# Athletic Trainers' Educational Satisfaction and Technique Use within the Psychosocial Intervention and Referral Content Area

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**Context:** Athletic trainers (AT) must address both physical and mental aspects of athletic injury in a holistic rehabilitation program.

**Objective:** Assess ATs' satisfaction with educational preparation within the Psychosocial Intervention and Referral (PIR) content area, confidence in using related techniques, and frequency of technique use within clinical settings.

**Design:** Cross-sectional survey.

**Setting:** Online survey.

**Participants:** 1701 ATs with BOC certification for ≤ 7 years participated. In regards to employment settings, 36.1% of the participants worked at the college/university level, 30.7% in private clinics, and 23.2% at secondary schools.

**Main Outcome Measure(s):** Descriptive statistics were used to examine participants' confidence and frequency of using various PIR techniques. A MANOVA was used to evaluate group differences (accredited vs. internship, edition of educational competencies, clinical setting) in satisfaction, confidence, and frequency of technique use.

**Results:** The average technique use was 3.58 (±1.92) for motivation, 6.19 (±2.16) for self-talk, 6.2 (±2.06) for relaxation, and 6.53 (±2.0) for imagery. Technique usage became progressively more infrequent from relaxation (mean = 5.25, SD = 2.2), to self-talk (mean = 6.19, SD = 2.0), to imagery (mean = 6.53, SD = 2.1). The results identified a significant group difference for edition of educational competencies ($F_{45,2969}$ = 1.848, P < 0.001, $\eta^2$partial = 0.027) with ATs educated under the fourth edition reporting more frequent technique use. The results identified a significant group difference for route to AT certification ($F3_{0,2464}$ = 1.477, P = 0.046, $\eta^2$partial = 0.018) with internship ATs reporting the most infrequent use.

**Conclusions:** Athletic training education programs are providing education in most PIR competencies; however, ATs have infrequent implementation of techniques in clinical practice. In addition, educators should examine how to modify the instruction of the PIR competencies to promote implementation within clinical education settings.

**Key Words:** mental skills, psychosocial intervention, psychosocial referral, psychology of injury

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Formal education on the psychology of injury is part of the required education for students within accredited athletic training education programs (ATEPs); however, this education may not lead to the implementation of relevant techniques in professional practice.[1] Since 1999, accredited ATEPs have been required to teach and evaluate the 12 content areas of the *Athletic Training Educational Competencies* as written by the National Athletic Trainers' Association (NATA). Psychosocial Intervention and Referral (PIR) is one of these 12 content areas. It emphasizes communication skills, motivation and adherence strategies, social support and basic counseling skills (e.g., emotional response to injury), mental skills training techniques (e.g., imagery, relaxation), and potential referral situations.[2,3]

Research has shown that athletic trainers (ATs) with formal education in the psychology of injury have increased perceptions of the role of psychological skills (e.g., mental imagery, relaxation) within sport injury rehabilitation programs.[4] Today's AT should address both the physical and mental aspects of the injured patient as increased attention is being placed on the importance of psychosocial issues and psychological recovery from athletic injuries.[4-8] Previous research has demonstrated the important role that psychological aspects play during the rehabilitation process, such as in improving patient adherence to rehabilitation programs, controlling patient anxiety, and increasing the speed of recovery.[5,6,9-11] Given these findings and the PIR education requirement within accredited programs, ATs must consider the psychological aspects of an injury to be within their scope of practice and actively implement strategies to improve the effectiveness of the overall rehabilitation process. There has been recent interest regarding whether entry-level ATs are being adequately prepared within this content area.[1]

In general, ATs' knowledge about psychological strategies and their effectiveness gravitate towards practical techniques involving communication, social support, and reinforcement. Conversely, mental skill training techniques, such as relaxation, mental imagery, and concentration development have been ranked as less important.[12,13] While ATs may believe in the use of these techniques, they may not feel qualified to implement them, and therefore, ranked them as less important.[12,13] An assumption exists that usage of mental skills training techniques would be increased if ATs had a stronger knowledge base in this area.[13] These topics were explored more recently and with similar results;[4] more 'practical' strategies, such as pain control and goal setting, were rated higher than visualization/imagery and positive self-talk. Additional survey research regarding the college and university ATs' educational preparation and experiences with counseling found that the majority of participants reported being underprepared to handle many typical counseling situations outside of injury prevention, rehabilitation, and nutrition.[14] In a review of prior research, only one study evaluated the perceptions of recently certified ATs in regards to their professional ATEP preparation across the PIR content area.[1] Average participant rankings indicated that ATs were underprepared in terms of motivating noncompliant and difficult patients, providing counseling support to patients, suggesting mental skills training techniques (e.g., relaxation, centering, visualization/imagery), recognizing and addressing psychosocial issues with patients, and knowing when and how to refer for psychological issues.[1] Arguably, the studies from the early and middle 1990s are outdated. In addition, one study evaluated only ATs' attitudes and perceptions,[4] while another study evaluated the educational preparation of only a small number of recently certified ATs.[1]

The purpose of our study was to assess ATs' satisfaction with their professional ATEP preparation regarding topics now covered in the PIR content area, their confidence in using related techniques, and the frequency of using these techniques within their clinical settings. Specifically, we were interested in examining the relationship between overall education satisfaction/ability confidence and current techniques used. We hypothesized that ATs who graduated from accredited ATEPs adhering to the fourth edition of the *Educational Competencies* would have increased satisfaction, confidence, and more frequent technique use than ATs who graduated from internships or who were educated under the third edition of the *Educational Competencies* (since educational preparation should be improving as newer editions of the competencies are produced).

## Methods

### Participants

The Board of Certification (BOC) provided an email list of 5613 ATs who had been certified for seven years or fewer. We chose this cut off because it included only those ATs who had graduated and become certified since 2000 (educational competencies and clinical proficiencies were revised in 1999). We received approval for the study and use of human subjects from the host institution's Institutional Review Board. Participants provided implied consent by completing and returning the online survey.

### Data Collection

We sent eligible participants an email that explained the study and included a link to the survey hosted by SurveyMonkey.com (Portland, Oregon).[15] Participants returned anonymous survey responses to the website. The survey was a 30-item questionnaire that was adopted from the Psychology of Injury Usage Survey (POI-U)[16] and based on the PIR content area in the fourth edition of the *Athletic Training Educational Competencies*.[2,3] The survey took approximately 10 minutes to complete. Authors of the POI-U reported reliability coefficients and internal consistency for each subscale (reliability range: 0.72-0.89; Cronbach's coefficient alpha range: 0.66-0.89).[16]

The survey obtained demographic information including years of experience, type of professional program attended (eg., internship, accredited undergraduate program, accredited entry-level master's program), and current clinical setting (eg., college/university, secondary school, private clinic, other). The survey included 15 questions on satisfaction with their athletic training education and confidence in their ability to use the related information or techniques in their clinical setting (Table 1) and 15 questions pertaining to the frequency of technique use in their clinical setting (Table 2). Satisfaction, confidence, and technique frequency were all rated on a 9-point Likert scale (technique anchors: *always [1]* and *never [9]*; satisfaction/confidence anchors: *completely satisfied/confident [1]* and *completely dissatisfied/unconfident [9]).*

## Analysis

We used the Statistical Package for Social Sciences software (version 16.0; SPSS Inc, Chicago, IL) to generate descriptive statistics for each survey question and to evaluate group differences (accredited vs. internship, edition of educational competencies, clinical setting) in satisfaction, confidence, and frequency of technique use. We used several multivariate analysis of variance (MANOVA) procedures to evaluate group differences for these dependent variables. We selected the MANOVA because of the relationship between dependent variables paired with the multiple independent variables. We used Pearson correlations to explore the relationship within and between satisfaction, confidence, and technique-use items in similar competency areas ($\alpha$ = .05). All observations were independent of one another and other assumptions of equality of variance-covariance matrices and normality were upheld.

## Results

Of the 5613 email addresses we obtained from the BOC, we excluded 66 of them as they were for respondents who became BOC certified prior to 2000. Of the remaining 5547 email addresses, 197 were undeliverable. Of the remaining 5350 email addresses that received our request to participate, we received 1701 responses for a total response rate of 31.9%.

All of the 1701 participants responded to all survey questions. Mean years of experience for respondent ATs was 3.13 years (SD = 1.96). Seventy-four percent of respondents graduated from an accredited undergraduate program (n = 1259), 22.0% from an internship undergraduate program (n = 374), and 4.0% from an accredited entry-level master's program (n = 68). Participants represented a range of clinical settings including college or university level (36.1%; n = 614), private clinic setting (30.7%; n = 522), secondary school setting (23.1%; n = 394), and other (10.1%; n = 171). We did not include participants who classified their setting as "other" in analyses involving settings.

## Technique Usage

The first 15 survey questions examined frequency of technique use in four major categories: (1) visualization/imagery [3 items], (2) thought stopping/cognitive restructuring [3 items], (3) relaxation [3 items], and (4) motivation/goal setting [6 items].

**Visualization/Imagery.** In terms of visualization/imagery, 27.7% of ATs (n = 471) reported encouraging patients to use visualization or imagery at least half of the time (Table 2; item 1). Nearly half (41.5%; n = 706) of ATs in this study never used healing imagery scripts with patients, while 9.5% (n = 162) used these scripts more than half of the time (Table 2; item 9). Similarly, 17.4% of ATs (n = 296) never taught patients how to use imagery to deal with injury-associated pain, with only 16.1% (n = 274) doing so at least frequently (Table 2; item 15).

**Thought Stopping/Cognitive Restructuring.** Responses for teaching and encouraging thought stopping and cognitive restructuring techniques indicated that 24.0% and 32.6% (n = 408 and n = 555, respectively) reported doing so at least half of the time (Table 2; items 3 and 13). In fact, 23.8% of participants (n = 405) reported never using cognitive restructuring (Table 2; item 13). Slightly more ATs reported teaching patients how to monitor negative self-talk, with 47.0% (n = 799) reportedly doing so at least half of the time (Table 2; item 8).

**Relaxation.** There was no consensus among ATs in this study regarding the use of relaxation techniques during injury and rehabilitation. Sixty-two percent (n = 1055) reported that they explain to patients how being tense can hinder rehabilitation success at least half of the time (Table 2; item 12). Slightly less actually taught relaxation techniques to patients; 17.0% (n = 289) reported doing so occasionally and 56.4% (n = 959) doing so half of the time or less (Table 2; item 6). Finally, 17.4% (n = 296) reported never teaching patients how to use relaxation to manage pain during rehabilitation, while just 25.1% (n = 427) reported doing so more than half of the time.

**Motivation/Goal Setting.** One of the most commonly used techniques was goal setting with 80.2% (n = 1364) of respondents reporting that they elicited patient input in goal setting at least half of the time (Table 2; item 2). Additionally, 89.7% of ATs (n = 1526) reported that they explained to patients how accomplishing goals would help them return to sport (Table 2; iItem 4). Twenty percent of ATs frequently outlined a progression of short-term goals, with 79.7% (n = 1355) outlining goals at least half of the time (Table 2; item 10). Similarly, 19.5% (n = 332) of ATs frequently helped patients set daily rehabilitation goals while 72.9% (n = 1240) reported doing so at least half of the time (Table 2; item 11). The majority of ATs indicated that they provided patients with objective feedback on their progress on a regular basis, with 64% (n = 1089) doing so frequently, almost always, or always (Table 2; item 7). The majority of ATs also reported frequently encouraging patients to play an active role in their rehabilitation (20.3%; n = 345), though nearly a quarter of respondents reported doing so less than half of the time (Table 2; item 14). Finally, the vast majority of ATs (96%; n = 1633) reported helping patients find something positive in any situation at least half of the time, with 57.7% (n = 981) indicating that they did so always or almost always (Table 2; item 5).

**Table 1.** Education Satisfaction and Ability Confidence Statements

1. Assess athletes' motivation and self-confidence level related to readiness to resume participation following injury.

2. Understand the stress-response model and psychological and emotional responses to injury trauma and inactivity.

3. Understand motivational techniques that must be utilized during injury rehabilitation and reconditioning.

4. Understand the basic principles of mental preparation, relaxation, visualization, and desensitization.

5. Identify symptoms and clinical signs of common eating disorders and the psychological and sociocultural factors associated with these disorders.

6. Identify and describe sociological, biological, and psychological influences toward substance abuse, addictive personality traits, commonly abused substances, signs and symptoms associated with the abuse of these substances, and their impact on an individual's health and physical performance.

7. Describe the basic signs and symptoms of mental disorders (psychoses).

8. Describe the basic signs and symptoms of emotional disorders (neuroses, depression).

9. Conduct appropriate referral procedures for accessing health service agencies.

10. Demonstrate the ability to conduct an intervention and make appropriate referral of an individual with a suspected substance abuse or other mental health problem.

11. Demonstrate the ability to select and integrate appropriate verbal motivational techniques into a patient's treatment or rehabilitation program.

12. Demonstrating the ability to select and integrate appropriate visualization/imagery techniques into a patient's treatment or rehabilitation program.

13. Demonstrate the ability to select and integrate appropriate relaxation techniques into a patient's treatment or rehabilitation program.

14. Demonstrate the ability to select and integrate appropriate self-talk techniques into a patient's treatment or rehabilitation program.

15. Establish effective lines of communication to elicit and convey information about motivational, visualization/imagery, relaxation, self-talk techniques.

### Group Differences: Edition of Educational Competencies, Type of ATEP, and Current Practice Setting

We utilized three separate MANOVA tests to examine technique use with three independent variables: (1) edition of educational competencies ATs were taught (third edition [2000-2005] or fourth edition [2006-2007]), (2) type of athletic training education (internship, accredited undergraduate program, accredited entry-level master's program), and (3) current practice setting (college/university, secondary school, clinic). For edition of educational competencies (internship candidate ATs were eliminated from this analysis), we found a significant group difference ($F_{45,2969}$ = 1.848, $P < 0.001$, $\eta^2_{partial}$ = 0.027). Our examination of the means revealed that ATs educated under the fourth edition of the competencies reported more frequent technique usage except with techniques related to visualization/imagery, relaxation, and cognitive restructuring.

For type of athletic training education, we found a significant group difference ($F_{30,2464}$ = 1.477, $P$ = 0.046, $\eta^2_{partial}$ = 0.018). Means demonstrated that ATs who become certified through the internship route reported the most infrequent use of techniques, while accredited undergraduate and entry-level master's programs split for most frequent technique usage with no specific pattern. Finally, for practice setting, we found no significant group differences in frequency of technique use ($F_{30,2514}$=0.975, $P$= 0.501).

### Educational Satisfaction and Ability Confidence

The majority of ATs recalled educational preparation in areas related to communication, motivation, emotional response to injury, mental preparation, social issues, eating disorders, and the referral process, with the majority reporting near complete satisfaction with their education and confidence in their abilities (Table 1; statements 1-6, 9, 11). Regarding psychoses, neuroses, and mental skills training techniques (visualization/imagery, relaxation, self-talk/cognitive restructuring), while the majority of respondents (range: 59.9% to 74.6%) recalled being educated on these topics during their athletic training education, they were less satisfied and confident in these areas (Table 1; statements 1, 7, 8, 10, 12-15). The majority of ATs reported neutral satisfaction in identifying psychoses (19.2%; n=327) and neuroses (17.8%; n=303) and were less confident in their ability to counsel in these areas, with 45.7% (n=777) rating themselves unconfident when dealing with psychoses and 40.0% (n=680) rating themselves unconfident when dealing with neuroses. The data indicate similar results with visualization/imagery, relaxation, and self-talk/cognitive restructuring.

We conducted additional MANOVA tests on educational satisfaction and ability confidence ratings with three independent variables: (1) edition of the educational competencies, (2) type of athletic training education, and (3) current clinical setting. For educational competency editions (internship candidate ATs were

**Table 2.** Frequency of Use of Psychosocial Intervention Techniques (%)

| Item | Technique | Frequency* | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 1 | Encourage my athletes to use visualization and imagery during injury and rehabilitation. | 1.0 | 3.7 | 7.9 | 9.0 | 6.1 | 25.6 | 21.2 | 14.9 | 10.6 |
| 2 | Ask for athlete input in setting goals for the rehabilitation program. | 11.9 | 15.9 | 18.7 | 23.7 | 10.0 | 12.1 | 5.2 | 1.4 | 1.0 |
| 3 | Teach and encourage athletes to use thought-stopping during injury and rehabilitation. | 1.4 | 2.6 | 6.0 | 8.1 | 6.1 | 14.8 | 18.8 | 13.9 | 28.4 |
| 4 | Explain to my athletes how accomplishing each goal will help them return to sport. | 22.6 | 22.8 | 22.4 | 15.6 | 6.3 | 5.4 | 2.3 | 1.3 | 1.2 |
| 5 | Help my athletes find something positive in any situation. | 28.1 | 29.6 | 21.1 | 13.0 | 4.3 | 2.7 | 0.7 | 0.3 | 0.3 |
| 6 | Teach and encourage athletes to use relaxation techniques during injury and rehabilitation. | 5.1 | 7.7 | 15.9 | 14.9 | 9.9 | 17.0 | 14.0 | 8.9 | 6.6 |
| 7 | Provide athletes with objective (#'s) feedback on their progress on a regular basis (e.g., range of motion, strength). | 19.9 | 23.7 | 20.4 | 15.2 | 7.6 | 7.7 | 3.1 | 1.6 | 0.9 |
| 8 | Teach athletes how to monitor their negative self-talk during injury and rehabilitation. | 3.3 | 7.0 | 12.0 | 11.8 | 12.9 | 16.3 | 14.2 | 11.9 | 10.8 |
| 9 | Use healing imagery scripts with my athletes. | 0.7 | 1.2 | 3.3 | 4.3 | 5.6 | 9.4 | 15.6 | 18.5 | 41.5 |
| 10 | Outline a progression (series, list) of short-term goals for my athletes. | 12.6 | 19.9 | 20.3 | 16.5 | 10.2 | 9.1 | 5.7 | 3.0 | 2.5 |
| 11 | Help my athletes set daily rehabilitation goals. | 9.2 | 15.4 | 19.5 | 17.0 | 11.9 | 11.4 | 7.6 | 5.0 | 3.1 |
| 12 | Explain to my athletes how being tense can hinder success in rehabilitation. | 6.8 | 12.4 | 16.3 | 15.0 | 11.5 | 12.3 | 10.0 | 8.6 | 7.1 |
| 13 | Teach and encourage athletes to use cognitive restructuring techniques during injury and rehabilitation. | 1.7 | 3.5 | 7.7 | 9.2 | 10.5 | 11.9 | 14.8 | 17.0 | 23.8 |
| 14 | Encourage athletes to play an active role in developing rehabilitation tasks and exercises. | 10.0 | 17.5 | 20.3 | 16.3 | 11.3 | 9.7 | 6.7 | 4.8 | 3.4 |
| 15 | Teach the athlete how to use relaxation/imagery to deal with pain during rehabilitation. | 1.9 | 5.2 | 9.0 | 9.0 | 11.2 | 13.2 | 17.0 | 16.1 | 17.4 |

* Frequency based on 1-9 Likert scale ranging from (1) always to (9) never.

eliminated from this analysis), we found no significant group difference ($F_{90,2924} = 1.065$, $P = 0.320$, $\eta^2$partial $= 0.025$). For type of athletic training education, we found no significant group differences ($F_{60,2374} = 1.102$, $P = 0.277$, $\eta^2$partial $= 0.027$). Lastly, we found no significant group differences across clinical settings ($F_{60,2514} = 0.834$, $P = 0.814$).

### Patterns of Satisfaction/Confidence and Technique Usage

Patterns were identified by calculating means and standard deviations for technique use, education satisfaction, and ability confidence items (Table 3; lower mean indicates increased use/satisfaction/confidence). For motivation, AT technique use was very high (mean = 3.58, SD = 1.9 on Likert scale), with the exception of items 11 and 14 (Table 3). Technique usage became progressively more infrequent from relaxation (mean = 5.25, SD = 2.2), to self-talk (mean = 6.19, SD = 2.0), to imagery (mean = 6.53, SD = 2.1) (Table 3). For education satisfaction and ability confidence, while motivation content elicited the greatest average response, ATs were generally satisfied and confident for most topic areas (Table 3).

### Correlations

The major categories of correlations included motivation/goal setting, self-talk, relaxation, and imagery. Pearson correlations identified relationships between similar competency themes (e.g., visualization satisfaction/confidence with use of healing imagery scripts). Correlations between relaxation, imagery, and self-talk were also examined as these are all commonly regarded as mental skills training techniques. There were no significant correlations between technique usage items and satisfaction or confidence items ($\alpha = 0.05$). However, significant Pearson correlation coefficients were present within each area: motivation technique use $r = 0.645$, $P < 0.001$; imagery technique use $r = 0.585$, $P < 0.001$; relaxation technique use $r = 0.609$, $P < 0.001$; self-talk $r = 0.563$, $P < 0.001$; motivation satisfaction/confidence $r = 0.776$, $P < 0.001$; imagery satisfaction/confidence $r = 0.953$, $P < 0.001$; relaxation satisfaction/confidence $r = 0.968$, $P < 0.001$; self-talk satisfaction/confidence $r = 0.963$, $P < 0.001$.

## Discussion

Competency-based ATEPs concentrate on teaching and evaluating the *Athletic Training Educational Competencies.* It is therefore of interest to evaluate the extent to which the competencies within the PIR content area are instructed and if this education is improving as newer editions of the *Educational Competencies* are produced. In this study, ATs who were educated under the fourth edition of the *Educational Competencies* reported more frequent technique usage in most areas but no difference in education satisfaction or ability confidence as compared to ATs educated under the third edition of the *Educational Competencies.* The only exception to the increased technique usage by ATs educated under the fourth edition was in the mental training skills techniques. Here, ATs educated under the third edition reported increased technique usage. We suspect that this may not be a function of the *Educational Competencies* but rather a function of experience. At the time of this study, ATs educated under the fourth edition of the *Educational Competencies* had been practicing for two years or less, while ATs educated under the third edition had been practicing longer and may have had more opportunities (e.g., continuing education, use by colleagues) to be exposed to and learn how to best use these techniques.

**Table 3.** Motivation, Self-Talk, Relaxation and Imagery Item Means for Use, Satisfaction and Confidence

| Area | Item | Technique Use Mean (SD)* | Item | Education Satisfaction Mean (SD)** | Item | Ability Confidence Mean (SD)** |
|---|---|---|---|---|---|---|
| **Motivation** | 2 | 3.71 (1.8) | 3 | 3.37 (2.1) | 3 | 3.23 (1.9) |
| | 4 | 2.94 (1.7) | 11 | 3.48 (2.1) | 11 | 3.37 (2.0) |
| | 7 | 3.12 (1.8) | | | | |
| | 10 | 3.66 (2.0) | | | | |
| | 11 | 4.08 (2.1) | | | | |
| | 14 | 3.97 (2.1) | | | | |
| **Self-Talk** | 3 | 6.66 (2.1) | 14 | 4.22 (2.2) | 14 | 4.17 (2.1) |
| | 8 | 5.50 (2.2) | 15 | 3.71 (2.2) | 15 | 3.64 (2.2) |
| | 13 | 6.41 (2.2) | | | | |
| **Relaxation** | 6 | 4.99 (1.7) | 4 | 3.68 (2.2) | 4 | 3.60 (2.0) |
| | 12 | 4.69 (2.3) | 13 | 4.00 (2.2) | 13 | 3.92 (2.2) |
| | 15 | 6.08 (2.2) | 15 | 3.71 (2.2) | 15 | 3.64 (2.2) |
| **Imagery** | 1 | 6.11 (1.9) | 4 | 3.68 (2.2) | 4 | 3.60 (2.0) |
| | 9 | 7.39 (1.9) | 12 | 4.14 (2.2) | 12 | 4.13 (2.1) |
| | 15 | 6.08 (2.2) | 15 | 3.71 (2.2) | 15 | 3.64 (2.2) |

\* **Technique Scale:** 1=always; 2=almost always; 3=frequently; 4=often; 5=about half the time; 6=occasionally; 7=seldom; 8=almost never; 9=never

\*\* **Satisfaction Confidence Scale:** 1=completely satisfied or confident; 5=neither satisfied/confident nor unsatisfied/unconfident; 9=completely unsatisfied or unconfident

Our findings are similar to others reported in the literature.[12,13] The majority of respondents in our study reported being satisfied with their education and reported using techniques related to practical strategies such as communication, motivation techniques, and goal setting. Although expected, there were no differences in average satisfaction or confidence ratings between ATs who graduated from accredited ATEPs versus internships. Similar to Misasi et al,[14] ATs in our study felt less satisfied and less confident in areas related to counseling (psychoses, neuroses, referral process). Finally, many ATEPs may be under preparing students for competencies specific to mental skills training techniques (healing imagery scripts in particular).[1] Although ATEPs are required to provide exposure to these competencies, the student's clinical experiences may not reinforce these skills or require the student to utilize them. In our study, average satisfaction and confidence in the areas of counseling and mental skills training techniques were largely in the neutral satisfaction/neutral confidence range and the largest percentage of respondents recalled not being educated in these areas. It has always been the philosophy of athletic training education that knowledge and techniques be instructed not only through lecture but also through practical experiences so one may learn how to effectively implement the new knowledge and techniques. This type of education requires practice with injured patients, role-playing, or other hands-on learning techniques. Difficulty may exist for ATEPs to allow for 'real' practical experience with some psychosocial issues because of patient privacy and laws such as the Health Insurance Portability and Accountability Act, which is why role-playing can have an important place within athletic training education. While goal setting is one practical technique in which ATs seem to be proficient, the majority of respondents reported that they seldom or never teach relaxation or imagery to deal with rehabilitation-related pain (50.5%); encourage the use of imagery (46.7%) or healing imagery scripts (75.6%); or teach patients thought stopping (61.1%), cognitive restructuring (55.6%), or negative self-talk monitoring techniques (36.9%). Based on the results of our study and of previous research,[1] it seems that goal setting and motivation competencies are being adequately addressed within most ATEPs. Therefore, it seems the next logical step is for ATEPs to shift the instructional focus towards improving the instruction of other techniques and competencies within the PIR content area.

In this study we purposefully asked technique usage questions before inquiring about education satisfaction and ability confidence questions to limit biased responses. We did not want respondents to second-guess how often they currently use techniques and clinical skills based on retrospective analyses of their satisfaction with their education or confidence in their abilities in these areas. This being said, one would still expect there to be correlations between satisfaction/confidence and technique use. Overwhelmingly, however, this was not the case. Means for technique use, education satisfaction, and ability confidence items provide insight into correlation results. An examination of the means showed that means for satisfaction and ability were significantly higher than means for technique usage. This was especially the case for technique items that asked about the participant's ability to select and implement a technique (Table 1; items 11-14).

While motivation satisfaction/confidence means were somewhat higher than all related technique usage items, the difference is more pronounced for mental skills training techniques, with the most dramatic increase being within the imagery topic area. Here, satisfaction and confidence means were generally within the 'satisfied' range, while technique use means indicated seldom use of techniques. One must then ask, "If athletic trainers are being taught these skills in their ATEPs and if they feel confident in their ability to use them, then why are they not using these techniques to help patients recover from injury?" Perhaps ATs are less willing to implement these techniques in professional practice because their professors were not confident in their instruction of techniques, their clinical instructors were reluctant to demonstrate their application to injury rehabilitation, or they had limited practical experience within the ATEP. We base our hypotheses on the assumption that ATs are not using relevant techniques because they do not feel properly trained or confident in doing so. Another explanation is that ATs are not implementing techniques because they do not realize their importance. Previous qualitative research has indicated that ATs would implement more techniques if they were more confident in their knowledge base.[1,13] It is also certainly possible that time restraints in the clinical setting may be a significant hindrance to providing psychosocial care. We did not address why participants did or did not utilize these techniques.

### Limitations

The non-response bias is a concern with any survey study of this magnitude, and the response rate in this study (31.9%) causes some concern about the ability to generalize results. However, clinical settings reported by ATs in this study paralleled the national distribution as reported in the 2005 NATA salary survey.[17] Therefore, we believe that our response rate provides a representative sample of practicing ATs and can be accurately generalized to the practicing population. Additionally, although ATs educated under the third edition of the *Educational Competencies* reported increased technique usage, we suspect it may be a function of the amount of time the fourth edition-educated ATs have been practicing. The disproportionate length of time that these two groups of ATs have been practicing is another potential limitation of this study.

## Conclusion

Overall, our study found ATs perceive that their ATEPs had educated them in most competencies related to PIR, yet ATs are not implementing all related techniques in clinical practice. There were no group differences in technique usage across clinical settings, but it does seem ATs educated under the fourth edition of the *Educational Competencies* are using techniques more frequently, and ATs who graduated from accredited undergraduate or entry-level master's programs have increased technique usage as compared to those who became certified through internships. Unfortunately, technique use remains low across several areas, specifically imagery, relaxation, and cognitive restructuring.

Therefore, it should be a priority for athletic training educators to increase opportunities for applied learning so that ATs are more willing to implement relevant psychological techniques within their clinical settings. At least one study has demonstrated that an increase in students' use of applied psychological techniques can be attained after a six-week educational intervention.[18] Athletic training is an ever-evolving profession that regularly researches and implements new techniques. Goal setting is considered a standard part of all injury rehabilitation programs, and today's athlete is being prepared for surgery via mental imagery and relaxation techniques. As a result, more and more rehabilitation programs include relaxation, imagery, and positive self-talk techniques to address the psychological aspects of sport injury. It is expected that the modern ATEP graduate be proficient in these competencies to be a considered a well-rounded AT.

**Suggestions for Future Research**

Future research may seek to combine quantitative survey-type research with qualitative focus group follow-up research to find out why ATs are or are not utilizing techniques in their clinical practice. Qualitative research can also explore how ATEPs with high satisfaction and confidence ratings instruct their competencies. It may also be of interest to evaluate how emphasis on education within the PIR content area ranks as compared to the other 11 content areas.

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