychosocial components that can be fostered by healthy enjoyment.

*Motivational styles:* According to Burton et al. (2011), motivational styles (MSs) are based on involvement states determined by the combination of motivational orientation and perceived competence, but intrinsically

driven mastery-oriented athletes should typically report higher levels of ISOE usage (Deci and Ryan, 1985; Scanlan et al., 1993; Wankel, 1993). Burton and colleagues (2011) suggested four primary motivational styles (i.e., development-focused, win-fixated, doubt-oriented, and failure-evader). Development-focused (DF) individuals are mastery oriented and exhibit high effort and persistence in the face of adversity (Gillham et al., 2012), making it the most desired motivational style, and the model hypothesizes that win-fixated athletes experience ISOEs but less than DF performers.

**Athletic performance:** Although there is no previous research examining the impact sport enjoyment on athletic performance, the WMSE hypothesized a positive relationship, with treatment athletes' greater use of process variables developing greater ISOEs that promote improved performance. This relationship may be bolstered by enhanced mental training skills (i.e., reduce anxiety and increased self-confidence), a change to a more facilitative motivational style, or simply healthier psychosocial interaction with coaches and teammates.

## Methods

### Design and participants

A repeated-measure, quasi-experimental design was used to assess the impact of a season-long enjoyment-focused intervention aimed at improving selected competitive process and outcome variables. Eight members of a Division 1 women's soccer team served as treatment group, while the remaining 11 team members comprised the control group, none of which had previously been exposed to formal MST during their time with the University.

Of the primary positions in soccer (i.e., goalkeeper, defender, midfielder, and forward), all were represented in the intervention group with the exception of goalkeeper, which was excluded due to the position's individualistic nature and skill set. Therefore, the goal was to include two defenders, two midfielders, and two forwards in the treatment and control samples, with the remaining participants randomly selected from any of these three positions. Both groups consisted equally of potential starters and non-starters, limiting any skill/ability or playing time bias in the final results. Group selection also included at least one athlete from each academic class (i.e., freshman, sophomore, etc...) to minimize age and experience bias in the sample. The head coach assisted in the matching process for treatment and control groups, with the aim to create groups with the same potential skill level and scoring output.

### Instruments

Five quantitative instruments were used to assess intervention effectiveness, along with competitive performance statistics. Although an instrument exists to specifically look at sport enjoyment (Sport Enjoyment Scale, Scanlan et al., 1993), it was not used due to its brevity (i.e., 4-items) and lack of psychometric support.

**Sources of Enjoyment in Youth Sport Questionnaire (SEYSQ):** This 28-item instrument was developed

by Wiersma (2001) to examine the intrinsic and extrinsic sources of enjoyment in youth sport identified by Scanlan (1986). The original 40-items were peer-reviewed by sport psychology experts, with confirmatory factor analyses (CFA) used to pare the SEYSQ down to its current form of 6 subscales (i.e., intrinsic: SRC, CE, EE; extrinsic: ORC, AP, PPI) and 28-items. Each item is rated on a 5-point Likert-type scale, with endpoints ranging from 1 (not at all) to 5 (very much). For the purposes of this study, two items were not used due to their wording and aim of comparing athletes to others of their "own age," thus resulting in the questionnaire consisting of 26-items.

**Competitive Motivational Style Questionnaire (CMSQ):** The Competitive Motivational Style Questionnaire (Gut, 2010) is a 20-item instrument that measures four athlete motivational styles, and it was deemed to be the most applicable instrument for assessing athletes' motivational styles within this study. The four subscales measuring conceptually-derived motivational styles or states of involvement based on a combination of motivational orientations and perceived competence include: development-focused (5 items), win-fixated (4 items), failure-evader (5 items), and doubt-oriented (6 items) styles. CMSQ items are rated on a six-point Likert-type scale anchored by 1 (strongly disagree) and 6 (strongly agree). Internal consistency of subscales for the four motivational styles ranged from 0.74 to 0.88, and the factorial validity of the instrument suggests a good fitting model (Gut, 2010). Although this instrument is under review, it was deemed the most effective measure to assess athletes' differing motivational styles.

**Sport Anxiety Scale-2 (SAS-2):** The Sport Anxiety Scale-2 (Smith et al., 2006) is a 15-item instrument that measures cognitive and somatic trait anxiety in sport. The SAS-2 is comprised of three, 5-item subscales, measuring trait somatic anxiety, worry, and concentration disruption dimensions. SAS-2 items are rated on a four-point Likert-type scale anchored by 1 (not at all) and 4 (very much so), with subscale totals ranging from 5 to 20 and total scores between 15 and 60.

**Sport Confidence Inventory (SCI):** The Sport Confidence Inventory (Vealey, 2002) is a 14-item questionnaire that measures trait self-confidence in a number of sport situations. The SCI is built upon Vealey's prior work with the Trait Sport Confidence Inventory (TSCI; Vealey, 1986), with internal reliability was reported at 0.86. Three trait self-confidence subscales are assessed, including: 5-item physical, 5-item mental, and 4-item resilience confidence subscales. The 14-items of the SCI are measured on a seven-point Likert-type scale ranging from 1 (can't do at all) to 7 (totally certain). Solid preliminary alpha reliability and construct validity has been found for the SCI (Vealey, 2002), and although there are other sport confidence inventories, they are outdated, not sport focused or have less desirable psychometric properties than the SCI, which best fit the aims of the research question.

**Test of Performance Strategies-2 Practice (TOPS-2P):** The Test of Performance Strategies-2 (Hardy et al., 2010; Thomas et al., 2009) is a 64-item self-report measure of psychological skills and strategy usage by athletes



during competition and practice, although only 3 subscales from the practice portion of the instrument was used in this investigation. The 32 items on the TOPS-2P are measured on a five-point Likert-type scale that asks how frequently each mental training tool or skill is used by the participant, with descriptors ranging from 1 (never) and 5 (always). Internal consistency of subscales ranged from 0.71 to 0.85, and the factorial validity of the instrument suggests a good fitting model (Thomas et al., 2009). For the purpose of this study, the subscales of goal setting, relaxation, and self-talk were used, comprising 12 items.

**Performance data:** Publically available game statistics were used to evaluate soccer performance. These indicators consisted of summed goals and assists during competitive matches and were evaluated for all games during the regular season. There are numerous player-specific data tracking measures which are available at the professional and Olympic level, however as that technology was not available at this University at the time of the study, goals and assists were utilized as the primary quantitative measure of performance between the treatment and control groups.

### Procedure

The procedure for this intervention study will be reported in two separate sections. Section 1 will describe the intervention given to the treatment group, whereas the second section will detail how intervention effectiveness was evaluated.

**Structured MST intervention:** The applied sport psychology intervention was focused on promoting the construct of ISOEs (Scanlan, 1992; Scanlan et al., 2003; Wiersma, 2001) within treatment group athletes, and mirrored established MST theory and best practices (Birrer and Morgan, 2014; Martin and Swartz, 2000). The intervention consisted of twelve individual sessions, each lasting approximately forty-five minutes and focusing on individual needs of the athletes after structured MST education and acquisition sessions. Following the MST Education, Acquisition, and Implementation Phase model (Burton and Raedeke, 2008; Masters, 2014), treatment athletes were introduced to traditional mental training skills, followed by an overview to this study's working intervention approach and WMSE.

The first three weeks of the intervention was the Education Phase which was nearly identical for all treatment group athletes and focused on obtaining a baseline understanding of the targeted mental training skills through structured individual-session instruction. Within this phase, athlete-consultant rapport was targeted, with treatment group athletes getting more comfortable with having the researcher around practices and games as a primary goal. Athletes' primary SOEs were identified and assessed through qualitative and quantitative measures, with personal models of enjoyment being established for each athlete, which helped transition from the initial phase of intervention uniformity to the

**Acquisition and implementation phases:** In the Acquisition Phase, the consultant began to tailor athletes' programs to promote ISOEs and ultimately enhance ath-

lete outcomes. Through matching mental skills with targeted SOEs (e.g., setting practice and process-focused goals to support effort expenditure within practice), the consultant helped the athletes' develop more ISOEs and rely less on ESOEs (i.e., frame self-talk to reflect effort and competitive performance, instead of external-rewards driven self-talk focusing on competitive success). When this matching process was successful, athletes would hopefully gain further self-awareness of their enjoyment and how it could be fostered. When met with roadblocks, the consultant would either adjust the targeted mental training skills being used to promote ISOEs, or change the SOE which was being targeted (i.e., competitive excitement instead of effort expenditure).

Although all treatment athletes had uniquely individualized Acquisition and Implementation Phases, the core MST skills were consistent for the entire treatment group, with each athlete acquiring and practicing their plan at their own pace. This treatment protocol ensured that all treatment athletes receiving the same core intervention, but flexibility provided the ability to tailor it to the needs and ISOEs of the athlete. During the Implementation Phase, athletes were encouraged to implement MST whenever possible within practice and competition, with adjustments to the targeted skills as needed to enhance targeted ISOEs. During this phase, the coaching staff was able to support the treatment athletes' use of mental skills, as well as identify when athletes were struggling or not utilizing the intervention as designed. This support was instrumental to the success of the intervention, and provides support for the need for the consultant to develop solid rapport and a healthy working relationship with the coaching staff.

**Assessment of intervention effectiveness:** Following approval of the Institutional Review Board, all coaches and athletes completed informed consent statements before participating in the study. The head coach and players in the treatment group received a verbal explanation of the intervention, with the players having the option to opt-out at any time. Those in the control group did not receive a description of the intervention until after the season. All three of the assessment batteries were completed in person during a session that lasted approximately 15-minutes. Analysis of this enjoyment-focused MST intervention was conducted utilizing quantitative procedures.

### Results

Results examine hypothesized links in the MWSE and the treatment versus control group data from pre to post intervention for selected process and outcome variables. Multivariate analysis of variance (MANOVA) results, coupled with a follow-up analysis of variance (ANOVA) comparison of means, were used to examine MST intervention outcomes based on the treatment group development of ISOEs.

#### Repeated measures MANOVA results comparing treatment and control groups

**Sources of enjoyment and TOPS-2 results:** MANOVA

results for intrinsic and extrinsic sources of sport enjoyment and TOPS-2 subscales assessing goal setting, relaxation, and self-talk revealed a significant difference between the treatment and control groups across the intervention, Wilks'  $\lambda = 0.54$ ,  $F(2, 16) = 6.76$ ,  $p < 0.01$ , partial  $\eta^2 = 0.46$ . Follow-up univariate analysis of variance (ANOVA) results revealed significant group by time interaction effects for two of four variables, intrinsic sport enjoyment,  $F(1, 18) = 9.28$ ,  $p < 0.01$ , partial  $\eta^2 = 0.42$ ; and the use of self-talk,  $F(1, 19) = 11.24$ ,  $p < 0.004$ , partial  $\eta^2 = 0.39$ . Additionally, follow-up ANOVA results showed goal setting increased over time,  $F(1, 19) = 16.79$ ,  $p < 0.01$ , partial  $\eta^2 = 0.49$ , for both groups (see Table 1). The treatment group increased their intrinsic sources of enjoyment and self-talks scores from pre to post treatment while control group participants declined on both dependent variables over the same time period. As expected due to the design of the study, there were no demonstrated significant differences in extrinsic sources of enjoyment or relaxation across the intervention.

**CMSQ results:** MANOVA results comparing treatment and control groups on the four CMSQ subscales

across the season demonstrated a significant group by time interaction, Wilks'  $\lambda = 0.36$ ,  $F(4, 14) = 6.27$ ,  $p < 0.004$ , partial  $\eta^2 = 0.67$ ; as well as significant effects across time Wilks'  $\lambda = 0.24$ ,  $F(4, 14) = 10.94$ ,  $p < 0.001$ , partial  $\eta^2 = 0.45$ ; but not for group, Wilks'  $\lambda = 0.77$ ,  $F(4, 14) = 1.04$ ,  $p < 0.42$ . Follow-up univariate ANOVA results demonstrated significant group by time interaction effects for three of the four CMSQ subscales, including: doubt-oriented,  $F(1, 19) = 3.05$ ,  $p < 0.05$ , partial  $\eta^2 = 0.24$ ; failure-evader,  $F(1, 19) = 5.93$ ,  $p < 0.01$ , partial  $\eta^2 = 0.38$ ; and win-fixated styles,  $F(1, 19) = 5.33$ ,  $p < 0.05$ , partial  $\eta^2 = 0.25$ ; with development-focused style approaching significance,  $F(1, 19) = 1.24$ ,  $p < 0.16$ , partial  $\eta^2 = 0.11$ . Consistent with expectations across a difficult season, the treatment group decreased slightly across the season on failure-evader and win-fixated motivational styles (see Table 4), whereas the control group increased scores substantially in both areas. Contrary to hypotheses, the control group decreased significantly more on doubt-oriented motivational style from pre to post intervention than did treatment group participants (see Table 1). Bivariate correlations among the parameters were presented in Table 2 and 3.

**Table 1.** Treatment and control groups' means (M) and standard deviations (SD) for pre- and post-season assessments of sources of enjoyment, motivational styles, trait sport anxiety, trait sport confidence, and subscales of the test of performance strategies-2.

	Treatment, n = 8				Control, n = 11				Overall, n = 19				F	P
	Preseason		Postseason		Preseason		Postseason		Preseason		Postseason			
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD		
Intrinsic Sources of Enjoyment	4.2	.2	4.7	.3	4.5	.4	4.2	.3	4.4	.4	4.3	.4	6.9	.01
Extrinsic Sources of Enjoyment	4.2	.2	4.4	.5	4.5	.4	4.3	.3	4.4	.4	4.4	.4	1.91	.18
CMSQ – DF	4.1	1.5	3.9	1.3	4.7	.5	3.5	.4	4.5	1.1	3.7	.9	3.05	.05
CMSQ – FE	2.5	.8	2.9	.9	2.3	.7	4.3	.9	2.4	.8	3.7	1.1	5.93	.01
CMSQ –DF	4.7	.6	4.6	.8	4.7	.7	3.9	.8	4.7	.6	4.2	.9	1.24	.16
CMSQ – WF	3.8	.9	3.2	1.1	2.9	1.1	3.9	.6	3.3	1.1	3.6	.9	5.38	.05
SAS – Somatic	2.1	.8	1.7	.5	2.2	.7	2.4	.6	2.1	.7	2.1	.6	2.08	.17
SAS – Worry	2.8	.8	2.8	1.0	3.0	.9	2.0	.5	2.9	.8	2.3	.8	4.82	.04
SAS – CD	2.0	.8	1.6	.6	1.4	.6	2.4	.8	1.7	.7	2.1	.8	4.49	.01
SCI – Mental	4.9	1.4	5.7	.9	5.5	.7	5.6	1.1	5.3	1.1	5.6	.9	1.11	.06
SCI – Physical	5.5	.6	5.9	.9	5.4	.9	4.4	.9	5.4	.8	5.0	1.2	4.67	.01
TOPS – Goal Setting	2.9	.6	3.9	.6	3.0	.7	3.7	.6	2.9	.6	3.8	.6	.71	.41
TOPS – Relaxation	2.7	.7	2.7	.8	2.3	.8	2.8	.8	2.5	.7	2.8	.8	1.15	.29
TOPS- Self-Talk	2.9	.7	3.8	.6	3.4	.8	2.8	.6	3.2	.8	3.3	.8	4.24	.004
Performance	.9	1.4	2.1	3.1	.6	.8	.9	1.0	.7	1.1	1.4	2.2	2.68	.01

**Table 2.** Bivariate correlations among the enjoyment, motivational styles, trait sport anxiety, trait sport confidence, and three selected test of performance strategies-2 subscales for overall sample at post-intervention.

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Enjoyment	-													
2. CMSQ – Doubt-Oriented	-.05	-												
3. CMSQ – Failure-Evading	-.49*	-.08	-											
4. CMSQ – Development-Focused	.51*	.28	-.53*	-										
5. CMSQ – Win-Fixated	.04	-.32	.31	-.08	-									
6. SAS – Somatic	-.27	.26	.59**	-.19	.04	-								
7. SAS – Worry	.19	.83**	-.38	.38	-.36	.10	-							
8. SAS – Concentration Disruption	-.48*	.04	.69**	-.54*	.01	.69**	-.11	-						
9. SCI – Mental	.34	-.48*	-.21	.17	.18	-.66*	-.40	-.53*	-					
10. SCI – Physical	.51*	-.04	-.79**	.51*	-.19	-.75**	.19	-.82**	.63**	-				
11. SCI – Resilience	.16	-.58*	.11	-.16	.07	-.35	-.66**	-.40	-.53*	.59**	-			
12. TOPS – Goal Setting	-.01	-.22	.04	-.18	-.09	-.18	-.29	.23	.23	.08	.23	-		
13. TOPS – Relaxation	-.29	.23	.27	-.22	-.27	.48*	.04	.59**	-.27	-.33	-.08	.36	-	
14. TOPS- Self-Talk	.16	-.09	-.62**	.21	-.39	-.53*	.16	-.28	.34	.61**	.12	.45	.21	
15. Soccer Performance	.13	.28	-.06	.12	-.17	-.17	.17	-.05	-.17	.14	-.38	.27	.16	.05

\*  $p < 0.05$ ; \*\*  $p < 0.01$

**Table 3.** Bivariate Correlations among the enjoyment, motivational styles, trait sport anxiety, trait sport confidence, and subscales of the test of performance strategies-2 for the treatment and control groups. treatment group values are in bold.

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Enjoyment		.40	.61*	.63*	.51	.08	.39	-.35	-.01	.38	-.12	-.12	.01	.08
2. CMSQ – Doubt- Orientated	<b>-.32</b>		-.35	.56	.19	.34	.71*	.02	-.34	-.22	-.09	-.07	.24	-.05
3. CMSQ – Failure-Evading	<b>-.32</b>	<b>.42</b>		-.30	-.10	.34	-.24	.43	-.05	-.45	.23	.13	.15	-.09
4. CMSQ – Development-Focused	<b>.32</b>	<b>.03</b>	<b>-.43</b>		.81**	-.03	.17	-.62*	.20	.38	.10	-.43	-.22	-.21
5. CMSQ – Win-Fixated	<b>-.04</b>	<b>-.38</b>	<b>.17</b>	<b>-.33</b>		-.04	.06	-.64*	.29	.42	-.07	-.62*	-.34	-.31
6. SAS – Somatic	<b>-.49</b>	<b>.79*</b>	<b>.38</b>	<b>.26</b>	<b>-.46</b>		.60*	.48	-.69*	-.70*	-.37	-.02	.43	-.09
7. SAS – Worry	<b>-.04</b>	<b>.86**</b>	<b>-.04</b>	<b>.25</b>	<b>-.29</b>	<b>.52</b>		.42	-.65*	-.55	-.62*	-.16	.38	.11
8.SAS–Concentration/Disruption	<b>-.60</b>	<b>.48</b>	<b>.76*</b>	<b>-.03</b>	<b>-.01</b>	<b>.78*</b>	<b>.04</b>		-.49	-.71*	-.17	.43	.64	.45
9. SCI – Mental	<b>.79*</b>	<b>-.79*</b>	<b>-.53</b>	<b>.09</b>	<b>.22</b>	<b>-.88**</b>	<b>-.47</b>	<b>-.80*</b>		.84**	.59	.23	-.02	.38
10. SCI – Physical	<b>.60</b>	<b>-.42</b>	<b>-.88**</b>	<b>.25</b>	<b>-.07</b>	<b>-.47</b>	<b>.02</b>	<b>-.82*</b>	<b>.69</b>		.39	.09	-.28	.18
11. SCI – Resilience	<b>.42</b>	<b>-.69</b>	<b>-.24</b>	<b>-.23</b>	<b>.02</b>	<b>-.82*</b>	<b>-.58</b>	<b>-.65</b>	<b>.73*</b>	<b>.27</b>		.50	.19	.24
12. TOPS – Goal Setting	<b>-.01</b>	<b>-.52</b>	<b>.42</b>	<b>-.14</b>	<b>.48</b>	<b>-.18</b>	<b>-.78*</b>	<b>.39</b>	<b>.19</b>	<b>-.34</b>	<b>.09</b>		.57	.65*
13. TOPS – Relaxation	<b>-.56</b>	<b>.31</b>	<b>.47</b>	<b>-.19</b>	<b>-.37</b>	<b>.68</b>	<b>-.09</b>	<b>.71*</b>	<b>-.34</b>	<b>-.68</b>	<b>-.47</b>	<b>.13</b>		.81**
14. TOPS- Self-Talk	<b>-.06</b>	<b>-.69</b>	<b>-.66</b>	<b>-.05</b>	<b>-.08</b>	<b>-.50</b>	<b>-.53</b>	<b>-.51</b>	<b>.47</b>	<b>.48</b>	<b>.46</b>	<b>.08*</b>	<b>-.25</b>	

\* p < 0.05; \*\* p < 0.01

*SAS-2, SCI, and soccer performance results:*

MANOVA results comparing treatment and control groups on remaining outcome variables across pre- and post-season assessments demonstrated a significant group by time interaction effect, Wilks'  $\lambda = 0.23$ ,  $F(7, 11) = 5.33$ ,  $p < 0.01$ , partial  $\eta^2 = 0.77$ . Follow up univariate ANOVA analyses revealed significant group by time interaction effects for physical self-confidence  $F(1, 19) = 4.67$ ,  $p < 0.01$ , partial  $\eta^2 = 0.33$ ; as well as concentration disruption trait anxiety,  $F(1, 19) = 4.49$ ,  $p < 0.01$ , partial  $\eta^2 = 0.38$ , and worry trait anxiety,  $F(1, 19) = 2.25$ ,  $p < 0.05$ , partial  $\eta^2 = 0.22$ . Trait mental confidence,  $F(1,19) = 2.68$ ,  $p < 0.12$ , partial  $\eta^2 = 0.14$ ; and soccer performance closely approached significance,. Additionally, significant group x time effects were demonstrated for soccer performance,  $F(1, 19) = 3.32$ ,  $p < 0.01$ , partial  $\eta^2 = 0.32$ . Consistent with hypotheses, soccer performance increased more in the treatment than control group participants across the season.

*Soccer performance output:* Defined as goals and assist during competition, the treatment group's scoring output increased 128.6% in the second half of the season, which corresponded with a 11.9% increase in reported intrinsic SOEs (see Table 4). In comparison, the control group's scoring output increased 42.9% across the

season, with reported ISOEs decreasing 6.7%. It should be noted that the treatment group defenders, a position which rarely scores except on dead-ball situations, significantly out-performed their control group counterparts in the second half of the season fivefold (i.e., five points [goals + assists] to one).

**Discussion**

The results of this investigation provide initial support the use of ISOEs (Wiersma, 2001) as a performance enhancement strategy, suggesting that an increased use of mental skills may have led to greater reliance on ISOEs within soccer, which, in turn, seemed to enhance targeted mental skills and performance. These data cannot confirm if ISOEs mediated study outcomes or was simply a correlate of them. However, these results do support the hypothesis that a MST intervention can significantly increase ISOEs, and a range of psychosocial and performance outcomes.

**Targeted mental skills**

Through healthy and realistic skill assessment, participants were able to set challenging yet achievable goals which would set them up for success and prompt

**Table 4.** Means (M) and standard deviations (SD) for treatment and control groups for pre- and post-season assessments enjoyment, motivational styles, trait sport anxiety, trait sport confidence, and subscales of the test of performance strategies-2.

	Treatment, n = 8				Control, n = 11				Overall, n = 19					
	Preseason		Postseason		Preseason		Postseason		Preseason		Postseason		Group X Time	
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	F	P
Enjoyment	4.2	.2	4.4	.4	4.5	.4	4.3	.3	4.4	.4	4.3	.4	4.12	.05
CMSQ – Doubt Orientated	4.1	1.5	3.9	1.3	4.7	.5	3.5	.4	4.5	1.1	3.7	.9	3.05	.05
CMSQ – Failure Evader	2.5	.8	2.9	.9	2.3	.7	4.3	.9	2.4	.8	3.7	1.1	5.93	.01
CMSQ – Development Focused	4.7	.6	4.6	.8	4.7	.7	3.9	.8	4.7	.6	4.2	.9	1.24	.16
CMSQ – Win Fixated	3.8	.9	3.2	1.1	2.9	1.1	3.9	.6	3.3	1.1	3.6	.9	5.38	.05
SAS – Somatic	2.1	.8	1.7	.5	2.2	.7	2.4	.6	2.1	.7	2.1	.6	2.08	.17
SAS – Worry	2.8	.8	2.8	1.0	3.0	.9	2.0	.5	2.9	.8	2.3	.8	4.82	.04
SAS – Concentration Disruption	2.0	.8	1.6	.6	1.4	.6	2.4	.8	1.7	.7	2.1	.8	4.49	.01
SCI – Mental	4.9	1.4	5.7	.9	5.5	.7	5.6	1.1	5.3	1.1	5.6	.9	1.11	.06
SCI – Physical	5.5	.6	5.9	.9	5.4	.9	4.4	.9	5.4	.8	5.0	1.2	4.67	.01
SCI – Resilience	4.5	1.2	5.3	1.2	4.6	.9	5.7	.7	4.6	1.1	5.5	.9	.20	.66
TOPS – Goal Setting	2.9	.6	3.9	.6	3.0	.7	3.7	.6	2.9	.6	3.8	.6	.71	.41
TOPS – Relaxation	2.7	.7	2.7	.8	2.3	.8	2.8	.8	2.5	.7	2.8	.8	1.15	.29
TOPS- Self-Talk	2.9	.7	3.8	.6	3.4	.8	2.8	.6	3.2	.8	3.3	.8	4.24	.004
Performance	.9	1.4	2.1	3.1	.6	.8	.9	1.0	.7	1.1	1.4	2.2	2.68	.12



participants were able to set challenging yet achievable goals which would set them up for success and prompt enjoyment from autonomy (Wiersma, 2001) and goal attainment (Burton, 1989), while avoiding setting unrealistic goals that may negatively impact their ISOEs (e.g., SRC and CE) and diminish their likelihood of setting goals in the future. These positive changes in goal setting, coupled with effective use of self-talk and relaxation skills, seemed to allow treatment group participants to enhance their competitive excitement and effort expenditure, appropriately interpret corrective feedback from the coaching staff, and manage interpersonal relationships on and off their field.

### **Intrinsic sources of enjoyment**

The significant increase in ISOEs (Wiersma, 2001) in the treatment compared to the control group suggests intervention effectiveness at promoting greater use of ISOEs. However, there were many factors which may have contributed to this increase. The combination of a facilitative motivational style profile (i.e., development-focused & win-fixated; Burton et al., 2011), an increased use of mental training skills (i.e., goal-setting, relaxation, and self-talk; Birrer and Morgan, 2014; Burton and Raedeke, 2008), and the reinforcement and reframing of positive psychosocial behaviors (Boyd and Yin, 1996; Gould et al., 1984) is consistent with the enhancement of ISOEs demonstrated in treatment group participants. These factors may help athletes to reframe any negative thoughts about the time commitments present in Division 1 athletics and better appreciate the intrinsic-focused (e.g., SRC, EE, and CE; Wiersma, 2001) aspects of collegiate sports which they enjoy. Furthermore, once treatment group athletes began to notice increases in ISOEs, their buy-in and use of mental skills seemed to grow, creating a positive relationship between the use of the MST intervention and ISOEs usage, ultimately leading to improved targeted outcomes. Similarly, the treatment groups' acceptance and use of the mental skills (Birrer and Morgan, 2014; Burton and Raedeke, 2008) may have effectively reduced stress and influences which may have fostered ISOEs during a long and difficult season.

### **Targeted intervention outcomes**

**Self-confidence:** Perceived competence (Scanlan and Lewthwaite, 1986), or for the purposes of the WMSE self-referred competence (Wiersma, 2001) has been shown as a moderator of sport self-confidence (Martin and Gill, 1991), and was predicted to be a positive outcome in the WMSE, with the treatment group's increase in sport confidence (Shaffer and Wittes, 2006) supporting the positive link between ISOEs and sport confidence. More specifically, participants' physical and mental confidence were shown to have significantly increased in comparison to the control group across the season. Confidence in their physical ability is positively related to ISOEs (e.g., SRC & CE), improved competitive performance and feedback from the coaching staff (Shaffer and Wittes, 2006), but the significant sport self confidence group difference supports the positive impact

of an applied enjoyment-focused MST intervention.

**Trait anxiety:** The significant decrease in trait worry and trait concentration disruption (Martens et al., 1990) for the treatment group in comparison to the control group was another targeted outcome hypothesized for the WMSE, with the control group experiencing an increase in trait worry and concentration disruption scores, perhaps due to the effects of a difficult season. This finding could also be attributed to treatment participants' use of self-talk (i.e., in-performance; Hardy, 2006) and relaxation techniques (i.e., pre & post-performance) which were foci of the MST, as well as treatment group athletes' increase in competitive excitement and effort expenditure ISOEs, potentially increasing their motivation and use of MST over the course of the season in an effort to counterbalance the effects of an inconsistent season.

**Motivational styles:** Significant treatment-control differences were identified for 3 out of 4 motivational styles, with the fourth style (i.e., development focused) approaching significance. Although difference in development-focused motivational style (Jones et al., 2002) between the two groups was nonsignificant, it still provides some support the effectiveness of the intervention to promote and sustain desired development-focused motivational styles (Burton et al., 2011). Similarly, the significant differences between groups over time for less-desired motivational styles (i.e., failure-evader, win-fixated), support a more facilitative motivational style profile (Burton et al., 2011; Gut, 2010) for treatment compared to control group participants. Defeat and poor competitive performance can negatively impact athletes' motivational style (Burton et al., 2011; Masters, 2014), as was demonstrated by the increase in failure-evader motivational style scores within the control group. Finally, the decrease in doubt-oriented motivational style in the control group may have been due to an apathetic or amotivated state which accompanied the inconsistent season, or perhaps was a reaction to an unhealthy motivational climate set out by the coaching staff. This was not a targeted outcome difference between treatment and control groups, but researchers may want to explore it further in future studies.

**Soccer performance:** Due to the limited research measuring the direct effects of a MST intervention on soccer performance, the borderline significant differences in performance/scoring output between the treatment and control groups across the season serves as a major strength of the study. Two of the eight members of the treatment group began the season on the bench, yet by the end of the season were consistent starters and consistently contributed to the team success. Coupled with statistical differences, the coaching staff consistently commented on improvements in consistency and effort for members of the treatment group, suggesting the impact an increase in self-confidence can have on consistent practice and competitive performance. The team won more games in the second half of the season than the first; however, the significant difference in second half performance output, coupled with an increase in usage of ISOEs among the treatment group, supports intervention effectiveness and

the link between ISOEs and athletic performance.

### Study limitations

The relatively small sample size of eight treatment and eleven control players is the primary limitation of these findings. Due to contextual constraints, using more than eight players in the treatment group was not feasible and still devote proper time to each participant. The twelve-week intervention schedule was ideal to be completed within the timeframe of the season, although MST programs in the future may be more effective if their duration is longer, as evidenced by the treatment group's reported sport enjoyment and use of mental skills trending upwards through the second half of the season.

### Conclusion

This study can provide applied sport psychology practitioners with some initial rationale for including components of sport enjoyment in their consulting with coaches and athletes as well as in future research. Increases in ISOEs were shown to be significantly related to improved performance and increased frequency of usage for targeted mental skills (i.e., goal setting, self-talk, confidence; Burton and Raedeke, 2008). These mental training skills (i.e., goal; setting, self-talk, confidence) are foundational to MST programs, yet traditional MST may have lacked an appreciation of the impact on intrinsic sources of enjoyment. Additionally, enjoyment's impact on increasing athletes' self-confidence while simultaneously decreasing trait anxiety may positively benefit their athletic career, as well as their personal, professional, and academic lives.

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### Key points

- Sport enjoyment is a pivotal part of athletic performance, and should be more accepted and utilized in sport psychology interventions
- Applied sport psychology can positively impact athletes' enjoyment, as well as athletic performance
- Applied sport psychology interventions can be effective in collegiate sports, and should be more utilized and appreciated.
- Intrinsic sport enjoyment is a vital component of an athlete's success, both on and off the field.

### AUTHOR BIOGRAPHY



#### Scott BARNICLE

##### Employment

Teaching Ass. Prof. of sport and exercise psychology at West Virginia University, USA

##### Degree

PhD

##### Research interests

Sport enjoyment, primarily in the sports of soccer and golf.

**E-mail:** scott.barnicle@mail.wvu.edu



#### Damon BURTON

##### Employment

Professor of sport and exercise psychology at the University of Idaho, USA

##### Degree

PhD

##### Research interests

Motivation/goal setting, anxiety/stress, leadership, intervention evaluation, instrument development and competitive engineering/coaching education.

**E-mail:** dburton@uidaho.edu

#### ✉ Scott Barnicle, PhD

Sport and Exercise Psychology, West Virginia University, USA