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High school administrators' views of athletic trainers' roles and abilities

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HIGH SCHOOL ADMINISTRATORS' VIEWS OF ATHLETIC TRAINERS' ROLES AND ABILITIES

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ABSTRACT

HIGH SCHOOL ADMINISTRATORS' VIEWS OF ATHLETIC TRAINERS' ROLES AND ABILITIES

By Aya Felling

The purpose of this study was to determine the knowledge possessed by administrative personnel in California high schools regarding the roles and responsibilities of the athletic trainer. The results may be useful to athletic trainers by possibly highlighting a population group that may need more education concerning athletic training by illustrating any possible effects that knowledge, or lack thereof, of athletic training may have on the employment status of athletic trainers in the California high school system.

A 24-question survey was mailed to 300 California high schools. Data was assessed using descriptive statistics and cross tabulations. The results indicated that a majority of administrators have a positive impression of athletic training, but somewhat skewed knowledge regarding the educational background and professional qualifications of an athletic trainer. Athletic directors were more knowledgeable of athletic training when compared to principals. Future studies may benefit from a nationwide sample and comparative studies.

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ABSTRACT

HIGH SCHOOL ADMINISTRATORS' VIEWS OF ATHLETIC TRAINERS' ROLES AND ABILITIES

Objective: The objective of this study was to determine the knowledge possessed by administrative personnel in California high schools regarding the roles and responsibilities of the athletic trainer.

Design and Setting: This study used a 24-question Likert scale survey mailed to California high schools. Each school received one survey for the principal and one for the athletic director.

Subjects: The sample size was 596 administrators from 300 California high schools. Two hundred nineteen individuals responded to the mailed survey.

Measurements: Administrators answered questions regarding athletic trainers' roles according to a 5-point Likert scale. Frequency and descriptive data was recorded for each question. Cross-tabulations were performed to assess associations between principals and athletic directors, and schools with athletic trainers compared to schools without athletic trainers.

Results: Two hundred nineteen surveys were returned (36.9%). More athletic directors responded (n=121), when compared to principals (n=67). Most respondents were knowledgeable about the roles and responsibilities of athletic trainers. However, there is a discrepancy between the perceptions of athletic directors compared to principals. Athletic directors more strongly agreed with statements regarding athletic trainers' qualifications, when compared to principals.

Conclusions: Administrators have a good knowledge of the roles and qualifications of athletic trainers. The majority of athletic directors had a better understanding of athletic trainers' qualifications when compared to the responses of principals. Schools may benefit from including athletic directors in the hiring process of athletic trainers.

Key Words: Knowledge of athletic training, perceptions, athletic director, principal, high school administration

INTRODUCTION

Studies that survey the public's knowledge of athletic training may aid in educating specific groups in need of this service to provide better health care to athletic populations. A lack of knowledge concerning athletic training and other medical options may make the acquisition of proper medical staff difficult. A need exists to educate the public, specifically high school administrators, on the need for athletic training personnel. Due to the relative newness of the profession and the relatively recent branching into the high school for athlete health care, knowledge regarding athletic training job duties may be lacking.[1] Misunderstandings and a lack of knowledge regarding athletic training may affect the acquisition of proper medical coverage in the high school setting.[2,3] In addition, schools lacking in athletic health care coverage may utilize coaches rather than athletic trainers.[4,5]

Part of education is effective communication by athletic trainers regarding their role in the school's athletic program.[6] For example, an increase in public awareness of athletic training improves the athletic trainer to student-athlete ratio dramatically.[3] The athletic trainer to student-athlete ratio improved from 1:1000 in private schools and 0:13,000 in public schools in 1991 to 1:363 and 1:404, respectively.[3] Better education may prompt high school administrators to hire athletic trainers to provide health care to

their athletes, and minimize time-loss injuries and medical expenses to families and the school system.

Little research has been conducted concerning the public's knowledge of athletic training. The few studies that have been published[7-10] report misinterpretations and inconsistencies with regard to the roles and responsibilities of athletic trainers. Therefore, the purpose of this study was to determine the knowledge and attitudes of California high school administrative personnel as it pertains to the roles and responsibilities of athletic trainers.

METHODS

Participants in the current study were administrative personnel from 300 California high schools statewide including public and private institutions. Three hundred schools represent approximately 25% of the 1208 schools. The goal was to yield approximately 200 return surveys since increases in precision are not as great once the sample is larger than approximately 200 subjects.[11] Of 594 mailed surveys, 219 (36.9%) were returned.

Using a random number table, 300 schools from the 2002 California State Coaches Directory of Middle, Junior, and Senior High Schools – Colleges were selected. Each school received two identical surveys: one survey for the principal and one survey

for the athletic director. The three schools that had the same individual occupying the role of principal and athletic director received one survey. Therefore, 297 surveys were sent to principals and 297 were sent to athletic directors. Approximately 600 packets were mailed, with the anticipation of receiving over 200 responses. For coding purposes, the principals' surveys were on white paper and the athletic directors' surveys were on green. The accompanying return envelopes were coded with a number to maintain anonymity and record individuals that had responded. Each high school was assigned a number that was written on the return envelope. Return of the survey served as the individual's consent. The San Jose State University Institutional Review Board approved a Human Subjects Review for the protection of human subjects.

Survey Instrument

This descriptive study was based on a study by Hoppel et al.[9] Several modifications were made to the original survey.[9] Demographic questions were modified to change the vernacular from parent to administrative personnel. Two questions regarding school size were added to the demographic section. In addition, the term "my child" was changed to "student-athlete" in the questions in the Athletic Trainer Roles section. The survey consisted of nine demographic questions, followed by fifteen questions pertaining to the individual's familiarity with and attitudes toward athletic

85 training (Figure 1). The athletic training questionnaire used a 5-point Likert scale
86 ranging from "strongly agree" to "strongly disagree". The number one correlated with
87 "strongly agree", two with "moderately agree", three with "neutral", four with
88 "moderately disagree", and five with "strongly disagree". A cover letter and a self-
89 addressed stamped envelope accompanied all surveys. The modified survey was
90 reviewed by an expert panel of two athletic trainers, an athletic director, and a sport
91 management specialist, and only editorial changes were made based on their evaluation.
92 *Procedures*
93 All participants received an envelope containing a cover letter, survey, and self-
94 addressed stamped envelope. The cover letter explained the purpose of the study, the
95 importance of the individual's participation, and his or her right to decline participation.
96 One week after the surveys were mailed, a reminder postcard was sent to all of the high
97 schools.[11] The postcard served as a "thank you" to those who had returned the survey and
98 a reminder to those who had not yet returned the survey. Three weeks after the surveys
99 were mailed, individuals that had still not responded were contacted via telephone to
100 remind and encourage them to complete and return the survey. Individuals that had not
101 responded within six weeks were not contacted further.
102

Analysis of Data

Data was entered and analyzed using Statistical Package for Social Sciences (SPSS version 8.0, SPSS Inc, Chicago, IL). Demographic information was analyzed using means, standard deviations, and frequencies. Cross tabulations were performed to compare principals to athletic directors regarding their responses to the athletic training questions. Cross tabulations were used to detect any differences between the perceptions of principals compared to athletic directors concerning athletic trainers' roles and responsibilities. In addition, cross tabulations were also used to compare schools employing athletic trainers compared to schools without athletic trainers regarding their personnel's responses to the athletic training questions.

RESULTS

Of the 594 surveys mailed, 219 were returned (36.9%), of which 215 were useable. Seventy nine percent of the respondents were male, 19.8% were female, and .9% did not answer. Most responses were from athletic directors (n=121) or a combined position of athletic director and athletic trainer, or athletic director and assistant principal (61.1%, N=215). Sixty-seven principals responded to the survey (31.2%, N=215). The majority (49.3%, N=215) of high school administrators had been employed at their high schools for more than ten years and had a master's degree (61.2%, N=215).

Approximately half of the schools that responded (57.3%, N=215) currently employed an athletic trainer. The majority of the schools that responded (64.4%, N=215) had a student population of over 1000 students, with an average of 555 student-athletes and an average annual athletic budget of $79, 366.57.

Demographic data were calculated using SPSS (Tables 1, 2). Cross tabulations were considered significant when a difference equal to or greater than 10% was evident. After review of the data, the researchers selected 10% as a significant difference. A significant difference was found between athletic directors and principals for 10 of the 15 athletic training questions (Table 3). More athletic directors strongly agreed with statements describing athletic trainers' capabilities and roles. There was a greater tendency for principals to moderately agree or feel neutral about the roles and educational background of athletic trainers.

There were some large differences between the responses of schools that currently employed an athletic trainer when compared to schools that did not employ an athletic trainer. Significant differences existed for 5 of the 15 athletic training questions (Table 4). Schools with athletic trainers tended to more strongly agree with statements regarding athletic trainers' roles and responsibilities. The majority of responses from schools with athletic trainers (72.6%, n=117) strongly agreed with the statement that

athletic trainers explain the steps of injury rehabilitation to student-athletes, compared to 54.0% (n=87) of the responses from schools without athletic trainers. Also, a majority of responses from schools with athletic trainers (53.4%, n=118) strongly agreed with the statement that athletic trainers are qualified to organize the administration of an athletic health care facility, compared to 37.2% (n=86) of the 'strongly agree' responses from schools without an athletic trainer. A larger number of schools with athletic trainers strongly agreed with statements validating an athletic trainer's qualifications to perform these tasks, when compared to schools without an athletic trainer (Table 4).

DISCUSSION

The data implies that California high school administrators have favorable opinions regarding the roles and responsibilities of athletic trainers. However, the overwhelming majority of administrators strongly agree that athletic training is a misunderstood profession. This supports the findings of previous research[2, 8-10] that established athletic training as a misunderstood field. Some of the administrators' perceptions of athletic training education are inaccurate, such as the necessity of clinical hours prior to eligibility to sit for the National Athletic Trainers' Association Board of Certification examination. The majority of responses either moderately or strongly agreed that an athletic trainer must perform a certain number of clinical hours before

157 sitting for the professional examination, but given the recent conversion to a curriculum-
158 based program where hours are not required, this may be understandable. However, the
159 majority of respondents either strongly or moderately agreed that athletic trainers must sit
160 for a professional examination to practice, and two thirds either strongly or moderately
161 disagreed that athletic trainers did not need to complete any requirements other than those
162 of the institution to graduate. Thus the data implies that high school administrators do
163 not have a complete understanding of the knowledge, education, and requirements, which
164 may include registration and/or licensure in becoming an athletic trainer. This may lead
165 to a lack of respect regarding athletic trainers' health care recommendations, possibly
166 leading to a decreased ability of athletic trainers to provide optimal health care.
167 Athletic directors reportedly felt more strongly about athletic trainers' roles and
168 responsibilities when compared to principals (Table 3). Principals had a greater tendency
169 to moderately agree or feel neutral about the qualifications and educational background
170 of athletic trainers. More athletic directors strongly agreed that athletic trainers were
171 qualified to evaluate a student-athlete's injury when compared to principals.
172 Furthermore, more athletic directors tended to strongly agree that athletic trainers were
173 qualified to rehabilitate a student-athlete's injury or surgical procedure when compared to
174 principals. Overall, the majority of athletic directors strongly agreed that they had a

positive impression of athletic training, whereas two thirds of principals strongly agreed with the statement. However, a larger percentage of principals moderately agreed with the same statement when compared to the same responses of athletic directors. This could be because athletic directors tend to work more directly with athletic trainers. Principals rarely interact with athletic trainers or see athletic trainers at work, therefore athletic directors may be more familiar with and may feel more comfortable with the roles and responsibilities of athletic trainers. However, the hiring of athletic trainers is often conducted by principals with some input from the athletic director, which is disconcerting when viewing the data from the current study, since principals may be hiring athletic training personnel with misconceptions of the job responsibilities. This can cause communication problems between the athletic trainer and administration, with the potential for litigious situations.

In addition, athletic directors answered more highly that athletic trainers were only qualified to perform taping techniques. This may comprise a majority of what athletic directors have seen athletic trainers do, which may reflect the athletic directors' prior experiences with athletic trainers, suggesting that actual perceptions of athletic trainers may be skewed. The results may also have been affected by the wording of the question. The question read "All athletic trainers are qualified to perform are taping

193 techniques". This may have been interpreted as "All athletic trainers are qualified to
194 perform all taping techniques" as opposed to athletic trainers are only qualified to
195 perform taping techniques.

196 According to the data, many administrators have a good basic understanding of
197 the roles of athletic trainers including their rehabilitative and injury prevention skills,
198 educational preparation, and professional qualifications. Their responses most likely
199 relied heavily on prior or current interactions with athletic trainers. Therefore, athletic
200 trainers employed at these respective schools have most likely conducted themselves in
201 accordance with the NATA's standards and promoted their professions in a positive
202 manner.

203 The majority of administrators felt that athletic trainers were strongly needed at
204 high schools and that athletic trainers were the most qualified to prevent and treat athletic
205 injuries since only half of the high schools surveyed had athletic trainers, and the coaches
206 were performing some of the medical duties. Previous studies conducted regarding
207 coaches' knowledge of first aid skills[5,6] revealed that very few coaches were CPR or first
208 aid certified and when making return-to-play decisions, coaches experienced a potential
209 for bias if the decision affected the outcome of the game. This conflict of duties and lack
210 of proper training makes the coach a less than ideal person to provide athletes with

211 medical attention, further reiterating the need for athletic trainers in the high school
212 setting as well as an understanding of the education and job duties.

213 **CONCLUSIONS AND RECOMMENDATIONS**

214 Knowledge from this study may provide athletic trainers with information that
215 may warrant further involvement with high school administrative personnel. If
216 administrative personnel have little or inaccurate knowledge of athletic training, the
217 proper steps can be taken to effectively educate them. Furthermore, the results may
218 indicate whether or not athletic training knowledge plays a role in the hiring of athletic
219 trainers at the high school level in California. Lastly, this study may serve as a basis for
220 future nationwide studies to obtain more generalizable and representative data.

221 The study aimed to obtain information from high school administrative personnel
222 concerning their knowledge and perceptions of athletic training. To date, there have been
223 no studies conducted among administrative personnel with regard to their knowledge or
224 awareness of athletic training. This information would be useful to determine how
225 effectively athletic trainers have been promoting their field. Furthermore, the results of
226 the study may be used as a means to gauge the progress of athletic training promotion in
227 future studies. Based on this study, high schools may want to include athletic directors in
228 the hiring process of athletic trainers if they do not already do so. A majority of the

229 responses from athletic directors implied that they felt more comfortable with and
230 knowledgeable of the roles and responsibilities of athletic trainers. Overall, athletic
231 directors seemed to have a better understanding of the qualifications of athletic trainers,
232 when compared to the responses of principals.

233 Participants in the current and previous studies may have only participated due to
234 their familiarity with the topic. Individuals with limited or no knowledge of athletic
235 training may have chosen to not participate in the studies for this reason. Therefore, the
236 results may be skewed. Better education of the public is necessary to promote the athletic
237 training field and to increase awareness of why athletic trainers are beneficial and what
238 skills they have to offer.

239 A follow-up study should be conducted to gauge any changes in perceptions of
240 the roles of athletic trainers. By using this study as a basis, future studies can be
241 performed to note areas of field promotion that require attention. As a means of
242 continued promotion of athletic training, information about the roles of athletic trainers
243 can be sent to schools without athletic trainers. Ultimately, more research among a wider
244 population group across the United States is needed to increase generalizability. Perhaps
245 with the appropriate information, administrative personnel will be better equipped to seek
246 out and acquire optimal athletic medical coverage and personnel.

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Table 1. Demographic Information on High School Administrators and Administration (N=215)

	Mean	SD
Gender	0.20	0.40
Age	3.26	1.13
Years Employed	0.83	0.94
Job Title	1.02	1.25
ATC on Site	0.43	0.50
Budget	79367	91795
Educational Background	2.63	0.65
Students Enrolled	2.76	1.14
Student Athletes	555	424

254 **Table 2. Responses to the Administrative Personnel Question Form (N=215)**

	Mean	SD
Can offer advice	0.15	0.42
Makes playing environment safe	0.41	0.65
Identifies risk factors	0.35	0.55
Thorough in physical evaluation	0.53	0.77
Good at describing injuries	0.56	0.80
Can explain the rehab process	0.53	0.96
Must sit for a professional exam	0.66	1.02
Care of ATC is equal to other health care professionals	1.45	1.21
Qualified to rehabilitate injuries/post-surgical procedures	1.32	1.20
Does not need any other requirements than institution's to be ATC	2.81	1.30
Need minimum number of clinical hours to be ATC	0.64	0.94
Positive perception of athletic training	0.24	0.49
Qualified to organize/administrate a health care facility	0.85	1.06
Only qualified to tape	2.00	1.73
Athletic training is misunderstood	1.04	1.10

255 Answers were scaled from "0": strongly agree to "4": strongly disagree and "5": N/A
256

Table 3. Cross Tabulations for Principals and Athletic Directors from the Administrative Personnel Question Form (N=215)

"Strongly Agree" Athletic Training Responses	Principal n=67	Athletic Director n=121	% Difference
Can offer advice	79.7%	89.7%	10.0
Makes playing environment safe	60.9%	68.4%	7.5
Identifies risk factors	65.6%	69.8%	4.2
Thorough in physical evaluation	45.3%	64.1%	18.8
Good at describing injuries	45.3%	60.7%	15.4
Can explain the rehabilitation process	54.0%	67.2%	13.2
Can explain the rehabilitation process*	36.5%	25.0%	11.5
Must sit for a professional examination	55.6%	57.9%	2.3
Care of ATC is equal to other health care professionals	15.6%	25.0%	9.4
Care of ATC is equal to other health care professionals*	32.8%	44.0%	11.2
Care of ATC is equal to other health care professionals†	23.4%	12.9%	10.5
Qualified to rehabilitate injuries/post-surgical procedures	14.1%	34.2%	20.1
Does not need any other requirements than institution's to be ATC*	25.0%	16.2%	8.8
Need minimum number of clinical hours to be ATC	36.5%	63.8%	27.3
Positive perception of athletic training	68.8%	85.5%	16.7
Qualified to organize/administrate a health care facility	39.7%	45.7%	6.0
Only qualified to tape	23.4%	34.2%	10.8
Athletic training is misunderstood	21.9%	42.2%	20.3

* "Moderately agree"
† "Neutral"

Table 4. Cross Tabulations for Schools With ATCs and Schools without ATCs from the Administrative Personnel Question Form (N=215)

"Strongly Agree" Athletic Training Responses	With ATC n=122	Without ATC n=91	% Difference
Can offer advice	89.8%	83.0%	6.8
Makes playing environment safe	67.8%	65.9%	1.9
Identifies risk factors	70.1%	67.0%	3.1
Thorough in physical evaluation	65.3%	51.1%	14.2
Good at describing injuries	65.3%	48.9%	16.4
Can explain the rehabilitation process	72.6%	54.0%	18.6
Must sit for a professional exam	19.8%	29.1%	9.3
Care of ATC is equal to other health care professionals	27.4%	18.4%	9.0
Qualified to rehabilitate injuries/post-surgical procedures	31.4%	25.0%	6.4
Does not need any other requirements than institution's to be ATC*	50.0%	31.8%	18.2
Need minimum number of clinical hours to be ATC	57.3%	51.7%	5.6
Positive perception of athletic training	80.5%	75.0%	5.5
Qualified to organize/administrate a health care facility	53.4%	37.2%	16.2
Only qualified to tape	29.7%	33.0%	3.3
Only qualified to tape*	39.0%	29.5%	9.5
Athletic training is misunderstood	41.0%	34.1%	6.9

* "Strongly Disagree"

Figure 1. Administrative Personnel Question Form

After reading the following questions, please check the appropriate box for your answer.

Demographic Information

1. Please indicate your gender.

- ❑ Male
- ❑ Female

2. How old are you?

- ❑ 25 to 30 years.
- ❑ 31 to 35 years.
- ❑ 36 to 40 years.
- ❑ 40 to 45 years.
- ❑ 45 years and up.

3. How long have you been employed at this high school?

- ❑ more than 10 years
- ❑ 5 – 10 years
- ❑ 1 – 5 years
- ❑ less than 1 year

4. What is your primary job title? (Please check all that apply)

- ❑ principal
- ❑ athletic director
- ❑ athletic trainer

5. Do you currently employ an athletic trainer?

- ❑ Yes
- ❑ No

6. What is your school's annual athletic budget?

- ❑ _____

7. What is your highest level of education?

- ❑ High school graduate or GED equivalent.
- ❑ Associate's degree.
- ❑ Bachelor's degree.
- ❑ Master's degree.
- ❑ Doctorate degree.

8. What is your estimated student enrollment?

- ❑ Less than 100
- ❑ Between 101 and 500
- ❑ Between 501 and 1000
- ❑ Between 1001 and 2000
- ❑ More than 2000

9. What is your estimated student-athlete enrollment?

- ❑ _____

Athletic Trainer Roles Please answer each question by checking the box that best represents your view. Please respond NA if the question is Not Applicable to you. **Answering indicates your choice to participate.**	Strongly agree (1)	Moderately agree (2)	Neutral (3)	Moderately disagree (4)	Strongly disagree (5)
1. I think an athletic trainer(s) can offer advice for prevention of injury during participation in sport.					
2. I think an athletic trainer(s) works to make the playing environment a safe one.					
3. I think an athletic trainer(s) is competent in recognizing conditions that pose a potential risk to injury.					
4. I think an athletic trainer(s) is thorough in evaluating injuries that a student-athlete sustains during sport.					
5. I think an athletic trainer does a good job describing injuries and illnesses to student-athletes.					
6. When a student-athlete is injured, the athletic trainer explains to him/her the steps he/she need to take to return to full activity.					
7. I think an athletic trainer has to sit for a professional certification exam to practice.					
8. I think the care an athletic trainer gives to a student-athletes is the same as any other qualified health care professional.					
9. I think an athletic trainer is qualified to rehabilitate a student-athlete's injury and/or surgical procedure.					
10. To become an athletic trainer, one does not have to take any special requirements other than those of the institution to graduate.					
11. To become an athletic trainer, one is required to complete a minimum number of clinical hours before eligible for the profession.					
12. My perception of the athletic training is a positive one.					
13. Athletic trainers are qualified to organize the administration of an athletic training health care facility.					
14. All athletic trainers are qualified to perform are taping techniques.					
15. The athletic training profession is a misunderstood one and should be taken more seriously.					

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EXTENDED SUPPORT MATERIAL

Chapter 1

INTRODUCTION

Athletic trainers are the bridge between the athlete and other health care providers (Arnheim & Prentice, 2000). In the high school setting, the athletic trainer is responsible for the medical care of student-athletes. The high school athletic trainer also provides medical coverage for various school sport events. Athletic training has also been defined as the field that "oversees the total health care for the athlete" (Arnheim & Prentice), and is a recognized allied health care profession by the American Medical Association (AMA, 1989). The National Athletic Trainers' Association (NATA) was started in 1950 and, therefore, is a relatively new allied health care profession.

Due to the relative newness of the profession and the recent branching into the high school for athlete health care, knowledge regarding athletic training job duties may be lacking (Buxton, Okasaki, Ho & McCarthy, 1995). The term "athletic training" implies some form of coaching or teaching (Arnheim & Prentice, 2000). Therefore, people commonly confuse athletic trainers with coaches and personal trainers (Hoppel, Huck, Stemmans, Ingersoll, & Cordova, 2001). The novelty of athletic training, combined with the title's connotations, makes it a widely misunderstood field (Buxton et al., 1995; Hoppel et al., 2001).

This misunderstanding and lack of knowledge regarding athletic training may affect the acquisition of proper medical coverage in the high school setting (Ingersoll, Sitler, Mickalide, & Taft, 2001; Kodama, Kimura, Lankford & Murata, 2001). Schools lacking in athletic health care coverage may utilize coaches rather than athletic trainers (Boudreaux & Lyman, 1996; Ransone & Dunn-Bennett, 1999). Many sport-related injury surveillance reports have been conducted regarding incidence of injury among high school athletes (Buxton et al., 1995; Foster, Yesalis, Ferguson, & Albright, 1989; Guskiewicz, Weaver, Padua, & Garrett, 2000; Lyznicki, Riggs, & Champion, 1999; Powell & Barber-Foss, 1999). However, studies regarding the knowledge and awareness of athletic training among high school administrative personnel are lacking. Reviewing studies that survey the public's knowledge of athletic training may educate specific groups in need of this service to provide better health care to athletic populations. Athletic trainers must effectively communicate their role in the school's athletic program (Blair, 2002). Without sufficient knowledge of athletic training and other medical options, the acquisition of proper medical staff may be difficult. Kodama, Kimura, Lankford, and Murata (2001) found that once the public's awareness of athletic training improved, the athletic trainer to student-athlete ratio improved dramatically. The athletic trainer to student-athlete ratio improved from 1:1000 in private schools and 0:13,000 in

public schools in 1991 to 1:363 and 1:404, respectively (Kodama et al., 2001). Perhaps with better education, high school administrators will be more willing to hire athletic trainers to provide health care to their athletes, and minimize time-loss injuries and medical expenses to families and the school system.

Adequate knowledge of the roles and responsibilities of the athletic trainer is important to empower individuals with the ability to make educated decisions regarding the health care of their athletic communities, specifically physically active individuals. Proper medical coverage is essential in the efficient treatment of injuries as well as the prevention and rehabilitation of such injuries (Buxton et al., 1995; Foster, Yesalis, Ferguson, & Albright, 1989; Guskiewicz, Weaver, Padua, & Garrett, 2000; Lyznicki, Riggs, & Champion, 1999; Powell & Barber-Foss, 1999). Athletes at high schools without athletic trainers are more likely to experience injuries that go unnoticed and untreated, thus leading to more severe time loss or career-ending injuries (Howard, 1992).

Little research has been published concerning the public's knowledge of athletic training. The few studies that have been published (Baby, 2000; Buckler, 1999; Hoppel et al, 2001; Vanguri, Wilson, Marshall, & Vasu, 2001) report misinterpretations and inconsistencies with regard to the roles and responsibilities of athletic trainers.

Furthermore, groups who participated in the studies may have only participated due to their familiarity with the topic. People who had no knowledge of athletic training may have chosen to not participate in the studies for this reason. Therefore, the results may not be accurate or generalizable. Better education of the public is necessary to promote the athletic training field and to increase awareness of why athletic trainers are beneficial and what skills they have to offer. Therefore, the purpose of this study will be to determine the knowledge and attitudes of California high school administrative personnel as it pertains to the roles and responsibilities of athletic trainers.

Limitations

Limitations of this study include return rates that may be affected by the knowledgeable participants. People who are not familiar with the subject of athletic training may choose not to complete the survey, while those who feel comfortable with athletic training may respond due to this familiarity. This inconsistency could account for skewed results that are not accurately representative of the selected population. Also there is a concern that the administrators might delegate the responsibility to other staff.

Delimitations

This study will be delimited to California high school principals and athletic directors. Placement vacancy notices have indicated the principals as the individuals in

charge of hiring athletic trainers. Athletic directors may often assist in this employment process. Furthermore, athletic directors typically work closely with athletic trainers in an interscholastic setting.

Assumptions

For the purpose of this study, the participants are assumed to have an understanding regarding the availability of athletic trainers in athletic departments. Furthermore the surveys are assumed to have been completed by the appropriate person.

Definition of Terms

Administrative personnel: For the purpose of this study the term "administrative personnel" will refer to high school principals and athletic directors.

Athletic health care coverage: The on-site presence of an athletic trainer to provide preventative care, injury treatment, and medical attention during high school practices and games.

Athletic trainer: A person who has completed educational and clinical experiences and is capable of working with athletes and their environment to help prevent injuries, advise them concerning appropriate equipment, recognize and evaluate injuries, administer emergency treatment, determine if specialized medical care is required, and rehabilitate

those with sports injuries". This study will utilize Taber's definition of "athletic trainer" and the NATA's Role Delineation Study as its basis of knowledge for the roles and responsibilities of athletic training.

Student-athlete: Any person currently enrolled in high school and participating in his or her high school's extracurricular sports.

Significance of the Study

Knowledge from this study will provide athletic trainers with information that may warrant further involvement with high school administrative personnel. If administrative personnel have little or inaccurate knowledge of athletic training, the proper steps can be taken to effectively educate them. Furthermore, the results may indicate whether or not athletic training knowledge plays a role in the hiring of athletic trainers at the high school level in California. Lastly, this study may serve as a basis for future nationwide studies to obtain more generalizable and representative data.

Project Completion

Data from this study will be compiled into a journal article for *The Journal of Athletic Training* according to the *Authors Notes* (see Appendix A).

Chapter 2

REVIEW OF LITERATURE

This study proposed to look at the current perceptions and level of awareness that California high school administrative personnel have regarding athletic training. The purpose of this study is to acquire responses to an athletic training questionnaire and provide a basis of knowledge on which future studies may be based. Additionally the results will determine if the athletic training population has been effective in its promotion of the field among specific population groups; in this case, administrative personnel.

The following review of literature includes the roles and qualifications of the athletic trainer, the incidence of sport-related injury and medical coverage in the high school setting, and various populations' knowledge of athletic training and sport medicine practices.

Athletic Training Education and Legal Definition

The NATA's mission statement reads, "The mission of the National Athletic Trainers' Association is to enhance the quality of health care for athletes and those engaged in physical activity, and to advance the profession of athletic training through education and research in the prevention, evaluation, management, and rehabilitation of

injuries" (NATA, 2002). The NATA's Board of Certification (NATABOC) committee requires that the athletic trainer must be qualified in six domains. These domains are: a) prevention; b) recognition, evaluation, and assessment; c) immediate care; d) treatment, rehabilitation, and reconditioning; e) organization and administration; and f) professional development and responsibility (NATA).

To sit for the NATABOC examination, applicants must possess a Bachelor's degree from an accredited athletic training program or be in the last semester of an accredited program. Applicants must also possess current CPR certification and be endorsed by a certified athletic trainer who is in good standing with the NATA. The required coursework in an entry level athletic training program include classes in health, human anatomy, kinesiology/biomechanics, human physiology, exercise physiology, basic athletic training, and advanced athletic training (NATA, 2002).

Potential candidates for athletic training certification must pass all three parts of the NATABOC examination. The three parts consist of a written section, a practical, and a written simulation portion. The test covers a wide range of competencies including, but not limited to, taping/bracing, emergency care, rehabilitation skills, and injury assessment. Thus, upon certification, athletic trainers are capable of providing a number of services to the athletic population (Almquist, 2001; NATA, 2002). As Almquist

(2001) noted, athletic trainers can also work with coaches to develop emergency plans, environmental guidelines, and return-to-play policies.

Injuries in High School Athletics

Janda (1997) reported "injury is probably the most under recognized major public health problem facing the nation today". Approximately six million teenagers are involved in high school athletics in the United States (Janhunen & Green, 1997; Lyznicki et al., 1999; Powell & Barber-Foss, 1999). Of these six million, more than two million will become injured, 500,000 require doctor visits, and 30,000 require hospitalization (Powell & Barber-Foss, 1999). Furthermore, Guskiewicz et al. (2000) reported that annually, an estimated 300,000 athletes suffer sport-related traumatic brain or head injuries in the United States.

High school injury surveillance reports have spanned anywhere from one year to more than a decade. The studies consistently report that more than half of all injuries sustained by high school athletes occurred during practice (Buxton, Okasaki, Ho, & McCarthy, 1995; Lyznicki et al., 1999; Powell & Barber-Foss, 1999). In a three-year study conducted from 1995 to 1997, Powell and Barber-Foss identified that an average of 55.5% of all injuries occurred during practice. This percentage is slightly lower than the 60% reported by Almquist in 2001 and the 61.2% reported by Janhunen and Green

(1997). According to Powell and Barber-Foss (1999) the higher number of injuries during practice was due to the increased number of athlete exposures to potential injury-causing scenarios. Athletes spent more time in practices than in game situations. Therefore, the incidence for injury was higher in practices than in games.

One role of the high school athletic trainer is to provide medical coverage for practices and games (Almquist, 2001). Therefore, given the previous data that identifies practices as the most common sites for athletic injury, athletic trainers would be optimal to provide the necessary coverage. Medical personnel, such as athletic trainers, help to decrease injury rates by implementing prevention programs, taping, and providing daily injury management (Howard, 1992). However, due to insufficient information about athletic training, perhaps schools have not obtained the best sport medicine professionals that the field has to offer. The results of the proposed study may highlight this possibility and increase awareness of athletic training among high school administrative personnel.

High School Medical Coverage

Given the percentage of injuries that reportedly occur during practice, it would seem logical to provide medical coverage during practice sessions. However, a survey of athletic health care in 142 Louisiana high schools found that 18% of high schools had an athletic trainer on site for practices (Boudreaux & Lyman, 1996). Furthermore, 31% of

the high schools surveyed had an athletic trainer present for boys' varsity games and only 18% had an athletic trainer present for girls' varsity games. In the high schools without athletic trainer coverage, coaches were responsible for their athletes' health care. Of these coaches, 29% were American Red Cross First Aid certified and 31% were CPR certified (Boudreaux & Lyman). According to Ingersoll, et al. (2001) more than 25% of parents were unaware whether their child's coach was certified in CPR or had a first aid kit available on the field. This lack of knowledge illustrates a parental lack of knowledge concerning their children's available athletic health care at the high school level. Perhaps with better awareness of athletic training and the roles of the athletic trainer, future studies will demonstrate a change in these figures.

Other studies have documented this phenomenon as well (Buxton, et al., 1995; Janhunen & Green, 1997; Koabel-Bagley, Kimura, Sitler, & Kendrick, 1995; Ransone & Dunn-Bennett, 1999). A survey of New York's high school health care programs reported that only 22% of the high schools surveyed employed a part-time athletic trainer and only 1% employed a full-time athletic trainer. Seventy-five percent of the schools used the coaching staff as athletic trainers. Fifty-one percent of these coaches had basic first aid as their only medical training for the treatment of athletic injuries (Koabel-Bagley et al., 1995).

This information demonstrates high school coaches' lack of proper medical training. Administrative personnel who are responsible for the acquisition of the appropriate medical coverage should be aware of and knowledgeable of the athletic training field. This study will reveal the general awareness of athletic training among California high school administrative personnel. Once this information has been obtained, if there is a misconception or lack of knowledge of athletic training, efforts can be made to educate the specific population group.

In a survey of health care coverage of high school football programs in southern California, 70% of the 240 high schools surveyed had team physicians. Seventy-two percent had a physician present for games and 69% had an athletic trainer present for home games, but not for practices or scrimmages (Vangsness, Hunt, Uram, & Kerlan, 1994).

The trend in the literature demonstrates that athletic medical coverage is gradually improving (Buxton, et al., 1995; Janhunen & Green, 1997; Vangsness, et al., 1994). Janhunen and Green (1997) estimated that there is one certified athletic trainer for every 25 professional or collegiate athletes. At the high school level, that ratio drops to one certified athletic trainer for every 5,500 high school athletes. In a study of Hawaii's high school athletic care, the athletic trainer to athlete ratio improved from 1:1000 in private

schools and 0:13,000 in public schools in 1991 to 1:363 and 1:404, respectively (Kodama et al., 2001).

Population Groups' Athletic Training Knowledge

The public's awareness and knowledge of athletic training may have aided in this increase in medical coverage in the high school setting. A 2001 study by Hoppel, et al. revealed that the majority (48%) of parents/guardians in the Wabash Valley felt most comfortable with an athletic trainer providing their student-athlete with initial care in an emergency situation. Twenty-six percent of parents/guardians used personal experience as their main source of information on injuries and treatment, while 23% indicated an athletic trainer as their main source of information. When asked what qualifications an athletic trainer must possess in order to practice, 31% indicated that they must pass a national certification exam, 30% indicated that they must graduate from a four-year college, and 17% were not sure. When asked what the roles of an athletic trainer were, 40% indicated injury evaluation, 39% indicated administration of first aid, and 15% believed that athletic trainers helped people "lose weight and get in shape" (Hoppel, et al.). These results illustrate a limited understanding of the roles of the athletic trainer. Parents/guardians are aware of the basic functions of athletic training, but are not cognizant of the wide scope of athletic training practices.

The results of the Hoppel et al. study encourage further promotion of the athletic training field. This lack of awareness of athletic trainers' qualifications is not limited to parents and guardians. In a capacity where the high school's administrative personnel may be responsible for hiring athletic trainers, proper information about the roles and qualifications of athletic trainers may warrant further attention.

The lack of understanding is evident in the medical community as well (Baby, 2000; Buckler, 1999). Buckler studied the sports medicine-related knowledge of general practitioners in the Northampton Regional Health Authority using a mailed questionnaire. Of the 275 general practitioners, 87.6% responded to the survey. Seventy-three percent of general practitioners felt inadequately trained to practice sport medicine. Forty-three percent believed that a lack of training was responsible for their feelings of inadequacy, while 53.1% listed a lack of facilities as the cause. Seventy-six percent of general practitioners described a desire for more training (Buckler), which is a promising outlook for the future of sports medicine and athletic training education.

General practitioners are not the only professionals who perceive their sports knowledge is lacking. A survey by Baby (2000) revealed that medical students have little knowledge of sports medicine and are unaware that it entails more than immediate treatment of an injury. Most medical students claimed that sport-related fracture

management was the extent of their sports medicine training. Baby recommends that more extensive sports medicine programs be offered to medical students. Even if he or she is not interested in athletic training as a career, he or she will be better equipped to deal with potential sport-related matters in the future.

This study illustrates a pronounced lack of awareness with regard to components of athletic training. In some situations, parents or schools may send their children to doctors for athletic injuries, but according to Baby's (2000) study, some of these future doctors are not comfortable with diagnosing and treating athletic injuries. With the proper information, schools will be able to utilize athletic trainers in this capacity.

In a study of Division II athletes' perceptions of their athletic trainers, the results were inconsistent. Eighty-nine North Carolina student athletes completed questionnaires that recorded their knowledge of athletic training. Responses regarding athletic trainers' responsibilities ranged from "primarily responsible for water and ice" to individuals "who sit around and eat sunflower seeds all day" to those "responsible for the health care of all student athletes" (Vanguri et al., 2001). The discrepancy among responses highlights the misunderstanding and misinterpretation of athletic training in this particular subject group. Through additional studies, researchers will be able to determine if this misunderstanding of the athletic training field is prevalent among other

population groups. If a trend is discovered highlighting a misconception or lack of awareness of athletic training, the proper steps can be taken to educate the appropriate population groups.

In 1999, Ransone and Dunn-Bennett conducted a study of high school coaches. The purpose of this study was to assess the first aid knowledge and decision-making skills of high school coaches. The coaches were from 17 different schools and had anywhere from one to twenty-eight years of coaching experience. A first aid questionnaire and a game situation data sheet were given to 104 high school coaches. The first aid questionnaire consisted of 38 multiple-choice questions. The game situation data sheet described nine game scenarios and required a "yes" or "no" response. Thirty-six percent of the coaches passed the first aid assessment. In a scenario where a starting athlete was injured and the team was losing a close game, most coaches chose to return the injured player to the game. The coaches who chose to return the injured athlete to competition were primarily those who had passed the first aid assessment. In another scenario, the team was winning a close game and a regular player was injured. In this scenario, both the coaches that passed the first aid assessment and those who failed the assessment opted to keep the athlete out of the game (Ransone & Dunn-Bennett). This conflict of duties between the role of "coach" and "medical personnel" affected the

coaches' decision-making skills in a close game. For this reason, an athletic trainer should be available to impart an unbiased return-to-play decision.

Conclusions and Recommendations

Studies that have been conducted regarding coaches' knowledge of first aid skills (Boudreaux & Lyman, 1996; Ransone & Dunn-Bennett, 1999) revealed alarming results. Very few coaches were CPR or first aid certified and when making return-to-play decisions, coaches experienced a potential for bias if the decision affected the outcome of the game. This conflict of duties and lack of proper training does not make the coach an ideal person to provide athletes with medical attention. Furthermore, the fact that the majority of coaches (82%) felt that athletic trainers were strongly needed at the high schools and that athletic trainers were the most qualified to prevent and treat athletic injuries (Boudreaux & Lyman, 1996) reiterate the need for athletic trainers in the high school setting.

A study involving Division II athletes' perceptions of athletic trainers did not provide comforting results either. Logically, athletes who have daily contact with athletic training professionals should have a firm grasp on the roles of athletic trainers. However, this was not the case. According to the study by Vanguri, et al. (2001), Division II student athletes had very scattered portrayals of the roles of athletic trainers. These

inconsistencies illustrate the need to further research this area and promote the roles and responsibilities of athletic trainers.

Through further research among different population groups, a basis of knowledge can be attained regarding how well the athletic training population is promoting and explaining its field. The proposed study will collect data from a population group that has not been previously studied. Furthermore, this study may serve as a basis of comparison for future studies regarding the public's knowledge of athletic training.

The NATA's recommended appropriate medical coverage accounts for the size of the team, associated level of risk for the sport, as well as the team's season status (NATA, 2002). At present, these guidelines are specified for intercollegiate athletics, but guidelines for secondary school athletic medical coverage would be extremely helpful. Currently, the only statement from the NATA regarding athletic coverage in the secondary school setting is that all secondary schools should provide the services of a full-time, on-site ATC to student-athletes (NATA, 2002).

Future studies assessing the athletic training knowledge of administrative personnel, such as athletic directors and principals, would be beneficial to the research community. Additional studies must be conducted in order to generalize the data and

provide a base from which to work. Perhaps with the appropriate information, administrative personnel will be better equipped to seek out and acquire optimal athletic medical coverage and personnel.

Chapter 3

METHODS

The study aimed to obtain information from high school administrative personnel concerning their knowledge and perceptions of athletic training. To date, there have been no studies conducted among administrative personnel with regard to their knowledge or awareness of athletic training. This information would be useful to determine how effectively athletic trainers have been promoting their field. Furthermore, the results of the study may be used as a means to gauge the progress of athletic training promotion in future studies.

The following chapter includes four sections. The first section describes the characteristics of the sample. The second section describes the survey instrument that was used in the study. The third section describes the procedures that were followed in the study. The final section discusses the analysis of the research data.

Participants

Participants of the study were the administrative personnel from 300 California high schools statewide. Three hundred schools represent approximately 25% of the 1208 schools. The goal was to yield approximately 200 return surveys. In an independent study Floyd J. Fowler, Jr. (1993) found that increases in precision are not as great once

the sample is larger than approximately 200 subjects. Given that the average return rate using the total design method is 74% (Dillman, 1978), by including 300 schools, approximately 200 schools should respond. Public and private schools were included in this study. Using a random number table, the 300 schools were randomly selected from the *2002 California State Coaches Directory of Middle, Junior, and Senior High Schools – Colleges*. Each school received two identical surveys: one survey for the principal and one survey for the athletic director. The three high schools that had the same individual occupying the role of principal and athletic director received one survey. Their envelopes had a star marked on the return label to represent both parties. Therefore, 297 surveys were sent to principals and 297 were sent to athletic directors. Approximately 600 packets were sent out, with the anticipation of receiving well over 200 responses. For coding purposes, the principals' surveys were on white paper and the athletic directors' were on green. The accompanying return envelopes were coded with a number to maintain anonymity and keep track of which individuals have responded. Each high school was assigned a number that was written on the label of the return envelope. High schools were checked off as they responded. By returning the survey, the individual agreed to participate in this study. Therefore the return of the survey served as the individual's consent.

Survey Instrument

This was a descriptive study that used a survey similar to that used by Hoppel et al. (2001). Demographic questions were modified from parent questions to administrative personnel questions. Two questions regarding school size were added to the demographic section. Also, the term "my child" was changed to "student-athlete" in the questions in the Athletic Trainer Roles section. The survey consisted of nine demographic questions, followed by fifteen questions pertaining to the individual's familiarity with and attitudes toward athletic training (see Appendix C). The athletic training questionnaire used a 5-point Likert scale ranging from "strongly agree" to "strongly disagree". The number one correlated with "strongly agree", two with "moderately agree", three with "neutral", four with "moderately disagree", and five with "strongly disagree". A cover letter and a self-addressed stamped envelope accompanied all surveys. The self-addressed stamped envelope increased the likelihood of returning the survey (Dillman, 1978).

Procedures

All participants received an envelope containing a cover letter, survey, and self-addressed stamped envelope. The cover letter explained the purpose of the study, the importance of the individual's participation, and his or her right to decline participation

(see Appendix B). The cover letter also included the researcher's contact information in the event that any questions or concerns should arise regarding the study. The surveys were mailed during the spring of 2003.

One week after the surveys were mailed out a reminder postcard was sent to all of the high schools (Dillman, 1978). The postcard served as a "thank you" to those who had returned the survey and a reminder to those who had not yet returned the survey (see Appendix D). Three weeks after the surveys were sent out, the individuals that had still not responded were contacted via telephone to remind and encourage them to complete and return the survey. The individuals that had not been contacted within 6 weeks were not contacted further. The data was entered as it was received. Therefore, if surveys were returned after the 6-week period, they were still included in the study.

Analysis of Data

The results of the surveys were entered and analyzed using Statistical Package for Social Sciences (SPSS) (©2001). Demographic information was analyzed using descriptive and frequency statistics including mean and standard deviation. The percentages of answered questions were calculated and the results reported in a separate section. Cross tabulations were also performed, looking at the select answers of

principals compared to athletic directors, and schools employing athletic trainers compared to schools without athletic trainers.

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Appendix A. Journal of Athletic Training

Official Publication of the National Athletic Trainers' Association

Authors' Guide

(Revised January 2002)

The mission of the Journal of Athletic Training is to enhance communication among professionals interested in the quality of health care for the physically active through education and research in prevention, evaluation, management, and rehabilitation of injuries.

SUBMISSION POLICIES

1. Submit 5 copies of the entire manuscript (including tables and figures) to Journal of Athletic Training Submissions, Hughston Sports Medicine Foundation, Inc, 6262 Veterans Parkway, PO Box 9517, Columbus, GA 31908-9517. The term "figure" refers to items that are not editable, either halftones (photographs) or line art (charts, graphs, tracings, schematic drawings), or combinations of the two. A table is an editable item that needs to be typeset.

2. All manuscripts must be accompanied by a letter signed by each author and must contain the following statements: "This manuscript 1) contains original unpublished material that has been submitted solely to the Journal of Athletic Training, 2) is not under simultaneous review by any other publication, and 3) will not be submitted elsewhere until a decision has been made concerning its suitability for publication by the Journal of Athletic Training. In consideration of the NATA's taking action in reviewing and editing my submission, I the undersigned author hereby transfer,

assign, or otherwise convey all copyright ownership to the NATA, in the event that such work is published by the NATA. Further, I verify that I have contributed substantially to this manuscript as outlined in item #3 of the current Authors' Guide." By signing the letter, the authors agree to comply with all statements. Manuscripts that are not accompanied by such a letter will not be reviewed. Accepted manuscripts become the property of the NATA. Authors agree to accept any minor corrections of the manuscript made by the editors.

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   The authorship form, which is available at http://www.journalofathletictraining.org, should be completed and submitted with each new manuscript. Contribution categories include conception and design; acquisition of data; analysis and interpretation of the data; drafting of the article; critical revision of the article for important intellectual content; final approval of the article; provision of study materials or patients; statistical expertise obtaining of funding; administrative, technical, or logistic support; and collection and assembly of data. (Categories borrowed with the permission of the Annals of Internal Medicine.) Contributors to the manuscript who do not qualify for authorship should be thanked in the Acknowledgments section.

4. Financial support or provision of supplies used in the study must be acknowledged. Grant or contract numbers should be included whenever possible. The complete name of the funding institution or agency should be given, along with the city and state in which it is located. If individual authors were the recipients of funds, their names should be listed parenthetically.

5. Authors must specify whether they have any commercial or proprietary interest in any device, equipment, instrument, or drug that is the subject of the article in question. Authors must also reveal if they have any financial interest (as a consultant, reviewer, or evaluator) in a drug or device described in the article.

6. For experimental investigations of human or animal subjects, state in the Methods section of the manuscript that an appropriate institutional review board approved the project. For those investigators who do not have formal ethics review committees (institutional or regional), the principles outlined in the Declaration of Helsinki should be followed (41st World Medical Assembly. Declaration of Helsinki: recommendations guiding physicians in biomedical research involving human subjects. Bull Pan Am Health Organ. 1990;24:606-609). For investigations of human subjects, state in the "Methods" section the manner in which informed consent was obtained from the subjects. (Reprinted with permission of JAMA 1997;278:68, copyright 1997, American Medical Association.)

7. Signed releases are required to verify permission for the Journal of Athletic Training to 1) reproduce materials taken from other sources, including text, figures, or tables; 2) reproduce photographs of individuals; and 3) publish a Case Report. A Case Report cannot be reviewed without a release signed by the individual being discussed in the Case Report. Release forms can be obtained from the Editorial Office and from the JAT web page, or authors may use their own forms.

8. The Journal of Athletic Training uses a double-blind review process. Authors should not be identified in any way except on the title page.

9. Manuscripts are edited to improve the effectiveness of communication between author and readers and to aid the author in presenting a work that is compatible with the style policies found in the AMA Manual of Style, 9th ed. (Williams & Wilkins), 1998. Page proofs are sent to the author for proofreading when the article is typeset for publication. It is important that they be returned within 48 hours. Important changes are permitted, but authors will be charged for excessive alterations.

10. Published manuscripts and accompanying work cannot be returned. Unused

manuscripts will be returned if submitted with a stamped, self-addressed envelope.

STYLE POLICIES

11. Each page must be printed on 1 side of 8*-by-11-inch paper, double spaced, with 1-inch margins in a font no smaller than 10 points. Each page should include line counts to facilitate the review process. Do not right justify pages.

12. Manuscripts should contain the following, organized in the order listed below, with each section beginning on a separate page:
    a. Title page
    b. Acknowledgments
    c. Abstract and Key Words (first numbered page)
    d. Text (body of manuscript)
    e. References
    f. Tables (each on a separate page)
    g. Legends to figures
    h. Figures

13. Begin numbering the pages of your manuscript with the abstract page as #1; then, consecutively number all successive pages.

14. Units of measurement shall be recorded as SI units, as specified in the AMA Manual of Style, except for angular displacement, which should be measured in degrees rather than radians. Examples include mass in kilograms (kg), height in centimeters (cm), velocity in meters per second (m · s-1 or m/s), angular velocity in degrees per second (° · s-1), force in Newtons (N), and complex rates (mL/kg per minute).

15. Titles should be brief within descriptive limits (a 16-word maximum is recommended). If a disability is the relevant factor in an article, the name of the disability should be included in the title. If a technique is the principal reason for the report, it should be in the title. Often both should appear.

16. The title page should also include the name, title, and affiliation of each author, and the name, address, phone number, fax number, and e-mail address of the author to whom correspondence is to be directed. No more than 3 credentials should be listed for each author.

17. A structured abstract of no more than 250 words must accompany all manuscripts. Type the complete title (but not the authors' names) at the top, skip 2 lines, and begin the abstract. Items that are needed differ by type of article. Literature Reviews: Objective, Data Sources, Data Synthesis, Conclusions/Recommendations, and Key Words; Original Research articles: Objective, Design and Setting, Subjects, Measurements, Results, Conclusions, and Key Words; Case Reports: Objective, Background, Differential Diagnosis, Treatment, Uniqueness, Conclusions, and Key Words; Clinical Techniques: Objective, Background, Description, Clinical Advantages, and Key Words. For the Key Words entry, use 3 to 5 words that do not appear in the title.

18. Begin the text of the manuscript with an introductory paragraph or two in which the purpose or hypothesis of the article is clearly stated and developed. Tell why the study needed to be done or the article written and end with a statement of the problem (or controversy). Highlights of the most prominent works of others as related to your subject are often appropriate for the introduction, but a detailed review of the literature should be reserved for the discussion section. In a 1- to 2-paragraph review of the literature, identify and develop the magnitude and significance of the controversy, pointing out differences among others' results, conclusions, and/or opinions. The introduction is not the place for great detail; state the facts in brief, specific statements and reference them. The detail belongs in the discussion. Also, an overview of the manuscript is part of the abstract, not the introduction. Writing should be in the active voice (for example, instead of "Subjects were selected," use "We selected subjects") and in the first person (for example, instead of "The results of this study showed," use "Our results showed").

19. The body or main part of the manuscript varies according to the type of article (examples follow); however, the body should include a discussion section in which the importance of the material presented is discussed and related to other pertinent literature. When appropriate, a discussion subheading on the clinical relevance of the findings is recommended. Liberal use of headings and subheadings, charts, graphs, and figures is recommended.

a. The body of an Original Research article consists of a methods section, a presentation of the results, and a discussion of the results. The methods section should contain sufficient detail concerning the methods, procedures, and apparatus employed so that others can reproduce the results. The results should be summarized using descriptive and inferential statistics and a few well-planned and carefully constructed illustrations.

b. The body of a Literature Review article should be organized into subsections in which related thoughts of others are presented, summarized, and referenced. Each subsection should have a heading and brief summary, possibly one sentence. Sections must be arranged so that they progressively focus on the problem or question posed in the introduction.

c. The body of a Case Report should include the following components: personal data (age, sex, race, marital status, and occupation when relevant -- not name), chief complaint, history of present complaint (including symptoms), results of physical examination (example: "Physical findings relevant to the rehabilitation program were . . ."), medical history (surgery, laboratory results, examination, etc), diagnosis, treatment and clinical course (rehabilitation until and after return to competition), criteria for return to competition, and deviation from expectations (what makes this case unique).

d. The body of a Clinical Techniques article should include both the how and why of the technique: a step-by-step explanation of how to perform the technique, supplemented by photographs or illustrations, and an explanation of why the technique should be used. The discussion concerning the why of the technique should review similar techniques, point out how the new technique differs, and explain the advantages and disadvantages of the technique in comparison with other techniques.

20. Percentages should be accompanied by the numbers used to calculate them. When reporting nonsignificant results, a power analysis should be provided.

21. Communications articles, including official Position Statements and Policy Statements from the NATA Pronouncements Committee; technical notes on such topics as research design and statistics; and articles on other professional issues of interest to the readership are solicited by the Journal. An author who has a suggestion for such a paper is advised to contact the Editorial Office for instructions.

22. The manuscript should not have a separate summary section -- the abstract serves as a summary. It is appropriate, however, to tie the article together with a summary paragraph or list of conclusions at the end of the discussion section.

23. References should be numbered consecutively, using superscripted arabic numerals, in the order in which they are cited in the text. References should be used liberally. It is unethical to present others' ideas as your own. Also, use references so that readers who desire further information on the topic can benefit from your scholarship.

24. References to articles or books, published or accepted for publication, or to papers presented at professional meetings are listed in numerical order at the end of the manuscript. Journal title abbreviations conform to Index Medicus style. Examples of references are illustrated below. See the AMA Manual of Style for other examples.

Journals:

1. van Dyke JR III, Von Trapp JT Jr, Smith BC Sr. Arthroscopic management of postoperative arthrofibrosis of the knee joint: indication, technique, and results. J Bone Joint Surg Br. 1995;19:517-525.

2. Council on Scientific Affairs. Scientific issues in drug testing. JAMA.1987;257:3110-3114.

Book

1. Fischer DH, Jones RT. Growing Old in America. New York, NY: Oxford

University Press Inc;1977:210-216.

2. Spencer JT, Brown QC. Immunology of influenza. In: Kilbourne ED, Gray JB, eds. The Influenza Viruses and Influenza. 3rd ed. Orlando, FL: Academi Press Inc; 1975:373-393.

Presentations:

1. Stone JA. Swiss ball rehabilitation exercises. Presented at: 47th Annual Meeting and Clinical Symposia of the National Athletic Trainers' Association; June 12, 1996; Orlando, FL

Videos:

1. Spine Injury Management [videotape]. Champaign, IL: Human Kinetics; 2001.

Software:

1. SPSS Base for Windows [computer program]. Version 11.0. Chicago, IL: SPSS Inc; 2001.

Internet Sources:

1. Knight KL, Ingersoll CD. Structure of a scholarly manuscript: 66 tips for what goes where. Available at http://www.journalofathletictraining.org/jat/66tips. html. Accessed January 1, 1999.

2. National Athletic Trainers' Association. NATA blood borne pathogens guidelines for athletic trainers. Available at http://www.journalofathletictraining.org. Accessed January 1, 1999.

25. Table Style: 1) Title is bold; body and column headings are roman type; 2) units are set above rules in parentheses; 3) numbers are aligned in columns by decimal; 4) footnotes are indicated by symbols (order of symbols: *, †, ‡, §, **, ¶); 5) capitalize

the first letter of each major word in titles; for each column or row entry, capitalize the first word only. See a current issue of the Journal for examples.

26. All black-and-white line art should be submitted in camera-ready form. Line art should be of good quality; should be clearly presented on white paper with black ink, sans serif typeface, and no box; and should be printed on a laser printer -- no dot matrix. Figures that require reduction for publication must remain readable at their final size (either 1 column or 2 columns wide). Photographs should be glossy black and white prints. Do not use paper clips, write on photographs, or attach photographs to sheets of paper. On the reverse of each figure attach a write-on label with the figure number, name of the author, and an arrow indicating the top. (Note: Prepare the label before affixing it to the figure.) Authors should submit 1 original of each figure and 4 copies for review.

27. Authors must request color reproduction in a cover letter with the submitted manuscript. Authors will be notified of the additional cost of color reproduction and must confirm acceptance of the charges in writing.

28. Legends to figures are numbered with arabic numerals in order of appearance in the text. Legends should be printed on separate pages at the end of the manuscript.

29. The Journal of Athletic Training follows the redundant publication guidelines of the Council of Science Editors, Inc (CBE Views. 1996;19:76-77; also available on the JAT web site at http://www.journalofathletictraining.org). Authors found in violation of redundant publication will have sanctions invoked by the Journal Committee of the National Athletic Trainers' Association, Inc.

PUBLICATION POLICIES

30. Original Research manuscripts will be categorized under the following table of contents subheadings: clinical studies, basic science, educational studies, epidemiologic studies, and observational/informational studies.

31. Only Case Reports and Clinical Techniques that define and establish the optimal

standard of care or the practice of athletic training will be considered for publication in JAT. All other Case Reports and Clinical Techniques will be considered for publication in the NATA News.

32. Media Reviews will appear in the NATA News.

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Appendix B. Cover Letter

February 1, 2003

Dear High School Administrator,

The athletic injury rate among high schools is a great concern for communities nationwide. Between two and three million high school athletes are injured every year. More than half of these injuries occur during practice. Given the high incidence of athletic injury, it is important for high school athletes to receive effective and appropriate health and medical coverage.

As part of the administrative personnel of your high school, you may be involved in the hiring process of an athletic trainer, or you may work closely with one. Therefore, your knowledge of the roles and responsibilities of athletic training is useful for the athletic training community. Your participation would be incredibly valuable and helpful in determining the role of athletic trainers in our communities. The enclosed survey should take about three minutes to complete.

The surveys are completely anonymous and your confidentiality is assured. Codes will be used to determine which schools have returned the surveys, but no names will be connected with the surveys. You maintain the right to withdraw your responses from the study without fear of penalty. By returning the survey, you agree to allow your answers to be used for research purposes.

If you have any questions or concerns regarding the survey or the study, do not hesitate to contact me. I can be reached via email at afelling@email.sjsu.edu or by telephone at (408)260-2352. Complaints regarding the study may be presented to Leamor Kahanov, Ph.D. (Thesis Advisor) at (408)924-3040. Questions or complaints about the research or subjects' rights may be presented to Nabil Ibrahim, Ph.D., Associate Vice President for Graduate Studies and Research, at (408)924-2480. Again, thank you for your participation. It is greatly appreciated.

Sincerely,

Aya Felling, ATC, CSCS

Aya Felling, ATC, CSCS

Appendix C. Administrative Personnel Question Form

After reading the following questions, please check the appropriate box for your answer.

Demographic Information

1. Please indicate your gender.

- ❑ Male
- ❑ Female

2. How old are you?

- ❑ 25 to 30 years.
- ❑ 31 to 35 years.
- ❑ 36 to 40 years.
- ❑ 40 to 45 years.
- ❑ 45 years and up.

3. How long have you been employed at this high school?

- ❑ more than 10 years
- ❑ 5 – 10 years
- ❑ 1 – 5 years
- ❑ less than 1 year

4. What is your primary job title? (Please check all that apply)

- ❑ principal
- ❑ athletic director
- ❑ athletic trainer

5. Do you currently employ an athletic trainer?

- ❑ Yes
- ❑ No

6. What is your school's annual athletic budget?

- ❑ _____

7. What is your highest level of education?

- ❑ High school graduate or GED equivalent.
- ❑ Associate's degree.
- ❑ Bachelor's degree.
- ❑ Master's degree.
- ❑ Doctorate degree.

8. What is your estimated student enrollment?

- ❑ Less than 100
- ❑ Between 101 and 500
- ❑ Between 501 and 1000
- ❑ Between 1001 and 2000
- ❑ More than 2000

9. What is your estimated student-athlete enrollment?

- ❑ _____

Athletic Trainer Roles Please answer each question by checking the box that best represents your view. Please respond NA if the question is Not Applicable to you. **Answering indicates your choice to participate.**	Strongly agree (1)	Moderately agree (2)	Neutral (3)	Moderately disagree (4)	Strongly disagree (5)
1. I think an athletic trainer(s) can offer advice for prevention of injury during participation in sport.					
2. I think an athletic trainer(s) works to make the playing environment a safe one.					
3. I think an athletic trainer(s) is competent in recognizing conditions that pose a potential risk to injury.					
4. I think an athletic trainer(s) is thorough in evaluating injuries that a student-athlete sustains during sport.					
5. I think an athletic trainer does a good job describing injuries and illnesses to student-athletes.					
6. When a student-athlete is injured, the athletic trainer explains to him/her the steps he/she need to take to return to full activity.					
7. I think an athletic trainer has to sit for a professional certification exam to practice.					
8. I think the care an athletic trainer gives to a student-athletes is the same as any other qualified health care professional.					
9. I think an athletic trainer is qualified to rehabilitate a student-athlete's injury and/or surgical procedure.					
10. To become an athletic trainer, one does not have to take any special requirements other than those of the institution to graduate.					
11. To become an athletic trainer, one is required to complete a minimum number of clinical hours before eligible for the profession.					
12. My perception of the athletic training is a positive one.					
13. Athletic trainers are qualified to organize the administration of an athletic training health care facility.					
14. All athletic trainers are qualified to perform are taping techniques.					
15. The athletic training profession is a misunderstood one and should be taken more seriously.					

Appendix D. Reminder Postcard

Dear High School Administrator,

I wanted to take this opportunity to thank you for replying to the athletic training survey that you received sometime last week. In the event that you have not yet completed the questionnaire, I look forward to receiving your response in the near future.

If, for some reason, you did not receive a questionnaire packet last week and would like one resent to you, please contact me at (408)260-2352 or via email at afelling@email.sjsu.edu. Thank you again for your time and participation in this study.

Sincerely,

Aya Felling, ATC, CSCS

Aya Felling, ATC, CSCS