YIPS KNOWLEDGE AND EXPERIENCE AMONG ATHLETIC TRAINERS WORKING WITH COLLEGIATE AND PROFESSIONAL ATHLETES

A THESIS

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INTRODUCTION

As allied health professionals, athletic trainers (ATs) are held to a high standard of ethical practice. The Athletic Training Education Competencies (Competencies) are recognized by the Commission on Accreditation of Athletic Training Education (CAATE) as the minimum requirements for professional athletic training education.[1] The Competencies are split into twelve content areas to provide a detailed explanation of an ATs' responsibilities. One of the twelve is the content area "Psychosocial Strategies and Referral."[1] This specific area identifies the skills required by an AT to address mental health issues among the athletic population.[1]

The Guidelines for this content area indicate that an AT "…must be able to recognize clients/patients exhibiting abnormal social, emotional, and mental behaviors".[1] In addition to this, an AT is required to have the ability to recognize, appropriately intervene, and refer any individual when necessary.[1] The National Athletic Trainers' Association Fifth Edition of Education Competencies expresses that ATs are to also "…appreciate the role of

mental health in injury and recovery and use interventions to optimize the connection between mental health and restoration of participation."[1]

The yips by definition are "…a long-term movement disorder consisting of involuntary movements that occur in the course of the execution of finely controlled, skilled motor behavior".[2] This condition is one that is present among athletes with extensive experience among their chosen field where they repetitively perform fine motor movements.[2,3] The yips present as freezing, jerking, and/or tremors during these sports tasks creating abnormal neuromuscular activation, increased abnormal distress while performing, and are exacerbated by anxiety.[4] Athletes participating in sports such as cricket, golf, dart throwing, archery, baseball, basketball, and American Football have been found to be affected by this movement disorder.[2,5,6]

To best illustrate the causation and characteristics of the yips, Smith et al developed the continuum model.[4] In the continuum model, the yips are divided into two different subdivisions, Type I and Type II.[4] On one end of the spectrum are the Type I-affected athletes who are predominantly affected neurologically via focal dystonia.[4] Dystonia is a movement disorder that causes uncontrolled

contraction of muscles.[8] Focal dystonia is a movement disorder that causes muscular cramping of a specific muscle or muscle group.[4,8,9] The yips have also been classified within literature as a task-specific dystonia which is a movement disorder of a specific skill or task.[4,9] On the other end of the spectrum are the Type II-affected athletes who are affected by psychological deficits.[4] Through interview based research, athletes with Type II yips have described their condition primarily focusing on their psychological distress present during their expereinces.[4] A manifestation of anxiety develops in these individuals due to their failure during activity.[10] Comparatively, Type I yips-affected athletes have been found to have greater muscle activity whereas Type II individuals have higher levels of anxiety and impairments when in situations of perceived high-pressure.[4,11]

As compared to unaffected athletes, yips-affected individuals tend to be of an older age, have participated within the sport for a longer period of time, and have traits of obsessional thinking.[3] Research performed on yips affected golfers has found the development of the condition to be attributed to biochemical changes within the brain due to aging, excessive overuse of muscles, demands for intense concentration and coordination, focal dystonia of a

limb, and stress or obsessive thoughts.[4] Yips affected athletes are also reported to recall having experienced a sports related or major life event prior to the onset of symptoms.[12] As a population that partakes in high pressure situations and repetitively performs controlled movements, it becomes more clear as to why the athletic population is susceptible to this condition.

As an allied health professional whose job entails overseeing the health and wellbeing of athletes, it is important that an AT is educated on conditions that affect performance in the athletic population. The yips are a condition that specifically affects the athletic population due to their nature of repetitive movements and high levels of pressure. As stated by the governing bodies of athletic training, an AT must be knowledgeable of psychosocial conditions in order to properly refer for treatment.[1] To be able to distinguish an athlete in need of referral, the AT must be well versed in the condition and how it may present. The question arises, are ATs properly trained and educated on the yips? The purpose of this study was to examine the knowledge ATs have about the yips and the degree to which they believe they are able to appropriately intervene.

METHODS

The primary purpose of this study was to examine the knowledge athletic trainers working among collegiate and professional settings have pertaining to the condition known as the yips. This section will include the following subsections: research design, subjects, preliminary research, instruments, procedures, hypotheses, and data analysis.

Research Design

The research design for this study was descriptive in nature utilizing a survey. The survey was designed by the researcher and was completed by Athletic Trainers (ATs) working at collegiate and professional settings. The strength of this study is that ATs working at NCAA (Division I, Division II and Division II), NAIA, and other collegiate institutions, and professional organizations were included in the research population.

Subjects

The subjects used for this study consisted of volunteer NCAA Division I, Division II, and Division III, NAIA, or other collegiate institutions, and professional ATs. The subjects were a randomized sample from the National Athletic Trainers' Association (NATA) database. The NATA contacted 1,000 subjects based on their employment setting (college and/or professional) and were contacted electronically via email with the survey and instructions. Any subjects under the age of 18 were excluded and unable to participate. Subjects were also required to be a certified athletic trainer working at either a collegiate (NCAA, NAIA and other) institution or with a professional sporting organization.

Each subject completed an internet survey (delivered via SurveyMonkey®), and implied informed consent upon participating in the survey. All subjects participating in the study were kept anonymous as no names or identifying information were recorded. All completed surveys were kept in a password-protected file on University servers to ensure security.

Preliminary Research

A panel of experts took the survey before the research was conducted to review the study for content validity. The panel consisted of 3 ATs. One expert was a professor within an NCAA Division I institution with previous clinical experience working with collegiate athletes. The second was an AT currently working at an NCAA Division II institution. The third and final panel member was an NCAA Division I AT.

The panel members received a letter (Appendix C1) containing the objectives of the pilot study, directions for taking the survey, and the researcher's contact information. Additionally, each panel member received a copy of the researcher's significance of the study for supplementary information regarding the goals of the research.

Each panel member reviewed the survey and added to content validity by providing recommendations for improvement. Critiques and suggestions pertaining to the layout, verbiage, and survey overall were noted for future revisions.

The Institutional Review Board (IRB) at California University of Pennsylvania reviewed the necessary

components and approved the study (Appendix C4). After review by the IRB, a preliminary study was performed by graduate assistant athletic trainers at California University of Pennsylvania. The researcher asked the ATs to complete the same survey on SurveyMonkey®, and then once again 3 days following the first administration. A total of 3 days were taken to complete the preliminary study.

There were 13 students that participated in the pretest and 10 participated in the post-test. Although the researcher was unable to establish overall stability and reliability of the survey, the survey instrument was found to be consistent and accessible.

Instruments

The survey, *Yips Knowledge and Experience of the Athletic Trainer Working at Collegiate and Professional Levels* (Appendix C3) was created by the researcher and based on previous research and knowledge pertaining to the topic. The purpose of the survey was to gather data regarding the knowledge of the yips by ATs working at collegiate (NCAA, NAIA, and other) and professional settings. The survey consisted of 19 to 22 questions depending on subject's previous answers.

Each subject was asked questions pertaining to their knowledge of and experiences with the yips. The entire survey took approximately four to ten minutes to complete. Demographic information regarding the subject's years of athletic training experience, work setting, primary athletic teams responsible for, job responsibilities, and level of completed education were included in the survey. The survey and study was approved by the Institutional Review Board (Appendix C4) at California University of Pennsylvania before any research was conducted.

Procedures

Following the completion of the preliminary study, the National Athletic Trainers' Association (NATA) application and survey information pertaining to the study was sent and approved by the NATA. The NATA Research Survey Service disseminated the survey to 1,000 randomly selected ATs working at the collegiate and professional settings. Attached within the e-mail was the cover letter (Appendix C2) explaining the purpose, significance, directions for participation, limitation to risk or obligation to participate, and implied consent with moving forward.

There was no obligation or compensation for participation and no identifiable information was obtained through the survey. If the subject was willing and interested in participating they followed the link provided and took the survey on SurveyMonkey®. Once a subject opened the link to the survey, automatic access was gained to *Yips Knowledge and Experience of Athletic Trainers Working at Collegiate and Professional Levels* on SurveyMonkey®.

Before starting the survey, participants were first presented with a copy of the cover letter (Appendix C2). The subject then progressed through 18 to 21 questions depending on the answers previously provided. *Yips Knowledge and Experience of Athletic Trainers Working at Collegiate and Professional Levels* remained open and available to take for two weeks. A reminder e-mail was sent by the NATA Research Survey Service after the survey was open for one week. The survey was closed after a two week period.

Hypotheses

The following hypotheses were based on previous research and the researcher's intuition based on a review of the literature.

1. A majority of ATs working with collegiate and professional athletes have previously heard of the condition known as the yips.
2. A majority of ATs working with collegiate and professional athletes have not received education or training pertaining to the yips.
3. A majority of ATs working with collegiate and professional athletes do not know their role in the care of an individual presenting with the yips.

Data Analysis

All data was analyzed by SPSS version 22.0. Characteristics and answer frequencies were analyzed utilizing means and frequency analyses. Chi-squares analysis was utilized to compare the frequency of responses within select groups with a significance of $\leq .05$. The hypotheses were analyzed using descriptive statistics. Demographic information was analyzed to find the mean average of each individual question.

RESULTS

The purpose of this study was to distinguish whether or not ATs working at collegiate and professional settings have knowledge pertaining to the yips. The results have demonstrated a need for more yips-focused education among the athletic training profession. The following section contains the data collected through the study and is divided into three subsections: Demographic Information, Hypotheses Testing, and Additional Findings.

Demographic Information

A sample of 1,000 athletic trainers (ATs) was randomly selected and emailed through the National Athletic Trainers' Association (NATA) requesting their volunteered participation. Of those 1,000 asked, 186 responded and 162(16.2%) responded satisfactorily and were included in the data analyzed. Table 1 reports the highest level of education of the population surveyed.

Table 1. Frequency of Completed Education Level

Highest Level of Education Completed	Frequency (%)
Associates	0 (0.0)
Bachelor's	20 (12.3)
Master's	121 (74.7)
Professional	1 (0.6)
Doctoral	20 (12.3)

Table 2 represents participants number of years of experience as an AT.

Table 2. Frequency of Years as AT

Years of Experience	Frequency (%)
1 - 5 years	42 (25.9)
6 - 10 years	36 (22.2)
11 - 15 years	27 (16.7)
16 - 20 years	23 (14.2)
21+ years	34 (21.0)

Table 3 represents how many of the participants had experience as an educator for a Commission on Accreditation of Athletic Training Education (CAATE) professional athletic training program.

Table 3. Frequency of Educator Experience

Experience as Educator	Frequency (%)
Yes	69 (42.6)
No	93 (57.4)

Table 4 represents the current athletic population that the participants are working with.

Table 4. Frequency of Current Clinical Settings

Clinical Setting	Frequency (%)
NCAA Division I	4 (2.5)
NCAA Division II	69 (42.6)
NCAA Division III	26 (16.0)
NAIA	36 (21.2)
Other Collegiate	9 (5.6)
Professional	8 (4.9)
Other	12 (7.4)

Table 5 represents the athletic team(s) that the AT survey participants primarily work with.

Table 5. Frequency of Athletic Team(s) Worked With

Sport	Frequency
Baseball	69
Basketball	96
Bowling	5
Cross Country/Track and Field	60
Cheerleading	19
Dance	7
Fencing	4
Field Hockey	13
Football	81
Gymnastics	11
Golf	28
Ice Hockey	26
Lacrosse	35
Rifle	2
Rowing	9
Soccer	80
Softball	68
Swimming/Diving	28
Tennis	52
Volleyball	68
Water Polo	8
Wrestling	27
Other	9

Hypothesis Testing

The following hypotheses were tested in this study. All hypotheses were analyzed using SPSS version 22.0 for Windows. Characteristics and frequencies were analyzed to distinguish the knowledge and experience of ATs practicing within collegiate and professional settings. Comparison of means a chi-square analysis with a significance of $\leq .05$ were used.

Hypothesis 1: A majority of ATs working with collegiate and professional athletes have previously heard of the condition known as the yips.

Conclusion: A frequency analysis was used to determine if ATs working with collegiate and professional athletes had heard of the condition known as the yips. Of the ATs working at the collegiate or professional levels, 99(61.5%) had heard of the yips, and 62(38.3%) had not. The hypothesis was not supported through this research.

Hypothesis 2: A majority of ATs working with collegiate and professional athletes have not received education or training pertaining to the yips.

Conclusion: A frequency analysis was used to determine if ATs working with collegiate and professional athletes had received education or training pertaining to

the yips. Of the ATs working at the collegiate or professional levels, 6(3.7%) had received education or training pertaining to the yips, while 155(96.3%) had not. The hypothesis was supported through this data.

Hypothesis 3: A majority of ATs working with collegiate and professional athletes do not know their role in the care of an individual presenting with the yips.

Conclusion: A frequency analysis was used to determine if ATs working with collegiate and professional athletes knew what their role was in the care of an individual who presents with the yips. Of the ATs working at the collegiate or professional levels, 43(27.9%) do know their role when presented with a yips affected athlete, while 111(72.1%) do not. The hypothesis was supported through this data.

Additional Findings

In addition to the hypotheses, additional data from *Yips Knowledge and Experience of the Athletic Trainer Working at Collegiate and Professional Levels* (Appendix C3) was examined and analyzed and additional findings were discovered.

A chi-square test of independence was used to compare the relationship between having received previous education or training pertaining to the yips and the knowledge the ATs had pertaining to their role when presented with an affected athlete. Table 6 represents the data collected comparing these variables.

Table 6. Frequency Comparing Previous Yips Education and Knowing the ATs Role With Yips Affected Athletes

Yips Education	**Knowledge of ATs Role with Yips**		
	Yes	**No**	**Total**
No	39	109	148
Yes	4	2	6
Total	43	111	

Conclusion: The analysis of this data showed significance ($\chi^2(1)=4.657$, $p=.031$) between the relationship between having received education or training pertaining to the yips and ATs knowing their role when working with a yips affected athlete. Of the 148 participants who received no training, 109(73.6%) where unaware of their role in situations involving the yips. Of the 6 ATs who received education on the condition, 4(66.7%) indicated they knew the role of the ATC when working with an athlete affected and only 2(33.3%) did not.

A chi-square was used to compare the relationship between years of experience as an AT, having heard of the yips, having received yips education or training, and

having known the role of an AT with an affected athlete. Table 7 represents the data collected comparing these variables.

Table 7. Frequency Comparing Years of AT Experience, Having Heard of Condition, and Awareness of ATs Role with Yips

Years of AT Experience	Heard of Yips		ATS Role in Yips	
	Y	N	Y	N
1-5 years	20	22	9	32
6-10 years	18	17	5	29
11-15 years	19	8	13	12
16-20 years	18	5	7	14
20+ years	24	10	9	24

Conclusion: A chi-square analysis showed a significant ($\chi^2(4) = 9.729$, $p = .045$) relationship between years of AT experience and having heard of the yips. The data showed that as the years of AT experience increased, so did having heard of the condition known as the yips. Significance ($\chi^2(4) = 11.191$, $p = .024$) was found in the relationship between years of ATC experience and knowing the role of and AT confronted with an affected athlete. The data showed an increase in ATs' knowledge of their role when dealing with a yips affected athlete as they gain more time and experience as an AT.

DISCUSSION

The discussion section is divided into three subsections: Discussion of Results, Conclusions, and Recommendations.

Discussion of Results

The purpose of this study was to grasp and understand the degree to which athletic trainers (ATs) working at collegiate and professional settings understood the condition known as the yips. To do this, the researcher developed a survey based on previous knowledge and research on the topic. Within the survey, questions such as previous education or training pertaining to the yips, knowledge about the condition, the ability to recognize those affected, experience working with the yips, knowledge of an ATs role in the care for an athlete affected, and interest in learning more were asked.

Hypothesis 1 stated that the majority of the ATs working in collegiate and professional settings had not heard of the condition known as the yips. The researcher proposed this hypothesis due to limited previous exposure

to the condition among the athletic training field. The research showed that out of the 162 ATs working among these clinical settings that were surveyed, 99(61.1%) had in fact heard of the yips and only 62(38.5%) had not. Due to this finding, the hypothesis was therefore not supported.

Further data analysis utilizing a chi-square showed there to be significance ($\chi^2(4)=9.729$, $p=.045$) in the relation between the years of experience spent as an AT and having heard of the yips. This data demonstrates that those who have had more experience working as an AT are also more likely to have heard of the yips. As demonstrated in Table 7, as the years of experience increase, there is a greater margin between those who had and had not heard of the yips. The years of AT experience has also been shown to have a significant relationship ($\chi^2(4)=10.828$, $p=.029$) with working with a yips affected athlete. Among the 42(25.8%) of ATs who had previously worked with a yips-affected athlete, there were 29(69%) with 11 years of experience as an AT or more.

The 53.5% increase in yips-affected golfers from 1989 to 2000 as found by Detling et al, demonstrates an increase in prevalence among athletes.[10] Weiss and Reber discussed the presence of the yips among golf, Major League Baseball (MLB), American football, and basketball increasing its

prevalence among high level athletes.[5] Expansion of the yips from golf into other sports is shown in the additional data collected through the survey *Yips Knowledge and Experience of Athletic Trainers Working at Collegiate and Professional Levels.* Table 8 demonstrates the number of athletes currently affected by the yips known by the ATs in the survey and the sport in which their yips-affected athletes participated.

Table 8. Sports Affected by Yips Currently Seen by AT

Sport	**Number of Athletes With Yips (%)**
Baseball	19 (55.9)
Basketball	1 (2.9)
Cross Country / Track and Field	1 (2.9)
Football	2 (5.9)
Golf	1 (2.9)
Softball	7 (20.6)
Tennis	1 (2.9)
Wrestling	2 (5.9)

Research by Smith et al described the yips to be attributed to biochemical changes of the brain from aging, excessive repetitive use of muscles, extreme coordination and concentration stresses, focal dystonia, and stress with obsessional thoughts.[4] Additionally, a study performed by Roberts et al showed the connection between traits of perfectionism and the development of the yips.[12] Findings of both studies identify possible characteristics of athletes in all the included settings.

Hypothesis 2 stated the majority of the ATs working in collegiate and professional settings had not had any education or training pertaining to the yips. The researcher proposed this hypothesis due to limited previous exposure to the condition amongst literature, academic curriculum, and a lack of known continuing education options. The research showed that out of the 162 ATs working among these clinical settings that were surveyed, 155(95.7%) had not received any education on the yips, and only 6(3.7%) had. Due to this finding, the hypothesis was supported.

With additional analysis of the data, it was found that the majority 142(87.7%), have continued their education past a bachelor's degree. Of the 162 participants, 121(74.7%) of the participants have received a master's degree, and 20(12.3%) have received a doctoral degree (Table. 1). To sit for the Board of Certification (BOC) exam to receive certification as an athletic trainer, one must first satisfy the minimum requirements (cognitive, psychomotor, and clinical proficiencies) as set by the Accreditation of Athletic Training Education (CAATE).[1] Of these competencies are the 'Psychosocial Strategies and Referral (PS)'.[1] These require a BOC applicant to have

knowledge on and ability to identify and refer those with a mental health concern.[1]

The data collected showed how many of the ATs surveyed would be interested in learning more about the yips as depicted through a Likert Scale. Refer to Table 9 for these frequencies. Of those surveyed and analyzed, 118(76.6%) ATs identified as having interest, 'Agree' or 'Strongly Agree', in learning more about the yips leaving 32(20.5%) 'Neutral' and 4(2.5%) not interested marking 'Disagree' or 'Strongly Disagree'.

Table 9. Frequency of Interest in Yips Education

Interest in Learning More	**Frequency (%)**
Strongly Disagree	2 (1.3)
Disagree	2 (1.3)
Neutral	32 (20.7)
Agree	87 (56.5)
Strongly Agree	31 (20.1)

4.9 Percent missing due to incomplete surveys

A chi-square analysis showed that there was a significant relationship ($\chi^2(1)=4.657$, $p=.031$) between participants knowing the role of an AT when presented with an athlete with the yips, and having had yips education (Table 6). In this analysis it was found that out of the 148(96.1%) of ATs that did not receive education or training pertaining to the yips, 109(73.6%) were unsure of what to do if presented with an athlete affected by the

yips whereas out of the 6(3.9%) who had had yips education, 4(66.7%) were aware of the ATs role.

Hypothesis 3 stated that the majority of the ATs working in collegiate and professional settings do not know their role (as an ATC) when presented with an athlete with the yips. The researcher proposed this hypothesis due to previous knowledge and experience pertaining to the yips as well as the lack of literature on the topic in the field of athletic training. The research showed that out of the 162 ATs working among these clinical settings that were surveyed, 111(72.1%) were not aware of their role pertaining to the yips, leaving only 43(27.9%) knowing. Due to this finding, this hypothesis was supported.

In utilizing a chi-square, a significant relationship ($\chi^2(4)=11.591$, $p=.024$) was found between years of experience as an AT (Table 2) and awareness of the ATs role with a yips affected athlete. The ATs with 6-10 years of experience had the greatest amount of participants, 13(52%), that understood their role when confronted with an athlete affected by the yips.

The National Athletic Trainers' Association (NATA) released a Consensus Statement (developed by an "…inter-association task force spearheaded by NATA") in October of 2013.[14] This consensus was developed for ATs regarding

recommendations for developing a plan to recognize and refer student-athletes with psychological concerns at the collegiate level.[14] Within this consensus statement there is a list of behaviors to monitor that could reflect psychological concerns and the need of an appropriate 'team' including physicians, ATs, campus counseling, and other mental health care professionals that should be included in the referral, evaluation, and care of an athlete.[14] All current consensus and position statements are available through the NATA website for review and reference.

Additional findings through the utilization of a chi-square also found there to be a significance ($\chi^2(16) = 301.954$, $P = .001$) in the relationship between knowing the mental health referral protocol for one's institution and confidence in implementing said protocol. 56(36.4%) of ATs identified as 'Agree' for both knowing and comfort in implementing their institutions mental health protocol. Similarly, 64(41.6%) chose both 'Strongly Agree' for both questions. Four(2.5%) of ATs felt 'Neutral' about their mental health protocol and 'Disagree' to implementing it, 1(0.6%) chose 'Disagree' for both questions, and 8(5.2%) was 'Neutral across the board'.

Conclusions

In this study, a total of 1,000 athletic trainers (ATs) working at collegiate or professional settings, were contacted through the NATA Survey Service database. Out of those, 182(18.2%) ATs responded and 162(16.2%) were completed satisfactory and met inclusion criteria. Among those ATs included in the data analysis, 61.5% had heard of the condition, and 26.1% had previously worked with an athlete affected by the yips. This study found a significant relationship between the years of experience being an athletic trainer (AT) and having both heard of the yips and worked with an athlete affected by the condition. As an AT practices within the field longer, the prevalence of them hearing about and encountering an individual affected by the yips increases.

The relationship between experience in the field of athletic training and the exposure to the condition potentially shows an increase in witnessing the condition among athletes at collegiate and professional settings. For ATs, this means that there is an increasing possibility of having an athlete that has the yips at some point throughout their career. Of ATs participating in the study, there was a total of 125 athletes that had been seen with

the yips with 27% of ATs currently aware of a yips affected athlete at the time of participation in the study. The majority of ATs surveyed (59.5%) had experienced working with 1-3 athletes affected by the yips in their career.

Of those who worked with affected athletes (26.1%), ATs identified having seen 19 athletes affected by the yips in baseball, 1 in cross country/track and field, 2 in American football, 1 golfer, 7 softball players, 1 tennis, and 2 wrestlers. These findings strengthen the notion that the yips are prevalent in sports outside of golf and baseball. Information like this shows the potential for athletes of varying athletic venues to be affected by the yips other than those popularized in research. This finding strengthens the need for ATs working with all sporting venues to be aware of and knowledgeable about the yips.

When asked what was believed to be the primary cause of the condition, 28.6% of ATs were unsure, 27.9% believed it to be primarily a physical condition, 1.3% thought it was primarily psychological or both and 19.9% believed it to be something else or had never heard of the condition before taking the survey. The current published research can be easily confused and misunderstood due to the emphasis some may place on the physical aspects and others on the psychological.

Out of those surveyed, only 27.9% of ATs identified in knowing their role in presented with a yips affected athlete. Only 31.2% believed they could recognize the yips if an athlete were to be affected. While there is not one specific way to diagnose or test the yips as of yet, the condition can be recognized as many other mental health issues or complaints of indescribable, involuntary muscular contractions. Yips affected athletes have also been found to have an increased mean heart rate, electromyogram activities and grip force as seen through affected golfers.[2]

To combat this and the increased amount of anxiety and frustration, those affected have turned to prescriptions or self-medicating with alcohol and β-blockers both of which could drastically affect the health of the athlete and delivery of medical attention from an AT.[4] In addition to increasing the chances of recognition, knowledge pertaining to the yips may also decrease the chances of misdiagnosing and/or treating the condition as something else. As a medical professional concerned of the welfare about those they oversee, an AT should take notice to inconsistencies and 'red-flags' in order to intervene if necessary. Without doing so, an athlete could be vulnerable to greater harm.

Due to certification requirements, every AT participant had no less than a bachelor's degree. Of the

population surveyed, 87.7% had also received additional higher education yet, 96.3% of this population had not received any education on the yips of any kind. Of the ATs surveyed, 8.1% said they had either heard of or learned about the condition while in undergrad, 5.6% during post-graduate studies, 7.5% through continuing education opportunities, and 5.0% from research. As developed and mandated by the governing bodies of athletic training as of 2011, ATs must be knowledgeable about and competent in recognizing mental health concerns and properly referring them.[1] A significant relationship was found between those who had received education on the yips and those who understood their role when presented with an affected athlete. This knowledge increases the ability for the AT to perform adequately in providing the appropriate and needed medical intervention. Of the ATs in the study, 80.5% of participants responded as having interest in learning more about the yips. As shown by the data, there is a lack of educational resources for ATs and those studying to become an AT pertaining to the yips.

Athletic training as a profession has continued to grow and develop from its first years of existence. Just as the profession has grown, the quality of care and abilities has as well. In order to continue advancing the practice of

athletic training, ATs must continue to expand upon the knowledge and skills already obtained. Out of ATs in the study, 76.6% had an interest in learning more about the yips. As a condition seen affecting the athletic population in particular it is clear as to the importance for the athletic training population to be well educated on the condition, how to recognize it, and how to refer the athlete for the appropriate help.

Recommendations

The findings of this study demonstrate a lack of educational resources and attention to the yips. A lack of knowledge regarding the role of an athletic trainer (AT) when presented with the yips was also shown through this study. With these results, it is recommended that there be an increase in educational exposure of this condition prior to becoming a certified athletic trainer. Goals would be to increase knowledge pertaining to the condition and ATs ability to recognize and implement proper referral procedures. Discussion on what to do if/when presented with a yips case should be done regularly with appropriate mental health specialists available on staff or through outreach. Additional research on the yips is recommended to

better understand the condition, prevalence and effect among a range of sports affected. It is also recommended that additional research be undertaken to learn more about diagnostic tools and how they could be implemented by ATs.

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APPENDICES

APPENDIX A

Review of Literature

REVIEW OF LITERATURE

The purpose of this review of literature is to examine previous research and information pertaining to the condition known as the yips. This will be accomplished in the following sections, The Yips: Origination and Definition, The Yips: Categorized, The Yips: Who and Why, and The Yips: In Relation to Athletic Training. The literature review will conclude with a summary of the research performed to date.

The Yips: Origination and Definition

One of the first documented references to the phenomenon known as the yips is attributed to the Scottish golfer Tommy Armour in 1937.[1,2] According to the literature there is no known origin for this rather 'slang' terminology. Within the English language, a "yip" is described as the sound of 'a short bark' by a dog.[3] It is thought that the name was derived from this in order to reflect the jerky or otherwise flinching symptoms observed by an affected athlete.[4]

Different athletic teams have developed and used different names to describe the phenomenon. In archery, this condition has been known as "target panic", or

"daritis" when in reference to dart throwing, whereas in baseball it has been called multiple names based on previously affected athletes such as "Steve Blass Disease".[4,5] Just as this condition comes with multiple names, the yips can vary by definition depending on the context where it is presented.

Among research, the yips can be found described in an assortment of ways. Bawden and Maynard described the yips as being "…a long-term movement disorder consisting of involuntary movements that occur in the course of the execution of finely controlled, skilled motor behavior".[5] Research performed by McDaniel et al continued further to characterize this condition as one presenting with physical jerks, tremors, or spasms that directly affect the distal portion of the upper extremity.[6] Among research there seems to be an agreeance that the yips can present as uncontrollable physical movements during athletic participation.[5,7]

Definitions throughout literature pertaining to the yips have varied, placing a greater emphasis on different specific causations, characteristics, or populations affected. With more than 30% of golfers being affected, the yips pertaining to the sport of golf has been heavily emphasized among research.[8] Some definitions, such as that

given by Smith et al define the yips specifically as "…a motor phenomenon of involuntary movements affecting golfers".[6] Literature has also defined the Yips based on their physical characteristics by calling them muscular or occupational cramps.[10,11] In comparison, the yips have been considered among research to be a form of performance 'choking' in a chronic state.[12-15] Due this wide range of definitions and characteristics, Smith et al developed an all-encompassing definition, the continuum model, that includes both the physiological manifestations as well as the psychological choking characteristics.[6]

With its mysterious origination and range of definitions, it's clear as to why the yips are a condition difficult to characterize and at times to understand. What can be taken away from the diversity among these definitions and research as a whole is that the yips are a condition that affect both the psychological and physiological health and performance of athletes participating within a sport dependent on repetitive motor movements.

The Yips: Categorized

Much of available research pertaining to the yips aims to better understand its etiology. The continuum method

developed by Smith et al was the product of research conducted on golfers where subjective experiences and explanations were analyzed.[6] Utilizing the data found in this study, Smith et al categorized the yips affected athletes as either Type I or Type II in an attempt to better define the condition.[6] The two separate subtypes allow yips affected athletes to be characterized by their underlying etiology or triggers. Being as though the yips are a complex condition, these subdivisions can positively benefit those affected. Potentially, dividing affected athletes into Type I or II can allow for greater ease in recognition and beneficial personalized rehabilitation programs for training sports psychologists or other psychotherapy professionals.

Type I Yips

Those who would fall within the Type I subdivision seemed to focus greater attention on the physical characteristics when describing their symptoms and experiences with the yips as seen in the study performed by Smith et al.[6] It was found that athletes in this group, golfers specifically, were found to have greater muscle activity with electromyography (EMG) testing then athletes

in the other subdivision when performing the effected movement.[6]

Athletes with Type I yips have been categorized as being predominately affected by neurological symptoms, also known as focal dystonia.[15-18] Dystonia is a broad term used to describe a movement disorder causing the uncontrolled contraction of a muscle.[19] This condition is "…a neurological disorder characterized by involuntary movements resulting in spasms, twisting and posturing of a body part".[6] What distinguishes this movement disorder and others is that there is a sustained posture that is maintained at some point during the movement.[6]

Focal dystonia and task-specific dystonia are commonly used to describe the yips. Focal dystonia is described as being a neuromuscular movement disorder presenting as muscular cramping of a specific muscle, muscle group, or body part.[6,9,11] Similarly, task-specific dystonia involves involuntary movements during a fine motor task.[6,11] Task-specific dystonia is considered to occur during the execution of a particular movement, or as its name implies, a specific task, with the upper limb most commonly invovled.[6] The tasks that are commonly affected tend to be characterized as being highly repetitive in nature, requiring high levels of precision and feedback-related

consciousness, and are part of a routinely performed motor plan or pattern.[6]

Although the mechanisms of dystonia are still unclear, Klämpfl et al described them as involving "…abnormalities within the basal ganglia, inhibitory and processing dysfunction of the sensorimotor system, and abnormal plasticity".[11] The basal ganglia is a structure that is associated with the thalamus that contributes to coordination and movements.[20] Additionally, it has been hypothesized that maladaptive plasticity among different areas of the sensorimotor systems in addition to hereditary factors could be underlying causes of dystonia.[21-24]

To differentiate dystonia and another neurological disorders, three clinical signs can be observed in yips affected athletes.[21,25] Lobinger et al described these symptoms as the appearance of 'overflow', or the contractions of muscles not typically involved in the movement; 'mirror dystonia' or the presence of dystonic movements of the affected limb while performing the specific task but using the opposing body side; and the temporary reduction of dystonic symptoms with the application of sensory or input stimulation (still highly debated among research).[21]

Type II Yips

On the other end of the spectrum are the athletes considered to have Type II yips. When asked to describe their experiences with the condition, these individuals have been found to place an emphasis on the psychological distress felt.[6] Due to this, individuals that fall under this subtype are characterized as being effected to a greater extent by psychological deficits which creates a failure of activity and in turn, a manifestation of anxiety.[14] Individuals found struggling primarily from this psychological component have subjectively described themselves as feeling as though they have insufficient means to fulfill the demands of a particular task which causes them to fail during the performance of a skill at the desired level or accuracy.[14,19] Due to their high psychological triggers, Type II yips affected athletes tend to have higher levels of anxiety and performance impairment when in high-pressure situations.[18]

Choking within performance has been a heavily discussed component of the yips and one that affects Type II affected athletes in particular. Masters goes as far as to suggest that the yips are a severe form of choking.[26] Choking has been defined as an "…extreme manifestation performance anxiety" causing below par performance due to

self or internal focuses or distracted attention.[6] Two underlying reasons have been suggested for the development of choking during performance; placing an excessive amount of concentration on the act of performing or a distracted sense of focus, and allowing anxiety and self-focus to hinder completing a motor skill.[28-30] Characteristics experienced by yips affected athletes include having high levels of self-consciousness, feelings of being trapped, a fear of embarrassment, and a lack of confidence.[31]

Baumeister developed a model that showed the process of choking where pressure and the individuals' self-consciousness increased which in turn negatively affected their performance abilities.[30] Through this research, Bauemister explained that attempting to consciously control one's automatic skills is problematic to performance.[30] By doing this, an individual's consciousness no longer has the knowledge required for these activities, creating a negative effect on the execution of the skill.[30] Research performed by Lewis and Linder support findings of this model of choking and strengthen the theoretical frame work of choking in relation to the yips although it does not explain why it evolves into a long-term movement disorder.[31]

Anxiety and the Yips

Anxiety is commonly mentioned among literature as a contributing aspect of the yips.[9,13,32] It is suggested that the psychological distress associated with the yips creates an increase in anxiety causing a higher rate of movement error.[5,8,28] The extent at which anxiety effects an athlete with the Yips varies depending on which subdivision, Type I or Type II, the athlete is considered. A study done by Stinear et al compared Type I, Type II, and unaffected golfers.[27] Within this study, it was found that Type II golfers' cognitive anxiety scores were not affected by environmental manipulations intended to increase stress, but they experienced impaired putting with the presence of monetary reward.[27] Stinear et al contributed this finding to an increased sense of "self-awareness and internally generated performance pressure" as large contributions to the Type II yips affected athletes anxiety level.[27] Additionally, findings from this study suggested that the difficulties experienced by Type I yips athletes "…are related to impaired initiation and execution of movement rather than factors related to performance anxiety".[27] Stinear et al concluded that the difficulties of Type II athletes were attributed to performance anxiety rather than by "…factors related to the neural control of movement."[27]

Other research has contradicted these findings and concluded that anxiety is not a direct cause yet magnifies or worsens symptoms in Type II yips affected athletes.[5] Research has concluded that the yips are not directly caused by anxiety, but the condition is worsened when an increase in stress or anxiety is present.[6] Anxiety has also been seen to worsen involuntary movements among other neurological disorders such as Parkinson's disease and Tourette's syndrome.[6]

The Yips: Who and Why?

Due to the fact that the golfing community has been greatly affected by the yips, much of the research on this condition has been focused on the sport of golf in particular. A study performed by McDaniel et al in 1989 found that out of the 42% of 1,050 respondents, 28% of amateur golfers experienced the yips.[12] More recently in 2000, Detling et al found there to be a 53.5% rate of yips among golfers.[14] Well known golfers such as Tiger Woods, Bernhard Langer, and Kevin Na have reportedly battled with the yips during tournament play.[8,18,35] In golf, the yips have been seen to affect the putting stroke specifically.[8,12,14]

In addition to golf, athletes in sports such as cricket, darts, archery, baseball, basketball, and American football have been reported to struggle with the yips affecting their performance.[4,5,36] Among baseball, pitchers especially seem to be affected by the yips, although other positional players can develop it as well.[4] Yips affected athletes in American football, such as National Football League (NFL) field goal kicker Roberto Aguayo, have reportedly struggled with the yips.[4,36] Aguayo struggled with field goal accuracy after being named the 'most accurate' kicker in the Atlantic Coast Conference (ACC) and third most accurate in National Collegiate Athletic Associate (NCAA) the season prior.[4,36] Within basketball, the foul shot attempt is most commonly affected by the yips.[4]

Although an exact reasoning behind the development of the Yips has not been provided through literature, there have been multiple similarities found throughout research. Through the research performed by McDaniel et al, it was found that golfers affected by the yips were all of an older age, had been playing the sport longer, and presented with obsessional thinking.[12] Among yips affected golfers in particular, the development of the condition has been attributed to "…(i) biochemical changes in the brain that accompany aging; (ii) excessive use or overuse of involved

muscles; (iii) intense coordination and concertation demands; (iv) focal dystonia of the limb; and (v) stress and obsessive thoughts".[6]

While the direct cause of the yips is yet to be directly defined among researchers, there have been similar psychological characteristics found among the affected population. Athletes who've developed the yips have been seen to have "…high levels of self-consciousness; perceptions of a lack of control over one's performance, feelings of being trapped; concerns about personal embarrassment; and a lack of confidence".[31] In addition to this, athletes have reported to have had experienced a sports related event or major life event just prior to the onset of the yips.[31] Although each sport seems to be affected by the yips differently, research done by Bawden and Maynard have shown there to be consistencies among athletes in varying sporting avenues.[5]

Perfectionism and Obsessive Thinking

Throughout literature, perfectionism and obsessive thinking have been heavily discussed in relation to the development and prevalence of the yips. Perfectionism is "…multidimensional construct that is characterized by the setting of extremely high personal standards alongside

harsh criticism of one's behavior".[31] Frost et al described perfectionism as having six dimensions: personal standards, organization, concern over mistakes, doubts about actions, parental expectations, and parental criticism.[37] In a study done by Roberts et al it was said that those "…striving for perfection coupled with harsh personal criticism" lead to a decrease in and difficulty with performance.[31] This study particularly demonstrated how traits of perfectionism are a predictor for those who are likely to develop and be affected by the yips.[31]

Closely related to perfectionism, is obsessive thinking. Obsessive thinking is the "…concern over mistakes and doubts about actions".[31] Research has shown there to be a positive correlation of personal standards and obsessive-compulsive behavior.[37] These findings show that individuals with obsessive thinking and behaviors therefore have unhealthy perfectionism characteristics as well.[37] In a study performed by McDaniel et al, it was found that yips affected golfers had two specific areas with a greater mean score than those un-affected, years of experience and obsessional thinking.[12] With what we know about the yips, it can be concluded that those performing repetitive fine motor movements, over a long period of time, who have a greater sense of perfectionism and obsessional thinking are

at a greater risk of developing the yips. Due to the nature of athletics, it is clear as to why high level amateur/collegiate and professional athletes are susceptible to this condition.

Reinvestment Theory

Reinvestment has become a theory as to the cause for advanced level athletes to develop the yips. Reinvestment is described as attempting to consciously control your own motor movements.[10,18] Throughout research pertaining to the yips, reinvestment has shown to be relative to multiple findings. Within the interview based research performed by Phillipen et al, it was reported that most yips affected athletes placed a greater emphasis of focus on they were attempting to perform when experiencing symptoms.[18] Similar findings were found by Bawden and Maynard through their interview based research as well.[5] It has been concluded through research performed by Klämpfl et al that despite original beliefs, high pressure situations in fact were not necessary to trigger the yips.[11] The findings of each of these studies supports the hypotheses that the yips are not performance anxiety, rather a form of situational choking.

Situational choking is when the situation itself (the activity or movement) provokes the anxiety which in turn

impairs performance abilities.[13] In order for reinvestment to occur, an individual must obtain the knowledge of a skill to where it is, in other words, 'automatic'.[13] Due to this, it would make sense as to why motor movements in the athletic population are affected as they are typically mastered and repetitive in nature. Reinvestment has occurred among athletes due to pressure situations, following an injury, accident, or movement disorder, due to an attempt at adapting to new circumstances (e.g., new sports equipment), and following an unexpected event or performance.[10,13] These findings resemble the information previously learned about the development of the yips and athletes. Although, in the end the research performed by Klämpfl et al was unable to directly link reinvestment theory and the yips.[11]

Yips Etiology

Although research fails to provide a clear answer, it becomes more evident that the Yips may be an umbrella term that encompasses a number of the original hypothesizes. One could conclude that athletes performing in sports that call upon highly repetitive fine motor movements, who have been subjected to high pressure situations, who have perfectionistic traits or obsessive thinking, and

potentially bad experiences could develop the Yips. Abnormalities of the basal ganglia or plasticity, and an inability or dysfunction of the sensorimotor system have also been associated with the development of dystonia and in turn the yips in athletes.[11] Psychological components such as anxiety and inappropriate amounts of internal or external focuses could then exacerbate the situation elevating the degree of choking, whether in situations of high pressure or not.

The Yips: In Relation to Athletic Training

Athletic trainers (ATs) by definition are "…highly qualified, multi-skilled health care professionals who collaborate with physicians to provide preventative services, emergency care, clinical diagnosis, therapeutic intervention and rehabilitation of injuries and medical conditions".[38] As illustrated by this definition, an AT has a wide range of responsibilities and roles. The scope of practice at which an AT is to follow, is defined by the Athletic Training Educational Competencies (Competencies) published by the National Athletic Trainers' Association (NATA), as well as by the Role Delineation Study (RDS) as published by the Board of Certification, Inc. (BOC).[39] The

Competencies and RDS are core values that all ATs are to follow and clinically practice by.

The NATA in conjunction with the Commission on Accreditation of Athletic Training Education (CAATE), has identified the minimum knowledge (cognitive), skills (psychomotor), and application (clinical proficiencies) required by an athletic training student prior to certification.[39] These three competencies are explained in depth by being divided into twelve content areas. The ninth of these, and most relevant to the topic of the yips, is 'psychosocial intervention and referral'.[39]

As stated within the 5th Edition of Athletic Training Education Competencies by the NATA,

> *Athletic trainers must be able to recognize clients/patients exhibiting abnormal social, emotional, and mental behaviors. Couple with regulation is the ability to intervene and refer these individuals as necessary. Additionally, athletic trainers appreciate the role of mental health in injury and recovery and use interventions to optimize the connection between mental health and restoration of participation.*[40]

An AT must also be able to identify basic signs and symptoms signifying the need for further treatment for a mental healthcare provider and then refer appropriately.[40]

With the professional obligation to provide comprehensive medical care, an AT is required to have an understanding of all conditions potentially impairing an

athlete's abilities and overall health. An athlete struggling with the yips may present to an AT with a complaint of abnormal and involuntary muscular contractions and an increase in anxiety during the performance of previously mastered skills. Yips affected athletes have been found to have a faster mean heart rate, increased electromyogram activities as well as an increased exerted grip force as compared to unaffected athletes.[5] To manage such symptoms an athlete may in turn an athlete may turn to prescription drugs or self-medication such as alcohol and pharmacological agents like β-blockers.[6] It has been found that β-blockers inhibit the rise in heart rate while decreasing the presence of involuntary shaking or tremor during performance.[6] It is important to be knowledgeable of the substances both taken as a prescription or as self-medication as they can affect the individual physiologically and possibly psychologically. This all in turn could affect how an AT addresses preventative precautions, acute care, or rehabilitation procedures.

As an individual who at times is the first line of defense for an athlete, an AT is required to have an understanding of all conditions potentially impairing an athlete's abilities and overall health. The yips are a condition that specifically affect the athletic community

and impairs psychological and physiological abilities. The condition is one that not only negatively impacts the athlete's performance, but overall well-being. Although the yips fall outside of and ATs scope of practice in matters of treatment, they are considered responsible to refer affected athletes to the appropriate specialist. In order to do so, an AT must be educated on the yips and how an athlete may present to them. It is the obligation of the AT to be informed on all matters that could disturb the health and participation of an athlete.

Summary

The yips are a condition that plague athletes who have extensive experience in their sport where they perform repetitive fine motor movements.[5,12] Athletes affected by the yips can present with physiological twitches, tremors, or jerks while performing these fine motor movements, all of which are exacerbated by anxiety.[6] To best describe all aspects of this condition, Smith et al developed the continuum model describing focal dystonia and choking (in sport) as contributing factors.[6]

Athletic trainers (ATs) are allied health professionals who specifically work with an athletic population. Although the yips are out of an ATs scope of practice, they are required by governing bodies to be knowledgeable of psychosocial conditions in order to properly refer athletes to appropriate medical professionals.[40] In order to do so, ATs must receive adequate education pertaining to such conditions. To grasp an understanding as to whether or not ATs have adequate knowledge on the yips in order to provide appropriate referral, it is imperative to know what is known of the condition among this population.

APPENDIX B

The Problem

STATEMENT OF THE PROBLEM

The purpose of this study is to examine to what extent the condition known as 'the yips' is understood by athletic trainers (ATs) working among collegiate and professional settings. This study will directly address the ATs working at all NCAA divisions, NAIA, other collegiate institutions, and professional settings. Through the standards set by governing bodies of the National Athletic Trainers' Association (NATA) and Board of Certification (BOC), ATs are required to have adequate knowledge, skills, and clinical proficiencies to address ailments affecting athletes. As a condition with psychological and physiological features affecting the athletic population specifically, it is imperative that an AT is knowledgeable of the yips. This study has the potential to enhance the education of ATs in regards to performance anxiety issues like the yips. Additionally, findings from this research could create stronger recognition as to the need for future research.

Definition of Terms

The following definitions of terms will be defined for this study:

1. Athletic Trainer (AT) - An NATA Certified member from the following employment categories: collegiate (NCAA, NAIA, other) and professional.
2. Yips - a chronic movement disorder presenting as involuntary movements occurring during the execution of finely controlled motor actions exacerbated by anxiety with causes ranging from choking and focal dystonia.[6]
3. Dystonia - "…a neurological disorder characterized by involuntary movements resulting in spasms, twisting, and posturing of a body part".[6]
4. Focal Dystonia - a neuromuscular movement disorder presenting as muscular cramping of a specific muscle, muscle group, or body part.[6,9,11]
5. Task-Specific Dystonia - involuntary movement during a fine motor movement, or specific task most commonly involving the upper limb.[6,11]
6. Perfectionism - "…multidimensional construct that is characterized by the setting of extremely high personal standards alongside harsh criticism of one's behavior".[31]

7. Obsessive Thinking - "…concern over mistakes and doubts about actions".[31]
8. Reinvestment - attempting to consciously control your own motor movements.[10,18]
9. Choking (in sport) - "…a negative athletic experience that may have psychological damaging effects…any decrease in performance under pressure".[41]
10. Situational Choking - when a situation (the activity or movement) provokes anxiety impairing performance abilities.[13]
11. Anxiety - "mentally distressing concern or interest" or "a strong desire sometimes mixed with doubt, fear, or uneasiness".[42]

Basic Assumptions

The following are basic assumptions of this study:

1) All respondents will answer the survey to the best of their abilities.
2) All participants will be ATs currently working at an NCAA, NAIA, other collegiate, or professional setting.
3) All participants will complete the survey in its entirety.

Limitations of the Study

The following are possible limitations of the study:

1) The unequal distribution of survey participants in all employment settings (NCAA, NAIA, other collegiate, and professional) may be sampled.
2) Because it is a descriptive study, this data does not demonstrate or suggest causal relationship.
3) Participants not completing the survey to its entirety.

Significance of the Study

As a condition plaguing high level athletes for decades, the yips have received little recognition among the athletic training community. The yips have fallen victim to generalized misconceptions fostered by limited research.

ATs are obligated to aid in the prevention, clinical evaluation and diagnosis, immediate care, treatment and rehabilitation, and professional well-being of the individuals in which they oversee.[40] In order to do so they must have comprehensive knowledge, skills, and clinical proficiencies as stated by the governing bodies of the National Athletic Trainers' Association (NATA) and Board of Certification (BOC).[39] Specifically, an AT is responsible for recognizing and appropriately referring an athlete who

presents with traits such as psychological abnormalities, locus of control, and anxiety.[39] As a condition seen affecting the athletic community among a range of athletic venues, it's imperative that ATs are well versed in recognition and referral to insure appropriate treatment.

Due to the psychological component of this condition, the yips fall out of the scope of practice for an AT. Although an AT is unable to treat the yips, they are responsible for properly referring the affected athlete to an appropriate mental health professional. To do so, the AT must have an appropriate level of knowledge on the condition in order to recognize an athlete struggling with the yips.

This research has the ability to introduce a need for additional education and research pertaining to the yips. With a better understanding as to whether or not the yips are a condition widely understood and even witnessed among advanced level athletes, future research and learning standards can be influenced. Correcting inaccurate knowledge pertaining to the yips can benefit athletes, coaches, and ATs alike. Expanding upon current education and research has the potential to positively impact an AT's ability to address mental health issues affecting the athletic population.

APPENDIX C

Additional Methods

APPENDIX C1

Panel of Experts Email

Hello _____,

I wanted to thank you once again for being a part of this thesis pilot study panel of experts. The objective of this study is to see whether or not athletic trainers working at collegiate and professional settings are knowledgeable on the topic of the yips and their ability to refer athletes presenting with this condition.

In order for this survey to be valid, I am conducting this pilot study. Due to your clinical experience as an athletic trainer I've asked you to participate. The feedback you provide about this survey is valued and important for the success of this study. Revisions will be made in reference to the information obtained from this pilot study.

Bellow you will find the link to SurveyMonkey® where the survey *Yips Knowledge and Experience of the Athletic Trainer Working at Collegiate and Professional Levels* will be located. Clinking on the link will automatically open the survey and from there you may begin. Following the survey please inform me with:

1. The time it took to complete the survey
2. Questions to add or remove
3. Grammatical corrections needed to be made
4. Clarity of the questions asked
5. General feedback regarding recommended improvements

In order to move forward with this research, your completion of this survey and feedback within the next week (by Thursday, February 23rd) would be greatly appreciated. Please contact me if you have any questions at van8902@calu.edu. Thank you for taking the time to participate as a member of this panel of experts. Your contribution is greatly appreciated.

(link to survey)

Have a great day,

Kelsie VanBeelen LAT, ATC
California University of Pennsylvania
250 University Ave, California PA 15419
van8902@calu.edu

APPENDIX C2

Survey Cover Letter

CALIFORNIA UNIVERSITY OF PA
ATHLETIC TRAINING

Dear Fellow Certified Athletic Trainer,

My name is Kelsie VanBeelen and I am an athletic training graduate student at California University of Pennsylvania. I am writing to ask for your participation in research I'm conducting for my thesis project pertaining to a condition known as the yips. Due to your experience working as a certified athletic trainer at the collegiate and/or professional level, I am inviting you to participate in this research study by completing the attached survey.

The following questionnaire will require approximately 4-10 minutes to complete with no known risks. While there is no compensation for responding, your participation would be greatly appreciated and valued. Your completed survey will be kept in a password-protected file on University servers.

If you choose to participate in this project, please answer all questions as honestly as possible. Participation is strictly voluntary and you may discontinue participation at any time and your data will be excluded from this study. By submitting the survey once completed, you are indicating consent to use the data. To participate in the study, you must be 18 years of age or older. The California University of Pennsylvania Institutional Review Board has reviewed and approved this study. The approval is effective xxx and expires xxx.

Thank you for taking the time to assist me in my educational endeavors. The data collected will provide useful information regarding the Yips. If you have any concerns or questions about this research study, please contact me at van8902@calu.edu or my advisor Dr. Ellen West at west_e@calu.edu.

Sincerely,
Kelsie VanBeelen, LAT, ATC
California University of Pennsylvania
250 University Ave, California PA 15419
van8902@calu.edu
724.938.5954

Participants for this survey were selected at random from the NATA collegiate and professional membership databases. This student survey is not approved or endorsed by NATA. It is being sent to you because of NATA's commitment to athletic training education and research.

By clicking yes, you are indicating that you are 18 years of age or older, agreeing that you have read the above text in its entirety, and would like to voluntarily participate in the survey research. Consent will be implied once the survey is accessed. Would you like to continue?

Appendix C3

Yips Knowledge and Experience of the Athletic Trainer Working at Collegiate and Professional Levels Survey

Cover Letter

Dear Fellow Certified Athletic Trainer,

My name is Kelsie VanBeelen and I am an athletic training graduate student at California University of Pennsylvania. I am writing to ask for your participation in research I'm conducting for my thesis project pertaining to a condition known as the yips. Due to your experience working as a certified athletic trainer at the collegiate and/or professional level, I am inviting you to participate in this research study by completing the attached survey.

The following questionnaire will require approximately 4-10 minutes to complete with no known risks. While there is no compensation for responding, your participation would be greatly appreciated and valued. Your completed survey will be kept in a password-protected file on University servers.

If you choose to participate in this project, please answer all questions as honestly as possible. Participation is strictly voluntary and you may discontinue participation at anytime and your data will be excluded from this study. By submitting the survey once completed, you are indicating consent to use the data. To participate in the study, you must be 18 years of age or older. The California University of Pennsylvania Institutional Review Board has reviewed and approved this study. The approval is effective 04/04/17 and expires 04/03/18.

Thank you for taking the time to assist me in my educational endeavors. The data collected will provide useful information regarding the Yips. If you have any concerns or questions about this research study, please contact me at van8902@calu.edu or my advisor Dr. Ellen West at west_e@calu.edu.

Sincerely,

Kelsie VanBeelen ~~LAT, ATC~~
California University of Pennsylvania
250 University Ave, California PA 15419
van8902@calu.edu
724.938.5954

Participants for this survey were selected at random from the NATA collegiate and professional membership databases. This student survey is not approved or endorsed by NATA. It is being sent to you because of NATA's commitment to athletic training education and research.

By clicking yes, you are indicating that you are 18 years of age or older, agreeing that you have read the above text in its entirety, and would like to voluntarily participate in the survey research. Consent will be implied once the survey is accessed. Would you like to continue?

* 1. Are you 18 years of age or older?

- ◯ Yes
- ◯ No

Professional Demographics

* 2. What is your highest degree or level of education you've completed?

- ◯ Associate Degree
- ◯ Bachelor's Degree
- ◯ Master's Degree
- ◯ Professional Degree
- ◯ Doctoral Degree

* 3. How many years have you been practicing as a certified athletic trainer?

- ◯ 1 - 5 years
- ◯ 6 - 10 years
- ◯ 11 - 15 years
- ◯ 16 - 20 years
- ◯ 21+ years

* 4. Are you, or have you ever been an educator in a professional athletic training program (CAATE)?

- ◯ Yes
- ◯ No

* 5. What athletic population do you currently work with?

- ◯ NCAA Division I
- ◯ NCAA Division II
- ◯ NCAA Division III
- ◯ NAIA
- ◯ Other Collegiate
- ◯ Professional
- ◯ Other (please specify)

[ ]

* 6. What athletic team(s) have you primarily worked with? (check all that apply)

- [ ] Baseball
- [ ] Basketball
- [ ] Bowling
- [ ] Cross Country / Track and Field
- [ ] Cheerleading
- [ ] Dance
- [ ] Fencing
- [ ] Field Hockey
- [ ] Football
- [ ] Gymnastics
- [ ] Golf
- [ ] Ice Hockey
- [ ] Lacrosse
- [ ] Rifle
- [ ] Rowing
- [ ] Soccer
- [ ] Softball
- [ ] Swimming / Diving
- [ ] Tennis
- [ ] Volleyball
- [ ] Water Polo
- [ ] Wrestling
- [ ] Other (please specify)

* 7. Aside from your current position, what other athletic population(s) have you worked with as an ATC? (check all that apply)

- [ ] None
- [ ] High School
- [ ] NCAA Division I
- [ ] NCAA Division I
- [ ] NCAA Division III
- [ ] NAIA
- [ ] Other Collegiate
- [ ] Professional
- [ ] Other (please specify)

Yips and the Athletic Trainer

* 8. Have you ever heard of the Yips?

- ◯ Yes
- ◯ No

* 9. I understand what the Yips are.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
◯	◯	◯	◯	◯

* 10. Have you had any formal education or training pertaining to the Yips?

- ◯ No
- ◯ Yes

* 11. Where have you learned about the yips?

- ◯ Undergraduate Education
- ◯ Post-professional Education
- ◯ Continuing Education
- ◯ Research
- ◯ Other

* 12. To your knowledge, have you worked with an athlete affected by the Yips?

- ◯ Yes
- ◯ No

* 13. Do you believe the Yips to be more prevalent in a particular sport(s)? (check all that apply)

- [ ] No
- [ ] Baseball
- [ ] Basketball
- [ ] Bowling
- [ ] Cross Country / Track and Field
- [ ] Cheerleading
- [ ] Dance
- [ ] Fencing
- [ ] Field Hockey
- [ ] Football
- [ ] Gymnastics
- [ ] Golf
- [ ] Ice Hockey
- [ ] Lacrosse
- [ ] Rifle
- [ ] Rowing
- [ ] Soccer
- [ ] Softball
- [ ] Swimming / Diving
- [ ] Tennis
- [ ] Volleyball
- [ ] Water Polo
- [ ] Wrestling
- [ ] Other (please specify)

Yips and the Athletic Trainer

* 14. How many athletes have you seen with the Yips?

- ◯ 0
- ◯ 1 - 3
- ◯ 4 - 6
- ◯ 6 - 9
- ◯ 10 +

* 15. Are there currently any athletes on the team you're working with struggling with the yips?

- ◯ Yes
- ◯ No

* 16. What sport(s) is the affected athlete participating in? (check all that apply)

- [ ] Baseball
- [ ] Basketball
- [ ] Bowling
- [ ] Cross Country / Track and Field
- [ ] Cheerleading
- [ ] Dance
- [ ] Fencing
- [ ] Field Hockey
- [ ] Football
- [ ] Gymnastics
- [ ] Golf
- [ ] Ice Hockey
- [ ] Lacrosse
- [ ] Rifle
- [ ] Rowing
- [ ] Soccer
- [ ] Softball
- [ ] Swimming / Diving
- [ ] Tennis
- [ ] Volleyball
- [ ] Water Polo
- [ ] Wrestling
- [ ] Other (please specify)

Yips and the Athletic Trainer

* 17. The Yips are primarily...

- ◯ Psychological
- ◯ Physiological
- ◯ Both
- ◯ Unsure
- ◯ I have not heard of the yips
- ◯ Other (please specify)

* 18. I believe I could recognize someone suffering with the yips.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
◯	◯	◯	◯	◯

* 19. Are you aware of what to do if presented with an athlete with the Yips?

- ◯ Yes
- ◯ No

* 20. I am aware of my institution's mental health referral protocols.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
◯	◯	◯	◯	◯

* 21. I can confidently implement the mental health referral protocol.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
◯	◯	◯	◯	◯

* 22. I am interested in learning more about the Yips.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
◯	◯	◯	◯	◯

Appendix C4

Institutional Review Board –

California University of Pennsylvania

Institutional Review Board
California University of Pennsylvania
Morgan Hall, 310
250 University Avenue
California, PA 15419
instreviewboard@calu.edu
Robert Skwarecki, Ph.D., CCC-SLP,Chair

Dear Ms. VanBeelen:

Please consider this email as official notification that your proposal titled "Yips Knowledge and Experience Among Athletic Trainers Working with Collegiate and Professional Athletes" (Proposal 16-058) has been approved by the California University of Pennsylvania Institutional Review Board as submitted.

The effective date of approval is 04/04/17 and the expiration date is 04/03/18. These dates must appear on the consent form.

Please note that Federal Policy requires that you notify the IRB promptly regarding any of the following:

(1) Any additions or changes in procedures you might wish for your study (additions or changes must be approved by the IRB before they are implemented)

(2) Any events that affect the safety or well-being of subjects

(3) Any modifications of your study or other responses that are necessitated by any events reported in (2).

(4) To continue your research beyond the approval expiration date of 04/03/18 you must file additional information to be considered for continuing review. Please contact instreviewboard@calu.edu

Please notify the Board when data collection is complete.

Regards,

Robert Skwarecki, PhD, CCC-SLP

Chair, Institutional Review Board

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2017.

ABSTRACT

TITLE: Yips Knowledge and Experience Among Athletic Trainers Working with Collegiate and Professional Athletes

RESEARCHER: Kelsie VanBeelen

ADVISOR: Dr. Ellen J. West

DATE: May 2017

RESEARCH TYPE: Masters Thesis

PURPOSE: The purpose of this study was to examine the awareness of athletic trainers (ATs) at collegiate and professional settings had pertaining to the yips.

PROBLEM: The yips are a condition that affects the athletic community in particular. It is important to know that ATs have awareness of the condition.

METHOD: The study was descriptive in nature utilizing a survey, hosted by SurveyMonkey® and developed by the researcher.

FINDINGS: 1,000 ATs were randomly selected through the NATA Database. There were 162 (16.2%) participants. Of AT participants, 61.5% had heard of the yips. Only 3.7% of ATs surveyed had received any previous education on the yips and 72.1% of ATs were not aware of their role if presented with a yips affected athlete. The additional findings showed there to be significance between having received yips education and knowing the role of an AT when presented with the condition. Additionally, there was a relationship between the years of AT experience and having heard of the yips, as well as knowing the role of an AT when presented

with the condition.

CONCLUSION: Collegiate and professional athletic trainers have heard of the yips but have received little to no education about the condition, or are aware as to what to do when presented with an affected athlete.