

# Athletic Training Students in the College/University Setting and the Scope of Clinical Education

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**Context:** Athletic training education programs must provide the proper type and amount of clinical supervision in order for athletic training students to obtain appropriate clinical education and to meet Board of Certification examination requirements.

**Objective:** To assess athletic training students' perceptions of the type and amount of clinical supervision received during clinical education.

**Design:** Cross-sectional design.

**Setting:** 124 CAAHEP-accredited NCAA institutions.

**Patients or Other Participants:** We obtained a national stratified random sample (by National Athletic Trainers' Association district) of undergraduate athletic training students from 61 Commission on Accreditation of Allied Health Education Programs-accredited athletic training education programs. A total of 851 athletic training students participated in the study.

**Main Outcome Measure(s):** Differences among athletic

training students with first-aider/provider qualifications, student supervision during moderate-risk and increased-risk sports, program/institutional characteristics, type and amount of clinical supervision, and students' academic level and mean percentage of time spent in different types of clinical supervision.

**Results:** A total of 276 (32.4%) of the students reported that they supplied medical care and athletic training-related coverage beyond that of a first aider/provider. Athletic training students stating that they traveled with teams without supervision numbered 342 (40.2%). A significant difference was noted between the amount of supervision reported by sophomore and senior students ( $P < .01$ ).

**Conclusions:** Athletic training students do not seem to be receiving appropriate clinical supervision and are often acting outside the scope of clinical education.

**Key Words:** clinical experience, field experience, clinical instruction, athletic training education

Athletic training students (ATs) need clinical experiences that include the appropriate type and amount of clinical supervision. As was the case with the former Commission on the Accreditation of Allied Health Education Programs (CAAHEP) standards and guidelines, athletic training education programs (ATEPs) accredited through the Commission on the Accreditation of Athletic Training Education are subject to strict adherence to standards regarding this clinical supervision.<sup>1</sup> Athletic training students spend countless hours learning clinical skills in the classroom and laboratory settings, as well as integrating, applying, and mastering these skills as clinical proficiencies during clinical experiences. After the recent updating of the standards, essentially 2 forms of clinical education exist and are supervised in slightly different manners.<sup>1</sup>

Clinical education involves the instruction and evaluation of clinical proficiencies under the direct supervision of an Approved Clinical Instructor (ACI) who has completed appropriate training. Constant visual and auditory interaction between the student and the ACI must be maintained. By

comparison, clinical experiences are completed under the supervision of a Clinical Instructor (CI) who also may be an ACI. Clinical experiences are intended to provide ATs with opportunities to integrate cognitive and psychomotor competencies, clinical proficiencies, and foundations of professional practice. An ACI or CI must be physically present, as well as have the ability to intervene on behalf of the patient and to provide ongoing and consistent education for the AT. Similarly, in both forms of clinical education, the CI or ACI is physically present to intervene on behalf of the athlete or patient. Those students who are unsupervised are not engaged in either form of clinical education and essentially should restrict their activities to those of a first aider/provider. The ATEPs must provide the proper type and amount of clinical supervision in order for ATs to obtain appropriate clinical education as they meet Board of Certification requirements to sit for the examination.<sup>2</sup>

The ACI must recognize the distinctions between clinical education and clinical experiences. Previous researchers<sup>3</sup> have revealed that ACI supervision of athletic training students can

positively or negatively affect their professional growth and development. However, few differences were revealed in the way students rated their supervisors in an internship route compared with students in CAAHEP-accredited ATEPs. A recent study<sup>4</sup> of college/university head athletic trainers' perceptions of the supervision provided to their ATs indicated that the type and amount of supervision of these students needs improvement. Athletic training students received less supervision as their academic standing in the ATEP increased. At the same time, these ATs were being utilized more often for medical care coverage beyond that of a first aider/provider.

Expanding on this previous research, our purpose was to assess ATs' perceptions of the type and amount of clinical supervision they receive during college/university clinical education experiences. An additional purpose was to determine the extent to which ATs are utilized beyond the scope of clinical education (ie, providing medical care services). The results of this study may assist clinical education coordinators, athletic training CIs and staff, and athletic department administrators in becoming more aware of the clinical supervision currently being provided for ATs at colleges/universities. With this information, clinical education for athletic training students may become more appropriately postured or supervised.

## METHODS

### Subjects

Subjects consisted of undergraduate ATs from a stratified random sample of 124 CAAHEP-accredited ATEPs at National Collegiate Athletic Association (NCAA) Division I, II, and III institutions. This stratified random sample consisted of half of the accredited ATEPs from each of the 10 districts within the National Athletic Trainers' Association (NATA). These programs were identified using the CAAHEP Web site listing of accredited ATEPs (as of October 1, 2003). A total of 862 ATs initially participated in the study. Due to a low number of freshmen ( $n = 9$ ), these respondents were eliminated from the sample. Therefore, data were analyzed on a total of 851 subjects: 197 (23.1%) sophomores, 310 (36.4%) juniors, and 344 (40.4%) seniors. Overall, 63 (50.8%) of the ATEPs responded; 2 response packets were disqualified. One institution only sent responses from graduate students, whereas the other was identified as a National Association of Intercollegiate Athletics institution. Consequently, a total of 61 (50%) of the ATEPs participated in the study. Of these 61 ATEPs, 21 (34.4%) were Division I, 15 (24.6%) were Division II, and 25 (41.0%) were Division III colleges/universities. The ATEPs represented all 10 NATA districts.

### Instrumentation

We used 2 survey instruments in this study. The institutional survey gathered demographic data regarding the name of the institution, NCAA division, number of certified athletic trainers providing medical services, number of ATs in the professional phase of the ATEP, number of sports (including whether the institution had football), and number of athletes. The student survey (primary instrument) was adapted from similar research by Weidner and Pipkin<sup>4</sup> and consisted of 3 sections. The first section obtained academic information about the ATs (eg, academic level and semester in the

ATEP). The second section focused on first-aider/provider qualifications (eg, number of ATs certified in cardiopulmonary resuscitation and first aid and educated on disease transmission and clinical experiences; percentage of time ATs spend in supervised and unsupervised clinical experiences (provided for respondents and defined per NATA Education Council)).<sup>5</sup> The third section addressed athletic trainer medical coverage and supervision of ATs during specific moderate-risk and increased-risk sports.<sup>6</sup> After a pilot study with 12 ATs, we revised the instruments to improve their content and clarity. The validity and reliability of the primary instrument have been previously addressed.<sup>4</sup>

## Procedures

Institutional review board approval was received before we conducted this study. A cover letter, which explained the purpose and need for this research project, 25 student survey instruments, and 1 institutional survey instrument were mailed to the program directors of the randomly selected ATEPs. The program directors were asked to distribute the student surveys (up to a cross-section of 25 students within their programs). They also were requested to select 1 student to be a liaison for the project. With assistance from the program director, the selected student liaison was asked to complete the institutional survey, as well as a student survey. The student liaison was responsible then for collecting the completed anonymous survey instruments and returning them to the researchers in a postage-paid, addressed envelope. E-mail follow-up with all nonrespondent institutions was attempted up to 30 days after the initial return date.

## Statistical Analysis

Data analyses consisted of descriptive statistics, trend analysis, and nonparametric Pearson  $\chi^2$  tests. Frequencies and percentages were calculated for each question of the instrument. Not all questions had responses; therefore, data analyses were based on the responses for that particular question. Three sets of  $\chi^2$  analyses were completed to assess differences among ATs with first-aider/provider qualifications (eg, certified in cardiopulmonary resuscitation and first aid and educated on disease transmission), athletic trainer medical coverage of moderate-risk and increased-risk sports, program/institutional characteristics (eg, whether the institution had football), and type and amount of clinical supervision. Demographic questions from section 1 of the instrument (eg, number of athletic trainers, number of student-athletes, number of sports, number of ATs) were divided into quartiles according to the distribution of the responses for each demographic question. Differences between the upper and lower quartiles of these responses and the questions in section 2 of the instrument were analyzed. We performed a trend analysis to reveal the mean percentage of time sophomore, junior, and senior ATs spent in supervised and unsupervised clinical experiences. For this trend analysis, the Mauchly test of sphericity was used to determine a violation within the data, and the correction factor, the Huynh-Feldt test, was used in the event of a violation. The alpha level was set at .05. The minimum target sample size of respondents is 30, which yields a power of .92 for detecting a large effect. Sample sizes of 25 and 20 yield powers of .86 and .76, respectively. We analyzed the data with the Statistical

**Table 1. Institutional Demographic Data\***

Variable	Frequency	Percentage
National Collegiate Athletic Association Division (n = 61)		
I	21	34.4
II	15	24.6
III	25	41.0
Number of staff certified athletic trainers (n = 61)		
1-4	29	47.5
5-10	28	45.9
11+	4	6.6
Number of athletic training students (n = 61)		
1-10	5	8.2
11-20	30	49.2
21-30	17	27.9
31-40	5	8.2
41+	4	6.6
Number of sports (n = 60)		
1-10	5	8.3
11-15	21	35.0
16-20	27	45.0
21-25	7	11.7
Number of athletes (n = 59)		
0-250	10	17.0
251-300	18	30.5
301+	31	52.5
Institution has football? (n = 61)		
Yes	46	75.4
No	15	24.6

\*n indicates number of institutions that provided complete information.

Package for the Social Sciences (version 11.0; SPSS Inc, Chicago, IL).

## RESULTS

### Demographics

Staff athletic trainers at the colleges/universities ranged from 4 or fewer (n = 29, 47.5%) to more than 11 (n = 4, 6.6%) (Table 1). Regarding the number of sports, 26 (43.3%) had 15 sports or fewer, whereas 34 (56.7%) reported more than 16 sports. Additionally, 10 institutions (17.0%) counted 250 athletes or fewer, whereas 49 (83.0%) counted more than 250 athletes. Finally, 46 (75.4%) of the institutions had football.

Of the 851 ATs who participated in the study, 609 (71.6%) had less than 4 semesters of clinical experience; the remainder (n = 242, 28.4%) had 5 or more semesters. Student enrollment in the professional phase of the ATEPs ranged from 20 students or fewer (n = 35, 57.4%) to 21 students or more (n = 26, 42.6%).

### Athletic Training Student First Aider/Provider Qualifications and Clinical Experiences

Of the ATs, 33 (3.87%) indicated that they did not have current cardiopulmonary resuscitation, first aid, and disease transmission education. A total of 276 (32.4%) reported that they provided medical care and athletic training-related services (eg, therapeutic modalities and rehabilitation) beyond that of a first aider/provider. Those who traveled with teams without supervision numbered 342 (40.2%). Furthermore, 46

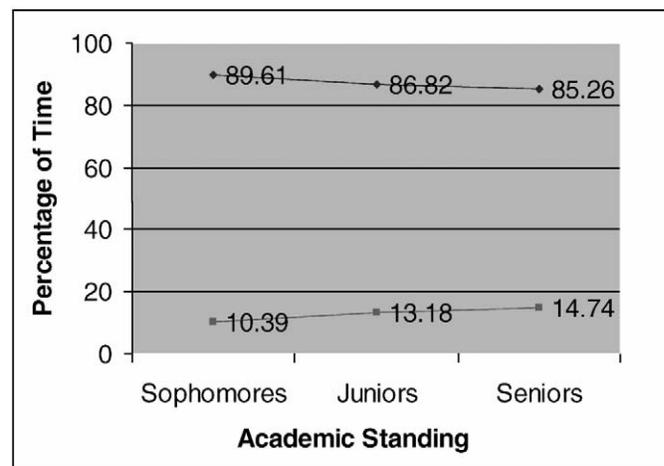
**Table 2. Activities Athletic Training Students Covered Without Clinical Supervision\***

Athletic Activities	Frequency (%)
Strength and conditioning workouts	169 (19.9)
Individual skill sessions	98 (11.5)
Informal summer workouts	47 (5.5)
Home athletic events	31 (3.6)
Team practices (out of season)	165 (19.4)
Formal practices (in season)	163 (19.2)
Athletic training room coverage	232 (27.3)

\*n = 851.

**Table 3. Mean Percentage of Time Spent in Supervised and Unsupervised Clinical Experiences**

Academic Standing	Supervised Experience (%)	Unsupervised Experience (%)
Sophomores	89.6	10.4
Juniors	86.8	13.2
Seniors	85.3	14.7



Percentage of time spent in supervised and unsupervised clinical experiences. ♦, Indicates supervised clinical experiences; ■, unsupervised clinical experiences.

(13.5%) of these 342 students reported that they did not contact the host athletic trainer. As seen in Table 2, ATs provided coverage for workouts, competitions, and athletic training rooms without direct supervision of an athletic trainer; 163 (19.2%) reported that they covered formal practices in season and 232 (27.3%) reported that they provide athletic training room services without supervision. Regarding whether a state practice act limits the ability of an ATs to provide medical care, 181 (21.3%) of the ATs indicated that they were unaware of any such regulation. The ATs reflected a decreasing percentage of time under direct supervision as the academic level progressed from sophomore (89.6%) to junior (86.8%) to senior (85.3%) ( $F_{2,825} = 4.97, P = .007$ ) (Table 3, Figure). Post hoc tests using the Tukey Honestly Significant Difference calculation demonstrated a statistically significant pairwise difference ( $P < .01$ ) in the amount of supervision between sophomore and senior students.

**Table 4. Athletic Training Student Clinical Experience and Perception of Certified Athletic Trainers' Coverage of Moderate-Risk Sports**

Sport	Number of Students With Clinical Experience	Students Reporting Athletic Trainer Present at All Times	
	n	n	%
Women's ice hockey	25	23	92
Water polo	10	8	80
Baseball	247	194	78.5
Women's lacrosse	41	32	78
Women's basketball	276	215	77.9
Field hockey	62	44	71
Women's volleyball	198	139	70.2
Women's soccer	244	166	68
Indoor track	129	85	65.9
Swimming/diving	84	53	63.1
Tennis	87	53	60.9
Outdoor track	129	76	58.9
Cross-country	115	63	54.8

**Table 5. Athletic Training Student Clinical Experience and Perception of Certified Athletic Trainers' Coverage of Increased-Risk Sports**

Sport	Number of Students With Clinical Experience	Students Reporting Athletic Trainer Present at All Times	
	n	n	%
Men's ice hockey	47	44	93.6
Football	455	420	92.3
Men's lacrosse	62	52	83.9
Men's basketball	275	211	76.7
Skiing	4	3	75
Gymnastics	29	21	72.4
Wrestling	120	84	70
Men's soccer	170	116	68.2
Cheerleading	47	25	53.2

### Certified Athletic Trainers' Medical Care Coverage

Athletic training students indicated whether a certified athletic trainer was present for direct supervision at all times (ie, did not leave the ATS unsupervised) during their clinical experiences with moderate-risk sports (Table 4). Supervision was lowest with cross-country, with 54.8% of ATSs reporting that an athletic trainer provided direct supervision at all times, and was highest for women's ice hockey, with 92% indicating that an athletic trainer was present at all times. Athletic training students also indicated whether a certified athletic trainer was present for supervision at all times during their clinical experiences with increased-risk sports (Table 5). Supervision was lowest with cheerleading, for which 53.2% of ATSs indicated that an athletic trainer was present at all times, and highest with men's ice hockey, for which 93.65% of ATSs indicated that an athletic trainer was present at all times.

Chi-square analysis revealed a significant difference between those institutions that had and did not have football, in terms of the ability of an athletic trainer to respond to an emergency situation within 4 minutes ( $\chi^2 = 6.353$ ,  $df = 1$ ,  $P < .028$ ). For those institutions with football, the ability of an athletic trainer to respond to an emergency increased. Addi-

tionally, a significant difference was observed in the total number of athletes at an institution and the ability of an athletic trainer to respond to an emergency situation within 4 minutes ( $\chi^2 = 7.804$ ,  $df = 2$ ,  $P < .020$ ). As the number of athletes at an institution increased, the ability of an athletic trainer to promptly respond to an emergency increased.

### DISCUSSION

Consistent with earlier research,<sup>4</sup> our results suggest that ATSs receive different amounts of supervision depending on their academic standing within the ATEP. As one would expect, senior students are not as closely supervised as sophomore and junior students are. Due to the low number of freshman respondents and subsequent removal of that data, one could only assume that freshman students would be supervised more closely. Warranting further investigation is whether the less supervised senior students are being used as a workforce to provide medical coverage. It was intriguing to learn that ATSs in this study perceived a higher level of supervision than did head athletic trainers in earlier research.<sup>4</sup> This may suggest that ATSs would welcome less supervised clinical experiences. It also may suggest that students lack an understanding of what constitutes supervision. In either case, the different perceptions of ATSs and head athletic trainers deserve further investigation.

Because 181 (21.3%) of the ATSs were unfamiliar with the athletic training practice acts in their states, it would particularly behoove students to learn this information early in the ATEP, because they may be in violation of the law. Our findings suggest that students often are left unsupervised with moderate-risk and increased-risk sports. Again, it is critical that students and athletic trainers understand the practice acts in their states (if applicable). Violation of these state practice acts could shed a negative light on and ultimately hinder the profession and its recognition within the allied medical care professions.

A total of 276 (32.4%) of the ATSs reported that they provided medical care and athletic training-related services (eg, therapeutic modalities and rehabilitation) beyond those of a first aider/provider. One particular reason for this high occurrence may be that 233 (27.4%) of the students reported that they provide athletic training room coverage (eg, injury treatment and rehabilitation) without supervision. Certainly, few athletes with acute injuries initially present to the athletic training room for care limited to that of a first aider/provider. Therefore, the more common postacute and chronic injuries seen in the athletic training room, the close proximity to therapeutic modalities and therapeutic exercise equipment in this environment, a lack of knowledge regarding state practice acts, and an eagerness to learn and help may foster a situation in which the ATS provides care beyond that of a first aider/provider.

As Weidner and Henning<sup>7</sup> discussed, clinical education in athletic training, as in numerous allied medical professions, depends upon clinical experiences as a critical component for student learning. The CI has been identified as the person most critical to these students' learning experiences.<sup>8</sup> Similar to what has occurred in nursing,<sup>9</sup> though, it may be increasingly difficult for today's athletic trainers to find adequate time to accept the extra responsibility for teaching ATSs. The general trend is toward increased workloads to provide medical care coverage for expanding sport seasons and off-season condi-

tioning, practice, and competition schedules—with fewer resources and more pressure from all sides. A greater responsibility for the teaching, supervising, and assessing of students often may be unrealistic. Similar to what has occurred in nursing,<sup>9</sup> athletic training CIs are encountering role strain while meeting the needs of the athlete or patient and the needs of the student.<sup>10</sup> In this situation, accountability to the patient takes precedence.<sup>11</sup> In the meantime, ATs who are compelled to complete unsupervised clinical experiences are not receiving appropriate clinical education.<sup>1,2</sup> Until college/university athletics department athletic training staffs are large enough, appropriate supervision of ATs in the college/university clinical education setting will be difficult. Either more staff athletic trainers are needed or fewer ATs can be enrolled in the professional phase of the ATEP. Interestingly, the gap in the clinical supervision of students may not be adequately filled by academic faculty. Although academic faculty may have superior teaching skills, these professional educators often lack a high degree of ongoing clinical activity and, therefore, may lack credibility among clinicians and students.<sup>9</sup> As formerly discussed by Weidner and Henning,<sup>7</sup> athletic trainers with a primarily academic role need to remain, ideally, at least somewhat clinically active. As also discussed by Weidner and Pipkin in the earlier study,<sup>4</sup> the results of this study should be interpreted cautiously. As in any survey research, it is plausible that the ATs responded to the questions the way they were “supposed to,” rather than by providing valid information about the supervision they received. The ATs may be receiving supervision in one way, but responding to the questionnaire in another way. This may result from their awareness of the important requirements today regarding supervision during clinical education. They may be reporting what is expected, rather than how they actually are being supervised by their clinical instructors. However, in that deficiencies in clinical supervision have now been identified in this study with ATs and in previous research with athletic trainers,<sup>4</sup> it is becoming more reasonable to conclude that the appropriate type and amount of clinical supervision of ATs may be lacking in some ATEPs during clinical education. Further research could include an investigation of clinical supervision received by ATs in different settings (eg, high school and clinic). Non-participant observation research methods should be employed by future authors. Also, our study should be repeated after a 5-year period to note any changes in the type and amount of clinical supervision in ATEPs.

## CONCLUSIONS

Our results suggest that ATs are not receiving the appropriate type and amount of clinical supervision and are often acting outside the scope of clinical education. Medical care coverage beyond that of a first aider/provider is being supplied

by unsupervised ATs on a fairly regular basis. This unsupervised coverage is provided more often by senior ATs, but typically not during moderate-risk and increased-risk sports. Less supervision of ATs may foster independence but inadequately protects athletes and patients in instances when an athletic trainer cannot intervene on their behalf. The ATs are appropriately receiving more or less direct clinical supervision, depending on their academic standing. The results of this study are intended to enhance the education of ATs by providing information to make CIs, athletic trainers, and athletic directors at colleges and universities more aware of the extent to which they utilize ATs beyond appropriate clinical supervision and beyond the scope of clinical education. Future researchers should include a nonparticipant observation study to assess the amount and type of supervision occurring in different clinical education settings.

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