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National Collegiate Athletic Association Athletic Trainers' Response to the Arrington Settlement: Management, Compliance, and Practice Patterns.

Running Title: *AT's Arrington Settlement Compliance.*

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ABSTRACT

Objectives: The primary purpose of this study was to assess Athletic Trainers (ATs) report of NCAA member institutions compliance with the Arrington settlement, the concussion lawsuit vs the NCAA, and to elucidate compliance predictors. A secondary purpose was to provide a contemporary concussion management clinical practice patterns description amongst NCAA collegiate athletic trainers.

Methods: Head Athletic Trainers from NCAA Division I, II, and III completed an electronic questionnaire in August 2020 regarding their institution's response to the Arrington Settlement and their current concussion management clinical practice patterns. The 37-item questionnaire included AT and institution demographics, current concussion management policies, and response to the Arrington settlement with specific focus on the five settlement requirements. An overall compliance score on the five requirements, compliance on the individual requirements, and concussion management practices are reported with descriptives. Regression was used to identify specific predictors of both overall and individual settlement requirements. An ANOVA compared compliance by NCAA division level. Being pressured to be non-compliant was assessed between sexes by a chi-square.

Results: There were 223 respondents (21.8%) and overall compliance was high (4.1 ± 0.7) with the five required Arrington Settlement components. Settlement requirement 1, pre-season

baseline testing, and requirement 5, presence of trained personnel at all contact sport practices, had the lowest compliance rates at 44.8% and 73.3% respectively. The number of sports the institution offered was the only significant predictor each requirement. There was no difference in compliance between NCAA divisions. Although the overall rate of being non-compliant pressure was low (13.8%), females were 3.28x more likely report being pressured than males.

Conclusions: NCAA institutions are generally compliant with the Arrington settlement; however, lack of clarity in the requirements, particularly requirement 1, raises potential concerns. Concussion management practices continue to incorporate multifaceted approaches and are largely consistent with current best practices.

Key Words: Mild Traumatic Brain Injury, Legal, Organization and Administration, College Sports.

INTRODUCTION

Concussions are common athletic injury that typically present with diverse neurological symptoms, functional impairments, and reduced quality of life.[1-7] Concussion management has changed dramatically over the last several decades from an injury perceived to be minor with same day or rapid return to participation (RTP) to the current approach which includes substantial concerns over the long term effects with common RTP timeline ranging for weeks to a month in collegiate student-athletes.[1, 6, 8] Indeed, a history of multiple concussions has been associated with elevated rates of neurodegenerative diseases as well as cognitive and behavioral impairments.[9] As there are thousands of concussions occurring annually in National Collegiate Athletic Association (NCAA) sports,[10] appropriate concussion management is a critical for student-athlete health and overall well-being.

The NCAA was formed in 1910, in part, to improve sports safety[11] and the last decade has seen increased regulations regarding concussion management.[12-14] Beginning in 2010, the NCAA required all member institutions to have a concussion management plan[12] which was followed shortly thereafter by “best practices”[13] and a Concussion Safety Protocol Checklist.[14] By the middle of the decade there was high compliance with required protocols particularly in the medical management.[15] In 2011, a class action lawsuit was filed (Arrington, Owens, Palacios, and Solomon vs NCAA: Case: 11-cv-0635) alleging the NCAA was negligent

by failing to adopt rules regarding concussions and to appropriately manage concussions.[16] In 2019, the parties settled the lawsuit, frequently referred to as the “Arrington Settlement”, and the NCAA member institutions had the option to “opt-in” to the settlement, thereby potentially reducing some legal claims against them, by May 18, 2020.[17] For institutions who elected to “opt-in” to the settlement, there were five requirements for institutions to meet; 1) every student-athlete (SA) will undergo a pre-season baseline test for each sport in which they participate prior to participating in practice or competition, 2) prohibition of same day RTP for athletes diagnosed with concussions, 3) athletes diagnosed with concussions must be cleared by a physician prior to RTP, 4) presence of medical personnel trained in concussion management at all contact games, and 5) presence of medical personnel trained in concussion management at all contact practices.[17] Compliance with these five requirements must be certified in writing by each member institution. Unfortunately, there is a lack of clarity on some of the requirements including the frequency of baseline testing, the definition of “medical personnel”, and “training in the diagnosis, treatment, and management of concussions”. For example, although the Arrington settlement states that a pre-participation baseline test be performed before “each sport” in which they participate, it is unclear how this would be interpreted for a SA who participates in multiple sports (e.g., cross country, indoor track and field, outdoor track and field) in the same academic year.[17] The Frequently Asked Questions (FAQ) on the settlement specifically instructs health care providers to work with institutional general counsel or risk management office to identify a “reasonable and defensible interpretation”, which will likely lead to differing interpretations by different institutions and thus different practice patterns.[18]

Concussion management remains challenging for sports medicine clinicians[1] and the Arrington settlement adds additional medico-legal implications.[19] Therefore, the primary

purpose of this study was to assess Athletic Trainers (ATs) report of NCAA member institutions compliance with the Arrington settlement Athletic Trainers and to elucidate predictors of Arrington compliance. For compliance reporting, a secondary purpose was to provide a contemporary concussion management clinical practice patterns description amongst NCAA collegiate athletic trainers. We hypothesized that would be high levels of awareness and compliance with the Arrington settlement. Furthermore, as institutional resources have previously be perceived to influence concussion management,[20-22] we hypothesized a higher compliance in NCAA Division I programs compared to Division II or III.

MATERIALS AND METHODS

Participants

The email address for the Head Athletic Trainer/Director of Sports Medicine was recorded from each institution's websites for all NCAA Division I (N=351), II (N=315), and III (N=447) members. The inclusion criteria were the individual's title was Head Athletic Trainer, Director of Sports Medicine, or similar and they were listed as a Certified Athletic Trainer on the website (confirmed on the Board of Certification website (<http://www.bocatc.org/athletic-trainers>) when unclear). The study was approved by the institutional review board of the host institution and participants provided consent by actively selecting the link within the email to begin the questionnaire

Procedures

The research team emailed the 1,113 potential participants beginning in early August 2020 with an invitation to participate in the study and reminder emails were sent 7 and 14 days

after the initial email. Emails which were returned as undeliverable or no longer active were then followed up by identifying another member of the athletic training staff who was contacted. The research team was unable to identify an athletic trainer staff member email address at five institutions (NCAA D-II = 3, D-III = 2) likely due to personnel in transition between positions (e.g., “TBA”), a generic athletic department email was listed (e.g., athletics@xxx.edu), or no athletic trainers were listed on the staff directly or could be identified through web searchers. Additionally, 39 institutions were not able to be contacted as “out-of-office”, “on leave”, or “furloughed” responses were received from the primary contact and no other contacts could be identified. This left a total of 1,069 potential participants.

The 37-item questionnaire (Qualtrics, Provo, Utah, USA) was developed based on the Arrington Settlement document and the NCAA FAQ documents distributed to all member institutions.[18] The survey was reviewed by other concussion researchers and clinical ATs to establish face validity and content clarity with a design similar to previously administered questionnaires.[20, 23] The questionnaire consisted of three sections: 1) demographics of the responder and their institution (19 questions), 2) current concussion management protocols (6 primary questions with follow-up questions as appropriate), and 3) response to the Arrington settlement (12 questions). Participants were not required to answer all questions; thus, some questions may have lower responses. Many of the questions logically allowed more than one answer (e.g., types of cognitive testing) and therefore some responses exceed 100%. Furthermore, participants were able to write-in answers to many of the questions and the research team either categorized them as one or more of the potential responses or classified as “other”. In response to the Arrington requirements, write-in answers which indicated partial compliance (e.g., medical providers present at all football, but not wrestling, practices) were

classified as not being compliant as the settlement agreement indicates all contact sports must have trained medical personnel at all practices.

Data Analysis

The responses were downloaded into a Microsoft Excel (2019 version; Microsoft Corp, Redmond, WA.) spreadsheet for analysis. Demographic data and questionnaire responses are reported with either frequencies or mean and standard deviations as appropriate.

Each of the five requirements were scored dichotomously (compliant, not compliant) based on the questionnaire responses. Three of the five requirements (requirements 2, 3, and 4) were highly compliant and are only reported with descriptives. To further assess requirement #1 (every student-athlete will undergo pre-season baseline testing for each sport in which they participate (Baseline)) and Requirement #5 (trained medical personnel at all contact sport practices), binary logistic regressions evaluated institutions compliance (Compliant, Non-Compliant). A separate linear regression was performed to assess the overall compliance (Score: 0 – 5) on all five Arrington requirements. For all regressions, the predictors were 1) NCAA Division, 2) Number of Teams at the Institution, 3) Number of Full Time ATs, 4) Number of Total ATs (full-time and part-time), 5) if the institution sponsors football, 6) if the concussion management plan was reviewed by senior administrators or institutional legal representatives (“plan reviewed”), and 7) who the AT staff reports to (i.e., athletic administration, sports medicine/team MD, student health center, academic administrator, or other), . Additionally, all variables were compared with one-way ANOVAs for NCAA divisions based on resource differences between divisions.[20-22] Finally, a Chi-Square assessed the likelihood of the respondent being pressured to be non-complaint by the participant’s self-reported sex. Analysis were conducted with JMP (version 16, Cary, NC. USA).

RESULTS

Participant Characteristics

A total of 233 ATs responded to the 1,069 valid emailed invitations (21.8% response rate; Table 1) which is comparable to recent studies on ATs concussion management practice patterns.[20, 23] However, only 210 of the respondents completed all Arrington Settlement questions. The respondents median time to complete the survey was 8 minutes and 16 seconds.

Arrington Settlement Compliance

The participant's reported that their institutions overwhelmingly "opted-in" to the Arrington settlement (94.8% [199/210]). (Table 2) Most respondents (63.8% [134/210]) indicated that their institution changed their concussion management protocols in response to the Arrington settlement and an additional eight respondents (3.8%) indicated that a final determination had not yet been reached. For athletes participating in multiple sports in the same academic year, most respondents (80.2% [166/207]) reported a single baseline assessment with a small proportion reporting either a full baseline for each athletic season (9.2% [19/207]) or a full baseline for the first season and partial for subsequent seasons (10.6% [22/206]).

The Overall Compliance score was 4.1 ± 0.7 . (Figure 1) The one-way ANOVA did not have a significant main effect for NCAA Division on overall Compliance Score ($F=0.499$, $P=0.607$, $\eta^2=0.004$). Within the regression model, the significant predictors were NCAA Division ($p=0.013$) and the Number of Teams ($p=0.001$) with more teams and higher division (e.g., D3 > D1) reflecting lower overall compliance score. (Table 3) Compliance with

requirements 2 – 4 were very high ($\geq 97.5\%$) and no further analysis was performed on these three requirements. (Table 3)

Requirement #1: Annual Baseline Testing for All Student-Athletes

All respondents (100% [210/210]) indicated performing at least one baseline concussion test. Overall compliance for Requirement #1 was 44.8% (94/210) from the strictest interpretation of every student-athlete requiring a baseline assessment every year. For baseline testing (Requirement 1), most respondents reported testing student-athletes on one occasion when they entered the institution (freshman/transfer) (48.1% [101/210]). Others respondents indicated multiple, but not annual, baseline assessments (13.8%, [29/210]) with most of these respondents (79.3% [23/29]) indicating the multiple assessments for high risk concussion sports or if the student-athlete experienced a concussion in the prior season.

There were no differences in Requirement 1 compliance by NCAA Division ($F=1.074$, $p=0.344$, $\eta^2=0.010$). The only significant predictor for Requirement 1 was number of teams sponsored by the institution ($p=0.016$) with more teams reflecting lower compliance on the requirement. (Table 4)

Requirement #5: Presence of Medical Personnel at all Contact Practices

Overall compliance with Requirement #5 was 73.3% (154/210). There were no differences in Requirement 5 compliance by NCAA Division ($F=0.198$, $p=0.821$, $\eta^2=0.002$). The only significant predictor for Requirement 5 was the number of teams sponsored by the institution ($p=0.005$) with more teams reflecting lower compliance on the requirement. (Table 4)

Concussion Management Practice Patterns

The use of a multifaceted (i.e., cognitive, balance, and symptom) assessments were widespread with nearly all respondents (99.0% [208/210]) reporting the use of symptom reporting, balance, and cognitive assessments. Only two respondents indicating that cognitive testing was not performed and, in both cases, respondents (one Division I and one Division II) selected “other” and listed non-cognitive assessments (e.g., Vestibular Ocular Motor Screening (VOMS)).

Cognitive testing primarily consisted of a combination of computerized neurocognitive assessments (90.4%) and Standard Assessment of Concussion (40.8%). No other assessment was widely used with pen and paper neurocognitive testing (N=5), C3 Logix (N=4), “other” (N=4, e.g., neuropsychologist assessment) receiving limited responses.

Balance testing primarily consisted of the Balance Error Scoring System (69.7% [146/210]) either the original (39.4% [83/210]) or modified (32.1% [67/210]) versions with four respondents indicating they did both. Emerging balance assessments including tandem gait (N=22), SWAY app (N=34), and C3 Logix (N=5) were less frequently reported.

Most respondents (87.1% [183/210]) collected concussion history as part of the baseline assessment. Other concussion assessment information which was routinely collected included VOMS (21.9% [46/210]), King-Devick (5.2% [11/210]), psychological/mental health inventories (11.4% [24/210]), and sleep inventories (1.9% [4/210]).

Concussion Management Pressure

Overall, 13.8% (29/210) of respondents reported pressure from coaches and/or athletic administrators to be non-compliant with NCAA concussion management guidelines. There was no difference in reported pressure for non-compliance between NCAA divisions ($F=0.218$,

$p=0.804$, $\eta^2=0.002$). Female respondents were 3.28x ($\chi^2 = 7.71$, $p=0.006$) more likely to report being pressured by a coach than a male respondent. Most respondents (75.9% [22/29]) reported the pressure to be non-compliant to either a senior athletic administrator or supervising physician.

DISCUSSION

Concussion management has evolved dramatically over the last two decades with objective assessments now widely utilized to support clinical management.[20, 23] The primary finding of this study was a moderate to high compliance with the Arrington settlement (mean score: 4.1/5.0); however only 1/3rd of respondent's institutions were fully compliant on all five required components. The requirements for annual baseline assessments (44.8%) and trained medical personnel at practices (73.3%) were identified as being the areas lacking compliance. The number of teams was the only significant predictor for each outcome with more sponsored teams associated with lower compliance. The use of a multifaceted assessment battery was nearly universal which represents a continued trend towards objective multifaceted assessments over the last several decades. The results herein suggest that ATs are highly compliant with current recommendations for concussion management, but administrative opportunities for improvement exist.

The final Arrington settlement terminology lacked clarity in several areas, most notably Requirement #1, which states, "Every student-athlete at every NCAA member institution will undergo pre-season baseline testing for each sport in which they participate prior to participating in practice or competition." [16] The NCAA FAQ fails to clarify and instructs institutions to identify a "reasonable and defensible interpretation" of baseline testing frequency and comprehensiveness.[18] The value of baseline assessments has been debated as some evidence

suggesting normative data can be utilized[24, 25] and the 5th Concussion in Sport (CIS) consensus statement indicates that baseline testing is not necessary for interpreting post-injury performance.[1] Baseline assessments are excessively time consuming, may be cost-prohibitive in certain environments, and potentially adversely influenced by outside factors.[24, 26, 27] Conversely, Garcia[28] reported AUC values consistently exceeding 0.90 when comparing post-concussion assessments to baseline. The logistical challenges of annual baseline assessments would likely be substantial, particularly for lower resourced institutions, however the large multisite CARE Consortium study[29] found higher sensitivity in those with same season baseline data available.[30] The only significant predictor for Requirement #1 compliance was the number of teams sponsored by the institution whereby more teams was associated with lower compliance. This finding was not surprising as more teams likely results in more student-athletes and thus more time commitment, staff, and resources needed to perform baseline assessments. It was surprising that neither the number of athletic trainers, the full-time only or full-time and part-time combined, or the medical/athletic oversight model were associated with compliance. Previously, Baugh et al; suggested that both increased staffing and the medical model of oversight may facilitate improved implementation of concussion related policies.[21] Currently, no consensus on Requirement #1 appears to exist and differing individual institutional responses will likely continue until clarified by the NCAA or determined through case law.

The second requirement with sub-optimal compliance (73.3%) was Requirement #5, trained medical personnel at all contact sport practices. Similar to the Requirement #1 findings, the number of teams sponsored was the only significant predictor with more teams associated with lower compliance. Again, it was surprising that the number of athletic trainers, either full-time only or full-time and part-time combined, was not associated with compliance. Clinically,

one would logically expect that a smaller staffing size would have more difficulty in providing on-site health care, but it is plausible that the respondents herein prioritized providing on-site AT availability to contact sports at the expense of non-contact sports. This is critical as concussion non-disclosure persists[31] and delayed reporting is associated with longer recovery times.[32, 33] Previously, larger staffs and the medical model of athletic health care were associated with improved health outcomes following athletic injury,[34] however, immediate availability at the practice, as mandated by Requirement #5, site may be independent of overall outcomes. Interestingly, NCAA Division, as an indicator of financial resources, was not an independent predictor and there were no differences across divisions. Moving forward, institutions may need to continue modifying their concussion management plans to achieve compliance with the Arrington settlement.

The recent decades have seen concussion management change and, while clinical examination remains the assessment foundation, it is now supported by numerous multifaceted assessments to comprehensively assess neurological health. Encouragingly, nearly all respondents (99.0%) utilized multifaceted assessments including self-report symptoms, balance, and cognition broadly consistent with the SCAT-5 and 5th CIS recommendations.[1] Many respondents indicated using a wide variety of additional assessments including VOMS (21.9%),[3] instrumented balance measures (20.5%), mental health screenings (11.4%),[5] tandem gait (10.1%),[7] and visual screening (5.2%)[35] which suggests continued implementation of emerging assessments into clinical practice. Although the sensitivity, specificity, independence, and limitations of these assessment remain to fully elucidated, the multifaceted assessment appears to be best positioned to identify concussions.[1, 30, 36]

Somewhat encouragingly, the rate of ATs feeling pressured to prematurely return a student-athlete to participation following a concussion (13.8%) was substantially lower than an 2013 study whereby nearly 2/3^{rds} (64.4%) reported feeling pressured.[37] While the ideal rate is 0% and considerable differences between studies prevents direct comparison, this finding certainly trends in the appropriate direction suggesting improvements over the prior 7 years. Unfortunately, in both the current and prior study, females reported higher rates of being pressured than males suggesting a sex-based difference in coach-clinician interaction.[37] This external pressure may unfortunately be perceived as normal by clinicians working in highly competitive intercollegiate athletic environments.[38] Elucidating determinants of these pressures was not an a-prior component of this study and specifics remain to identified in future studies as premature return to participation post-concussion may be associated with long term neurodegenerative concerns.[9]

As with all electronically administered questionnaires, participant honest and accuracy in self-reporting is a potential limitation. The overall response rate was comparable to prior concussion related electronic questionnaires,[20, 23, 37] but is potentially subject to a response bias whereby the respondent's perceived compliance influenced their decision on participation. Herein, nearly all respondents reported "opting-in" (94.8%) to the Arrington settlement which may bias the results; however, actual opt-in/out rates are not publicly available. The questionnaire was distributed during August 2020 and many ATs were likely challenged by new/evolving COVID policies and associated stressors while responding to study. We also targeted only Head Athletic Trainers/Director of Sports Medicine to limit duplicate responses from a single institution; however, it is not known how well these policies and approaches are shared with other staff clinicians. The responses herein were primarily policy based and it is

unknown how effectively they are implemented within an institution, but also across different sport programs within the same institution. Finally, responses may be limited by a societal response bias whereby the respondent provides the perceived “correct” answer which may not accurately reflect actual clinical practice.

The results of this study suggest that institutions have largely “opted-in” to the Arrington Settlement potentially to limit their exposure to legal actions. While the overall compliance rates were high (4.1/5.0), over half of respondents were non-compliant, based on a conservative interpretation, on Requirement #1 regarding the need for annual concussion baseline testing for student-athletes, but the specific meaning of this requirement remains to be clarified. Encouragingly, the responding ATs endorsed widespread baseline testing and the implementation of a multifaceted concussion assessment battery. The rate of ATs reporting being pressured to prematurely clear a post-concussion athlete has decreased in recent years; however, female ATs continue to report higher rates of being pressured.

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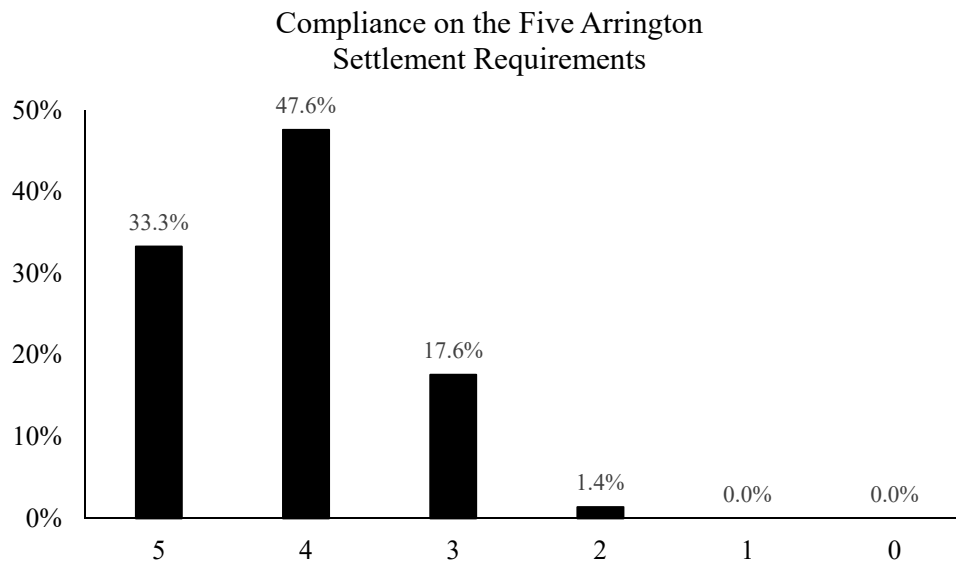


Figure 1. Institutional Compliance with Arrington Settlement (Range: 0 – 5). The median and mode were both 4. The large majority of responding (80.9%) scored a 4 or 5 on overall compliance.

Table 1. Respondent Characteristics, % (No./Total)

Characteristic (N=233)	No. (%)
Sex	
Male	128/220 (58.2%)
Female	92/220 (41.8%)
NCAA Subdivision Classification	
Division I	53/227 (23.3%)
Division II	61/227 (26.9%)
Division III	113/227 (49.8%)
Does the Institution Sponsor Football	
Yes	120/222 (54.1%)
No	102/222 (45.9%)
Job Title	
Head Athletic Trainer/Director of Sports Medicine	211/222 (95.0%)
Assistant/Associate Athletic Trainer	11/222 (5.0%)
Primary Supervisor	
Athletic Director	127/161 (78.9%)
Clinic Supervisor	11/161 (6.6%)
Sports Medicine Physician	11/161 (6.6%)
Academic Faculty	10/161 (6.2%)
<hr/>	
	Mean \pm SD (Median, Mode) [range]
Respondent's Age	42.7 \pm 11.1 (41, 39) [23–75]
Number of Years the Current Institution	11.7 \pm 9.6 (9, 1) [1 – 41]
Number of Years as a Certified Athletic Trainer	19.2 \pm 10.3 (18, 20) [2 – 50]
Number of Full Time Athletic Trainers on Staff	4.1 \pm 2.6 (3, 3) [1 – 16]
Number of Part Time/GA/Intern ATs on Staff	2.5 \pm 1.9 (2, 1) [1 – 9]
Number of Athletic Teams Sponsored	17.5 \pm 5.8 (17, 15) [2 – 42]

Abbreviations: NCAA, National Collegiate Athletic Association; AT, Athletic Trainer. Not all respondents answered all questions.

Table 2. Response to Arrington Settlement: Baseline Testing

Response to Arrington Settlement (N=210 respondents)		
• Opted-In		199/210 (94.8%)
• Opted-Out		2/210 (1.0)
• Not Yet Determined		9/210 (4.3%)
Response to Arrington Settlement		
• Changing Baseline Protocol		134/210 (63.8%)
• Not Changing Baseline Protocol		68/210 (32.4%)
• Not Yet Determined		8/210 (3.8%)
Concussion Baseline Testing Protocol [†]	Pre-Arrington	Post-Arrington
• One time when entering the Institution	119/207 (57.5%)	69/214 (32.1%)
• Repeat Baseline following a Concussion	46/207 (22.2%)	58/214 (27.1%)
• Annual Testing	24/207 (11.6%)	94/214 (43.7%)
• Multiple, not Annual, Tests Baselines	22/207 (10.6%)	13/214 (6.0%)
• Multiple Tests for High Risk Athletes	9/207 (4.3%)	35/214 (16.4%)
• Only perform baselines on “high-risk” athletes	4/207 (1.9%)	0/214 (0.0%)
Multisport Athlete Testing Approach		
• Baseline One Time		166/207 (80.2%)
• One Full Baseline, Repeat Partial		22/207 (10.6%)
• Baseline Each Sport Season		19/207 (9.2%)

[†] Values exceed 100% as multiple answers were permitted (e.g., one time when entering the institution and repeat baseline following a concussion).

Table 3. Predictors of Overall Compliance Score (0-5).

	Standard Coefficient Beta (95% CI)	Significance
NCAA Division*	0.25 (0.05 – 0.41)	0.013
Number of Teams*	-0.28 (-0.06 – -0.01)	0.001
Full Time ATs	0.01 (-0.07 – 0.08)	0.941
Total ATs	0.28 (0.00 – 0.12)	0.052
Football	-0.01 (-0.22 – 0.23)	0.959
Plan Reviewed	-0.16 (-0.65 - 0.05)	0.230
AT Model	-0.04 (-0.09 – 0.16)	0.565

*represents significant predictor from the linear regression assessing predictors of the overall Arrington compliance score (0 – 5).

Table 4. Predictors of Compliance on Requirement 1 and 5.

	Requirement 1. Baseline		Requirement 5. Practice	
	Standard Coefficient Beta (95% CI)	Significance	Standard Coefficient Beta (95% CI)	Significance
NCAA Division	1.58 (0.94 – 2.65)	0.084	1.69 (0.94 – 3.00)	0.079
Number of Teams*	0.93 (0.87 – 0.99)	0.016	0.90 (0.83 – 0.97)	0.005
Full Time ATs	0.98 (0.79 – 1.22)	0.846	1.04 (0.80 – 1.35)	0.764
Total ATs	1.17 (0.98 – 1.39)	0.086	1.12 (0.92 – 1.38)	0.268
Football	0.84 (0.44 – 1.60)	0.601	1.53 (0.74 – 3.15)	0.248
Plan Reviewed	0.49 (0.19 – 1.24)	0.135	0.47 (0.19 – 1.17)	0.103
AT Model	0.86 (0.59 – 1.26)	0.441	1.36 (0.84 – 2.20)	0.210

*represents significant predictor from the linear regression for compliance with Arrington requirements #1 and #5.