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Athletic Trainers' Perceptions of Treating and Managing Patients With Ankle Sprains

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Context: Ankle sprains are common occurrences in athletic and general populations. High volumes of ankle sprains elevate the clinical burden on athletic trainers (ATs). The National Athletic Trainers' Association (NATA) published a position statement regarding the treatment and management of ankle sprains, but certain factors might affect an AT's ability to effectively implement the recommendations.

Objective: To evaluate ATs' current understanding, perceptions, and difficulties regarding the treatment, management, and long-term effects of ankle sprains.

Design: Cross-sectional study.

Setting: Online survey instrument.

Patients or Other Participants: A total of 796 ATs (years certified = 12.1 ± 9.2) across all athletic training job settings.

Main Outcome Measure(s): Participants completed a 38-question survey that addressed their demographic characteristics, as well as their perceptions and knowledge of the epidemiology, treatment, and management of ankle sprains. The survey was also used to document participants' patient education practices and attitudes toward the NATA position statement regarding ankle sprains, along with the challenges of and pressures against implementation. Descriptive statistics, correlations, and analyses of variance were used to analyze the data and evaluate group differences and relationships.

Results: Of the participants, 83% demonstrated a moderate understanding of fundamental ankle sprain epidemiology. Group differences regarding patient education were seen by education levels, years certified, and job setting. Overall, 38.1% of ATs were either unsure or unaware of the NATA position statement, but those who were aware rated its usefulness at 3.89 on a scale of 1 to 5, with 1 being *not useful at all*; 3, *neutral*; and 5, *very useful*. On average, 1.9 ± 0.88 challenges to implementing effective treatment practices were documented, and 2.0 ± 0.95 pressures to return athletes to play after ankle sprain were reported.

Conclusions: Nearly 40% of the ATs were either unaware or unsure of the current recommendations regarding how patients with ankle sprains are treated, which could affect how care is delivered.

Key Words: treatment, patient education, clinician knowledge

Key Points

- Although most athletic trainers (ATs) found the National Athletic Trainers' Association position statement on the treatment and management of ankle sprains useful, ready 40% were unaware or unsure of the current recommendations.
- Patient education and treatment practices for an ankle sprain varied among ATs.
- Coaches and student-athletes represented the top sources of pressure felt by ATs to return an athlete to play after an ankle sprain.

Ankle sprains occur at high rates in both athletic and general populations.[1–4] Because athletic trainers (ATs) in all settings work across both patient populations, their clinical burden is heavily affected by the rates at which ankle sprains occur. The National Athletic Trainers' Association (NATA) published a position statement[5] with 37 recommendations that instructed ATs on how to treat and manage patients with ankle sprains. The position statement used the best evidence available at the time of publication (2013) to inform the clinical practices ATs use when treating patients who have sustained ankle sprains. The recommendations were provided in 3 strength tiers based on the evidence that supported them. Most of the recommendations were categorized at the lowest strength level. This disparity in the information that is the basis for the recommendations ATs use to make their clinical decisions may also affect the way they perceive treating and managing patients with ankle sprains.

In addition to the symptoms associated with the initial injury, ankle sprains are known to have lingering effects and consequences about which patients need to be educated.[6] The NATA position statement did not address patient education and how ATs should educate patients about their injuries. Whereas patient education is thought to be commonplace in health care, after an ankle sprain, many patients either never seek care or receive inadequate care. Within the general population, about half of individuals who sustained an ankle sprain did not seek formal medical care,[7] and those who did seek treatment received an average of 4.45 days of physical therapy.[4] Similarly, more than half

of the athletes who sprained their ankles did not seek any treatment.[8] Those athletes who were treated returned to play within 7 days of injury,[2,9,10] and 44% of the lateral ankle sprains (LASs) were described as non–time-loss injuries, which meant the athletes returned to play within 24 hours of injury.[10] Although ATs may not have the opportunity to address the large numbers of ankle sprains occurring, they may also lack enough time with the patients they do treat to adequately convey the importance of the injury. Whereas return-to-play (RTP) timelines reflect what occurs in athletic training facilities when ATs treat individuals with ankle sprains, the misconception of an ankle sprain as an innocuous injury may negatively affect the expectation of injury resolution, thereby reinforcing a shortened RTP timeline. In addition to lacking sufficient time for these conversations due to expectations of expedited RTP, ATs currently do not have a uniform method of emphasizing patient education during rehabilitation.

As health care professionals, ATs are expected to understand and track the healing process during rehabilitation. Initial healing of the lateral ligaments can take 6 to 12 weeks,[11] during which the inflammatory response is addressed and the tensile strength of the ligaments is restored sufficiently to support their load.[12] This time frame is longer than the recent RTP timelines reported for athletes who incurred ankle sprains. Aside from the role patients play in these shortened timelines, ATs may face other constraints and barriers when treating and managing patients with ankle sprains. In athletic settings, outside factors such as coaches or higher-ranking officers, teammates, and the time of season may influence the ways patients with ankle sprains are treated in order to help the team succeed. Currently, the rest, ice, compression, and elevation method of treatment is the universally accepted criterion standard for ATs treatment of ankle sprains,[5] which also shows the emphasis on addressing acute symptoms, quite possibly in the hope of returning patients to activity sooner. Depending on the setting, limited resources may be available to efficiently treat every patient with an ankle sprain through the true duration of the ligamentous healing process. These pressures and challenges should be acknowledged and quantified to provide insight into the ways ATs may struggle to implement best practices.

Because ankle sprains continue to be widespread, it is important to evaluate ways in which ATs can better treat our patients. Part of that evaluation includes critiquing the usefulness of the current position statement for informing clinical decisions and gauging the confidence ATs have in applying those recommendations to their practice. It is also important to assess ATs' efforts regarding patient education, given that no standardized recommendations exist. Therefore, the purpose of our study was to evaluate ATs' current understanding, perceptions, and difficulties with respect to the treatment, management, and long-term effects of ankle sprains.

METHODS

Participants

A total of 10 000 ATs were e-mailed an invitation to participate via the NATA Research Survey Service. The ATs were contacted if they were known to work with a patient population; this excluded ATs who worked strictly in research or higher education. A total of 796 ATs across various athletic training settings provided responses (7.96% response rate). Listed job settings were college, high school, professional athletics, clinic, industry, hospital, and military. Participants were also given the opportunity to enter any other job setting that was not offered as an option. Before answering questions on the survey, participants consented to anonymously contribute their responses. The study was approved by the University of Virginia Institutional Review Board.

Instruments

Data were collected using the University of Virginia Qualtrics Research Suite. A 38-question survey was used to obtain demographic information and perceptions and knowledge of the epidemiology, treatment, and management of ankle sprains. Other questions asked about patient education practices, attitudes toward the current NATA position statement, and obstacles to executing the recommendations. The survey was developed in the Exercise and Sport Injury Laboratory at the University of Virginia by expert sports medicine researchers, and pilot data were collected in clinical and research settings from ATs who had experience working clinically. Pilot testing was performed to assess the feasibility of and strengthen the survey.[13]

Procedures

After providing informed consent, participants were asked for demographic information, including their highest level of education, how long they had been certified, and their job setting. Nine questions then assessed their fundamental knowledge of ankle sprain epidemiology. These questions were created using the NATA position statement[5] and the evidence review from the International Ankle Consortium consensus statement on the prevalence, impact, and long-term consequences of LASs,[14] as well as other research articles containing statistics about ankle sprains. The ATs were asked to describe their rehabilitation and treatment practices and how they disseminated patient education. Questions regarding attitudes toward the NATA position statement included the ATs' awareness of its existence, how useful they felt the position statement was for them as clinicians, how confident they felt in implementing the recommendations presented, and how well they understood the recommendations. In addition, items were posed about the pressures and challenges they faced as ATs when treating and managing patients with ankle sprains. Participants were not required to answer every question per institutional review board regulations.

Data Processing

The data regarding job setting were recoded to create 4 groups based on the patient population being served: athletic, general, both, and other. The ATs in the *athletic* group worked in collegiate, high school, or professional athletics or the military, dance, or performing arts. The *general* group consisted of ATs in the clinic, occupational, or hospital setting or any variation of these settings. The

group serving *both* athletic and general patients provided care to both populations, and the *other* group contained any AT who chose that option but did not specify its meaning. We calculated frequencies to determine how many ATs were in each group.

The 9 ankle sprain epidemiology questions were recoded and the answers summed to create a cumulative knowledge score. These scores were used to group ATs according to low, mid, and high levels of knowledge. The ATs in the low-level knowledge group answered 3 or fewer of the 9 questions correctly. Those in the midlevel group answered 4 to 6 questions correctly, and those in the high-level group answered 7 to 9 questions correctly. We used the cumulative scores to find the average number of questions answered correctly by the entire group of participants and calculated frequencies to identify how many ATs fit into each knowledge-level group.

Confidence in the NATA position statement was calculated using a 25-point scale. The ATs reported their confidence in implementing the recommendations in the 5 sections of the position statement on a scale from 1 to 5, with 1 being *very confident*, 3 being *neutral*, and 5 being *not confident at all*. The points for the 5 sections were summed for an overall confidence score, with 5 points indicating the *most confidence* and 25 points, the *least confidence*. We used the total scores to find the average level of confidence for the entire group.

Importance placed on patient education was determined via 4 questions and a 20-point scale. Four points represented the *greatest emphasis* and 20 points, the *least emphasis*. The total values were used to calculate the average emphasis on patient education by the entire group of participants.

Statistical Tests

Descriptive statistics (frequency, mean, median, and SD) were calculated for the ATs' highest level of education, years certified, and job setting as well as for the pressures and challenges related to and the awareness of, confidence in, and usefulness of the NATA position statement.

We conducted Pearson *r* correlations to evaluate the association between pressures felt and challenges faced regarding implementation of best practices and the confidence in or perceived usefulness of the NATA position statement. The strength of the correlation was interpreted as 0 to $\pm$ 0.29, *weak*; $\pm$ 0.3 to $\pm$ 0.49, *moderate*; or $\pm$ 0.5 to $\pm$ 1.0, *strong*.[15]

We performed 1-way analysis of variance to evaluate the mean differences between the independent variables of education level (bachelor's, master's, doctorate), years certified (5 groups separated into 5-year intervals, starting at $\leq$ 5 years and ending at $>$ 25 years), and job setting on the dependent variables of patient education emphasis, pressures and challenges expressed by ATs when treating and managing patients with ankle sprains, and confidence in and usefulness of the NATA position statement. Tukey post hoc tests revealed which groups differed from one another. Chi-square analyses were calculated to evaluate associations between the categorical variables of knowledge of ankle sprain epidemiology, education level, and years certified. The α was set to $P \leq .05$ for all analyses.

Table 1. Descriptive Statistics for Education Level, Years Certified, and Job Setting

Characteristic	n
Level of education	
Bachelor's	191
Master's	557
Doctorate	30
Years certified	
$\leq$5	235
6–10	154
11–15	99
16–20	94
21–25	61
$>$25	103
Job setting	
Athletic population	506
General population	129
Both populations	65
Other	26

RESULTS

Descriptive Statistics

Data for the highest level of education, years certified, and job setting are shown in Table 1, and those regarding pressures and challenges related to and usefulness of the NATA position statement appear in Table 2. A master's degree was reported by 557 of 778 participants (71.6%). On average, the ATs had been certified for 12.12 $\pm$ 9.15 years; however, the largest group (245/746, 33.1%) had been certified for 5 years or less. The ATs who served an athletic patient population constituted the largest group within the job-setting variable at 506 (of 726, 69.7%).

A total of 83% of participants possessed a midlevel understanding of ankle sprain epidemiology, with 4.86 $\pm$ 1.13 questions answered correctly. An average of 1.9 $\pm$ 0.88 challenges were reported by the 419 participants who responded to the question on implementing effective clinical practices; the top 2 challenges reported were "Pressure to return the athlete to competition" (46.85%) and "Not enough time" (34.56%; Figure 1). In addition, 377 ATs noted an average of 2.0 $\pm$ 0.95 pressures to return athletes to play after an LAS; the top 2 pressures came from coaches (39.39%) and student-athletes (32.23%; Figure 2). Last, 38.1% of ATs were either unsure or unaware of the NATA position statement, and those who were aware averaged 3.89 $\pm$ 0.79 regarding the usefulness of the NATA position statement, with 1 being *not useful at all*; 3, *neutral*; and 5, *very useful*. The ATs mindful of the NATA position statement expressed a high level of confidence in implementing the 5 sections of the position statement at 7.68 $\pm$ 2.87 (5 = the highest level of confidence; 25, the lowest level).

Group Comparisons

Results for the dependent variables of emphasis on patient education and confidence in and usefulness of the NATA position statement can be seen in Table 2. No group differences were evident in the confidence ATs had in the NATA position statement or its usefulness. Between-groups differences were observed by education level, years certified, and job setting with respect to the emphasis on patient education. The ATs who possessed doctorates

Table 2. Demographic Differences in Patient Education Emphasis and Confidence In and Usefulness of the National Athletic Trainers' Association Position Statement on Ankle Sprains[5]

Characteristic[a]	Patient Education Emphasis (4 = *High*, 20 = *Low*)	Confidence in the Statement (5 = *Most*, 25 = *Least*)	Statement Usefulness (1 = *None*, 5 = *Very Much*)
Education level			
Bachelor's	7.06 ± 2.31[b]	8.04 ± 2.88	4.03 ± 0.60
Master's	7.48 ± 2.41[b]	7.58 ± 2.86	3.84 ± 0.84
Doctorate	5.56 ± 2.65[b]	7.17 ± 3.25	4.00 ± 0.707
P value	<.001[c]	.55	.44
Years certified			
≤5	7.28 ± 2.20	7.47 ± 2.27	3.94 ± 0.71
6–10	7.76 ± 2.43	8.33 ± 3.44	4.08 ± 0.72
11–15	7.50 ± 2.23	7.82 ± 3.38	3.56 ± 0.96
16–20	7.40 ± 2.72	8.31 ± 2.85	3.69 ± 0.95
21–25	7.69 ± 2.68	7.00 ± 2.87	3.69 ± 0.87
>25	6.22 ± 2.44[d]	6.76 ± 2.62	4.17 ± 0.62
P value	<.001[b]	.28	.70
Job setting			
Athletic population	7.47 ± 2.36[b]	7.75 ± 2.85	3.88 ± 0.75
General population	6.70 ± 2.62[b]	7.68 ± 3.22	3.88 ± 1.01
Both populations	7.29 ± 2.40	7.40 ± 2.84	3.94 ± 0.73
Other	7.18 ± 2.40	7.20 ± 2.44	3.80 ± 0.84
P value	.026[c]	.91	.98
Grand Mean ± SD	7.31 ± 2.43	7.68 ± 2.87	3.89 ± 0.79

[a] Mean ± SD except where indicated otherwise.
[b] Denotes groups revealed to be different per post hoc tests.
[c] Denotes $P < .05$.
[d] Denotes the sole group that was different from all other groups.

placed the most emphasis on patient education, with a composite score of 5.56 ± 2.65 (20 points denoted poor patient education practices). Participants who had been certified for >25 years placed greater emphasis on patient education (6.22 ± 2.44) than those in other groups. Athletic trainers who served general-population patients emphasized patient education more (6.70 ± 2.62) than did those in other job settings.

No significant correlations were revealed between pressures felt or challenges faced regarding implementation of best practices and the confidence in or perceived usefulness of the NATA position statement (Table 3). No group differences were seen in the confidence ATs had in the NATA position statement or its usefulness. Chi-square analyses demonstrated no significant associations among any of the categorical variables of knowledge of ankle sprain epidemiology, education level, or years certified (Table 2).

DISCUSSION

Overall, ATs showed a moderate understanding of ankle sprain epidemiology, and although the direct effect of this finding on clinical practice cannot be confirmed, it is important to consider. This moderate level of understand-

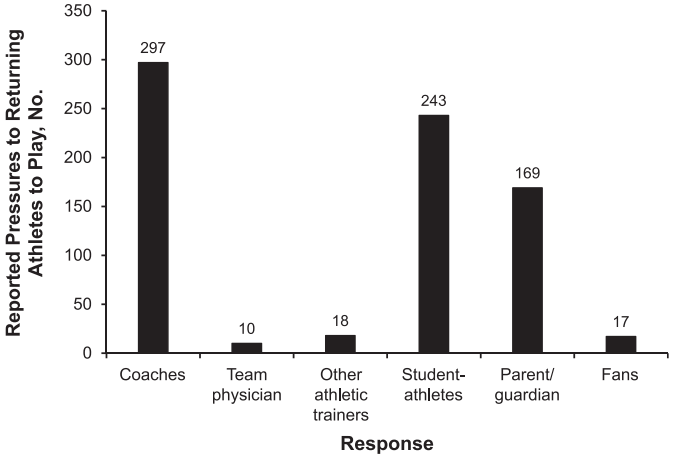

Figure 1. Pressures reported by athletic trainers with regard to returning athletes to play after ankle sprains.

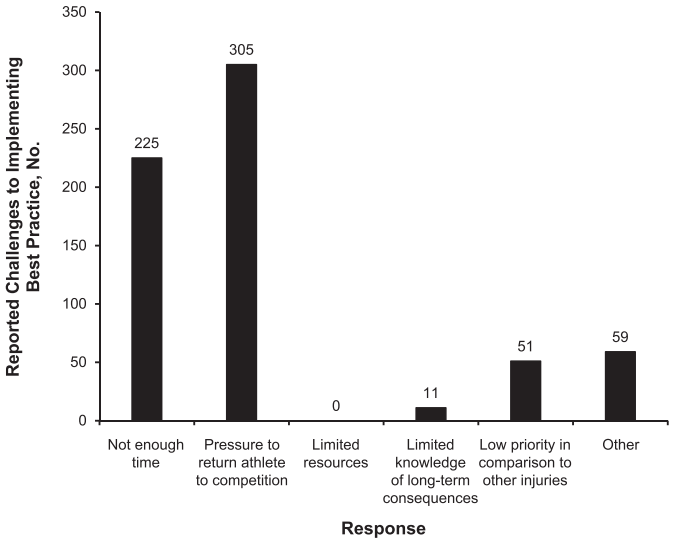

Figure 2. Challenges reported by athletic trainers to implementing best practices when treating patients with ankle sprains.

Table 3. Correlations Between Usefulness of or Confidence in the National Athletic Trainers' Position Statement on Ankle Sprains and Pressures Felt or Challenges Faced

Factor	Usefulness	Confidence	Usefulness	Confidence
Return-to-play pressures	0.040	−0.027		
Challenges faced			−0.024	0.087
P value	0.632	0.720	0.754	0.205

ing, coupled with almost 40% of ATs being unaware or unsure of the NATA position statement regarding ankle sprains, left a large number of ATs ill-equipped to handle this highly prevalent injury. The 60% of ATs who were aware of the NATA position statement described it as more useful than not and were highly confident in implementing the recommendations. Similarly, authors of a study[16] conducted in 2009 reported that about 61% of ATs used the NATA position statement in the management of sport-related concussion in their respective clinical settings. Despite this positive outcome, the fact that 40% of ATs were unaware or unsure of the position statement was alarming. The 2009 study on the sport-related concussion position statement also revealed that about 80% of program directors in athletic training programs accredited by the Commission on Accreditation of Athletic Training Education claimed the position statement was taught in their programs.[16] Although we did not evaluate whether the position statement on ankle sprains was taught in these programs, future researchers may choose to compare the number of programs teaching athletic training students about the position statement with those programs reporting awareness of its existence. It is also important to note that most of the respondents were certified before the NATA position statement on ankle sprains was published. They were not exposed to this position statement during their educational programs, which underlines the importance of continuing education: NATA position statements are an important method of learning about providing evidence-based care. Determining where the breakdown in knowledge and awareness occurs could inform changes to ensure that ATs are following evidence-based recommendations; continuing education courses might be 1 way of promoting professional development. Similarly, in 2010, researchers[17] who evaluated ATs' knowledge, attitudes, and practices regarding heat illness showed that 77% were aware of the 2002 NATA position statement on exertional heat illness[18] but smaller percentages reported using the most valid tools (19%) and following best practices (50%). Differences between recommended and actual care are critical to address because the NATA position statement recommendations encourage uniform care of patients.

Whereas most ATs found the NATA position statement on ankle sprains to be useful and were confident in implementing its recommendations, they also reported an average of 2 sources of pressure and 2 challenges placed on them when treating these patients. Although no relationships were present between any of these variables, specifically identifying those pressures and challenges and where they occurred could lead to solutions that clinicians can use to help offset those barriers to best practice. Pressure to return an athlete to competition was the top challenge faced by ATs, and this along with factors outside the scope of this study could be influencing such short RTP timelines. Coupling this challenge with the top 2 sources of pressure (coaches and student-athletes) could also offer further insight into the perceptions other stakeholders may have about treating and managing patients with ankle sprains. This pressure to return athletes to play could be an unfortunate part of sport culture: researchers[19] also found that coaches and athletes were the top 2 sources of pressure placed on clinicians to prematurely return athletes to play after a sport-related concussion. These compounding obstacles may work against an AT's ability to adequately treat injured athletes. Educating those invested in a patient's recovery from an ankle sprain may benefit an AT's ability to treat the individual. This proposed shift in culture may benefit the patient's long-term joint health and overall wellbeing.

An emphasis on patient education was the only variable that highlighted differences in all 3 of the group comparisons. These findings call attention to how patient education is disseminated in the profession. Considering that patient education is not addressed in the NATA position statement on ankle sprains, it is important to quantify the differences in clinical practice. This lack of acknowledgment may not be the only cause of the different ways ATs emphasize patient care, but the lack of a uniform recommendation for ATs to follow may account for the various ways it is carried out. The ATs who had doctoral degrees or >25 years of experience or worked with the general population placed more emphasis on patient education. Although we did not investigate what allowed these groups to emphasize patient education more, time could be a factor. The ATs with doctoral degrees spent more time in health care education programs, increasing their exposure to best clinical practices. The ATs with >25 years of experience had had more time working in their clinical practices. Those working in settings where a general population was treated, such as clinics, could have had more time with patients to explain the injury and its consequences. Educating patients who sustain ankle sprains is an essential part of treatment. This education should fit into 3 of the 5 sections of recommendations in the position statement: "Diagnosis," "Treatment and Rehabilitation," and "Special Considerations." Patients should be informed of the severity of the injury and the deficits they have. Any recurring or lingering symptoms should be addressed, and the possible long-term consequences should be explained so that patients understand what they may face even after RTP.[20,21]

This study was not without limitations. First, only ATs who were members of the NATA were contacted. Whereas this covers a large percentage of the AT population, not every AT is a member. In addition, surveys are mostly quantitative in nature and even though we collected large numbers of responses, topics as complex as perceptions and attitudes toward clinical practice and injury may warrant deeper investigation into the formation of those beliefs.

CONCLUSIONS

A high percentage of ATs had a midlevel understanding of basic ankle sprain epidemiology. Across all education levels, years certified, and settings, most ATs expressed confidence in the NATA position statement and found it useful, but some ATs were unsure or unaware of the position statement. The participants also reported pressures and challenges in effectively implementing the recommendations. These difficulties may play a role in how patients with ankle sprains are viewed and subsequently treated. The emphasis on patient education differed by education level, years certified, and settings, which may warrant further exploration of ways to standardize the information given to patients by all ATs.

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