

MULTI-DOMAIN EVALUATION OF ATHLETIC TRAINER RESOURCE AWARENESS AND UTILIZATION

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Capstone Project

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MCW BRAIN INJURY
RESEARCH PROGRAM

Overview

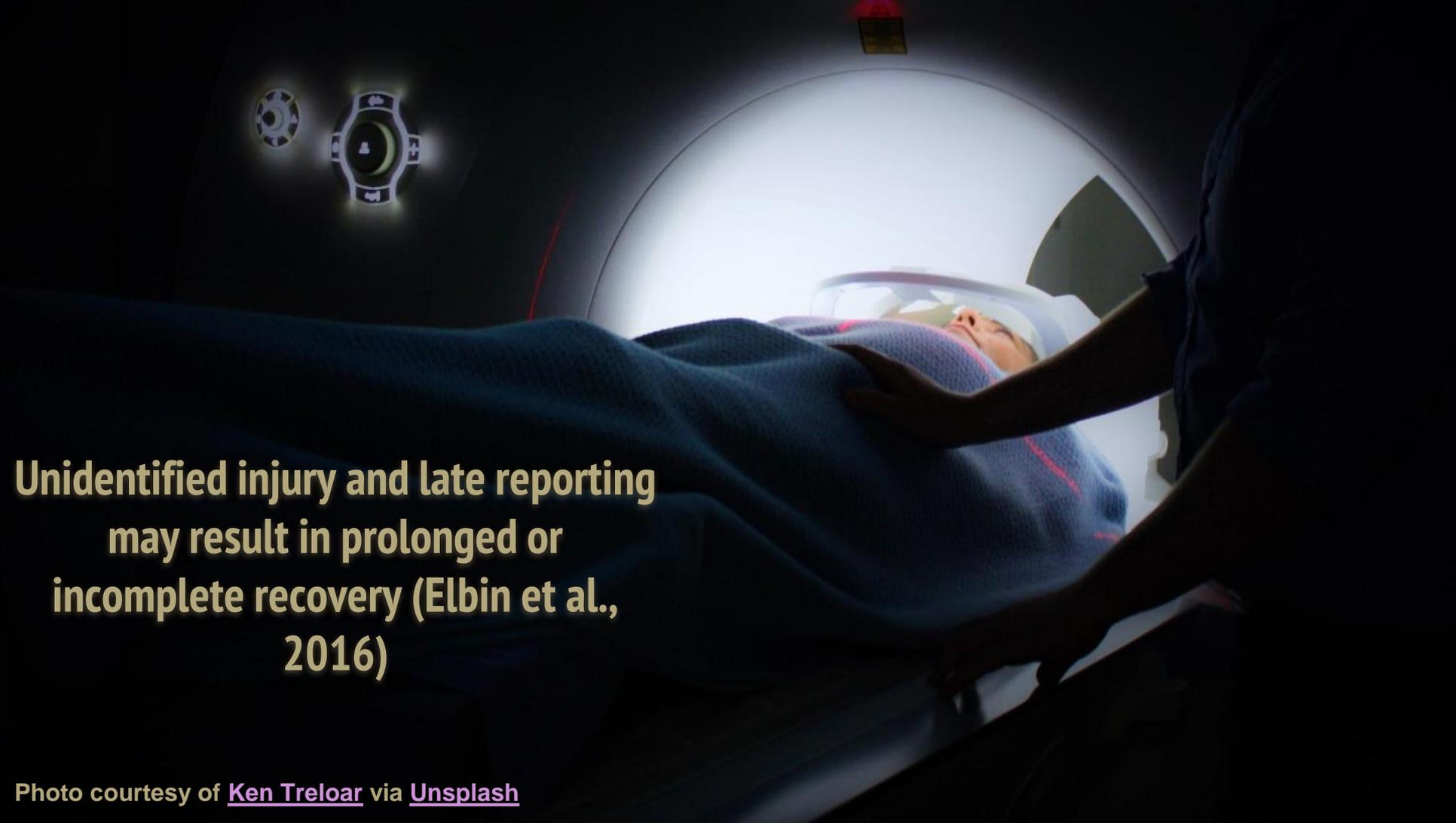
- ❖ Background and Significance
 - ❖ Objective and Project Timeline
 - ❖ Survey Design and Procedures
 - ❖ Results
 - ❖ Discussion and Limitations
 - ❖ Conclusions and Future Directions
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Sport-Related Concussion (SRC) is extremely prevalent with 1.8-3.6 million incidents occurring each year in the United States (Daneshvar et al., 2011)

Higher rates in contact sports such as football, ice hockey, and rugby but also soccer, volleyball and gymnastics (Clay et al., 2013)





**Unidentified injury and late reporting
may result in prolonged or
incomplete recovery (Elbin et al.,
2016)**

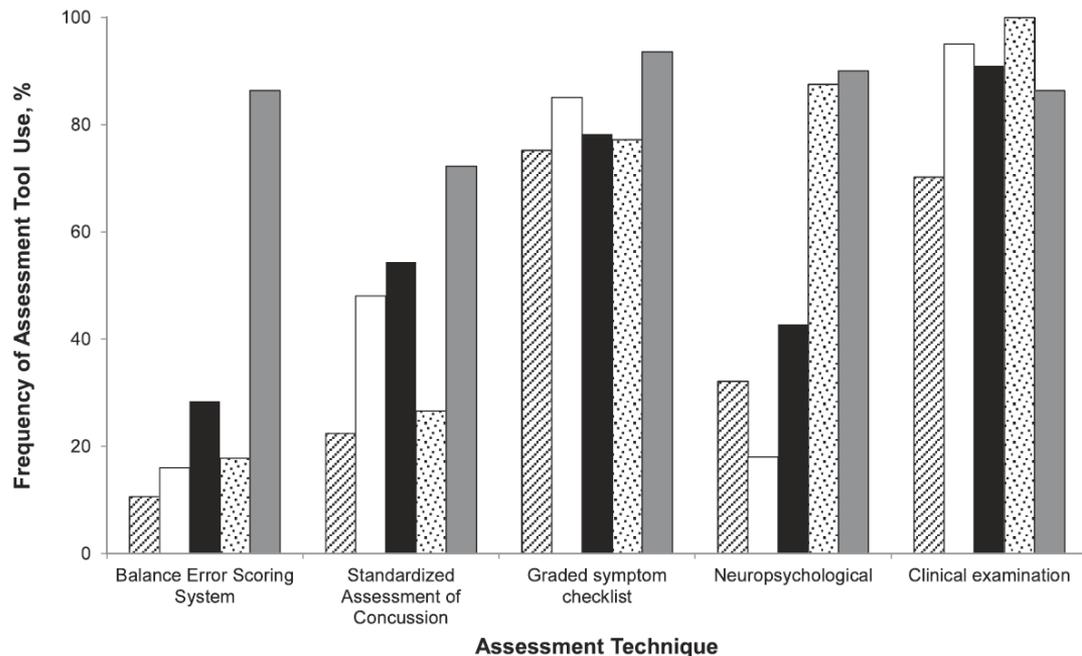


Athletic trainers are uniquely suited to address the challenges associated with SRC and manage athletes after injury

Current Best Practices

- ❖ Current guidelines from the American Academy of Neurology (**AAN**), the National Athletic Trainers' Association (**NATA**), the National Collegiate Athletic Association (**NCAA**), and the International Concussion in Sport Group (**CISG**) aim to provide a comprehensive approach to concussion management (Giza et al., 2013; Broglio et al., 2014; Parsons et al., 2014; McCrory et al., 2017)
- ❖ **Key Points:**
 - Immediate removal from play after suspected injury
 - Established concussion reporting process and concussion management plan
 - Period of acute rest and a stepwise return-to-play (**RTP**)
 - Multifaceted approach to both baseline and post-injury assessment
 - Utilization of educational resources and materials

Historical Clinical Practice Patterns



▨ Ferrara et al., 2001 ▫ Notebaert and Guskiewicz, 2005 ■ Covassin et al., 2009A ▩ Covassin et al., 2009B ■ Kelly et al., 2012

Figure 4. Historical trends of concussion-assessment techniques. Citations: Ferrara et al.,¹³ 2001; Notebaert and Guskiewicz,¹⁴ 2005; Covassin et al.,¹⁵ 2009a; Covassin et al.,¹⁶ 2009b.

- ❖ Increases in both the number of different assessment measures and their frequency of use over time
- ❖ Additionally, multifaceted approach is shown to be more sensitive to injury (Register-Mihalik et al., 2013; Broglio et al., 2007)

Education Utilization and Impact

- ❖ Education is shown to improve both concussion knowledge and attitudes (Caron et al., 2014)
- ❖ Although awareness has increased, effectively changing behavior (e.g., reporting symptoms) is more difficult
- ❖ Only the NATA position statement clearly outlines educational expectations (Giza et al., 2014)
 - Including prevention, mechanism, recognition, referral, return-to-play, modifying factors
- ❖ Other concerns:
 - Knowledge translation strategies to turn research into action
 - Audience specific vs. generic tools
 - Active vs. passive education
 - Evaluation strategies (surveys, focus groups, or behavioral outcomes)

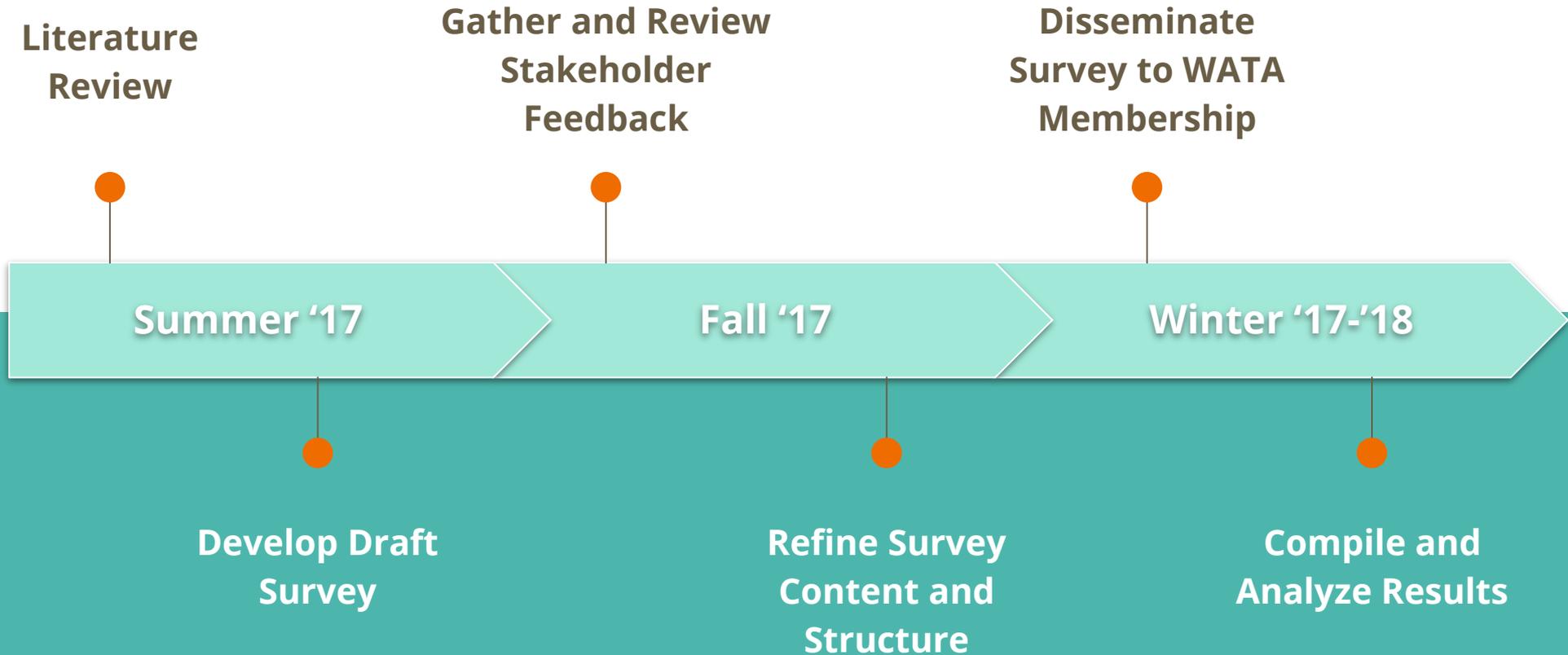
Project Purpose

- ❖ **Purpose:** Evaluate the awareness and utilization of current resources and practice patterns related to the concussion management and education through a professional survey of Wisconsin Athletic Trainers' Association (WATA) members

680+

Certified Regular Members of the Wisconsin Athletic Trainers' Association

Timeline Overview

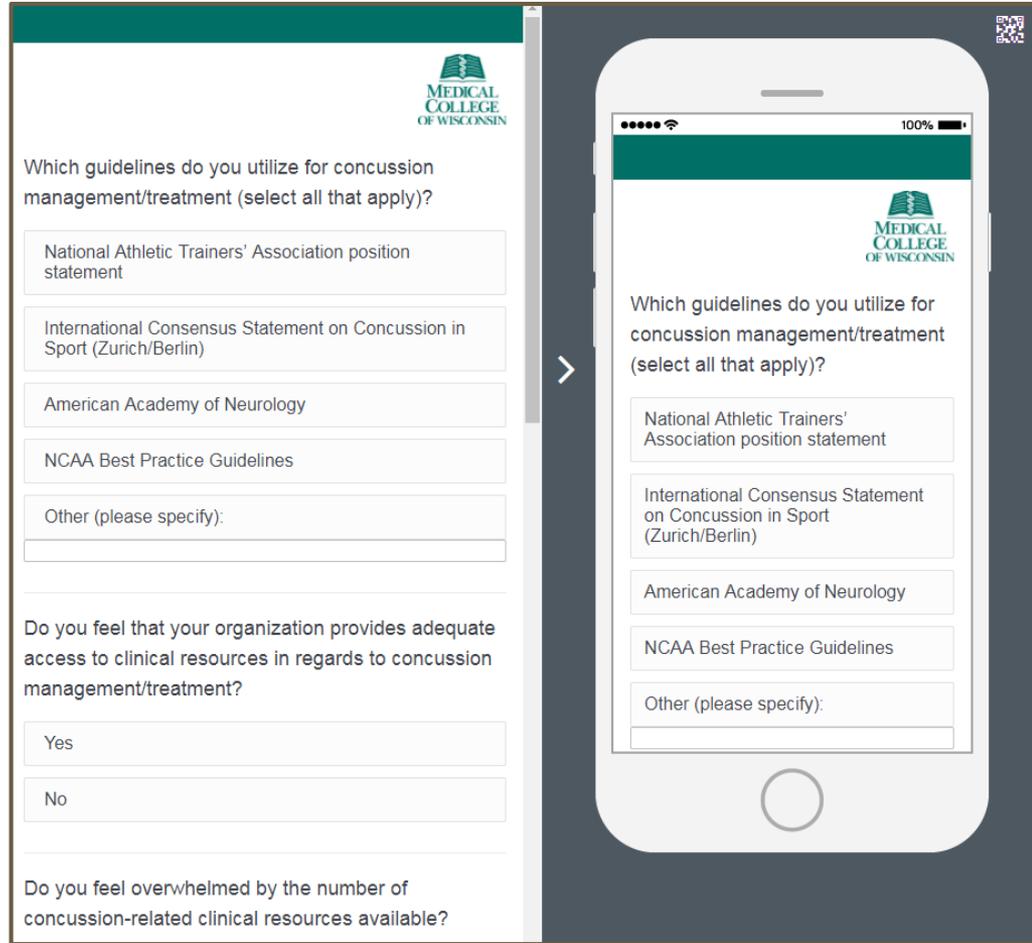


Survey Design

- ❖ Demographics and Professional Experience
 - 15 Questions
 - ❖ Clinical Practice
 - 25 Questions
 - ❖ Education Utilization
 - 15 Questions
-

Design and Distribution

- ❖ 55-question survey developed throughout summer/fall of 2017
- ❖ Formatted and built into the Qualtrics survey software platform
- ❖ Mix of multiple choice and free-text questions
- ❖ Use of branching logic to limit question presentation
- ❖ Distributed via email newsletter @ and social media  



MEDICAL COLLEGE OF WISCONSIN

Which guidelines do you utilize for concussion management/treatment (select all that apply)?

- National Athletic Trainers' Association position statement
- International Consensus Statement on Concussion in Sport (Zurich/Berlin)
- American Academy of Neurology
- NCAA Best Practice Guidelines
- Other (please specify):

Do you feel that your organization provides adequate access to clinical resources in regards to concussion management/treatment?

- Yes
- No

Do you feel overwhelmed by the number of concussion-related clinical resources available?

MEDICAL COLLEGE OF WISCONSIN

Which guidelines do you utilize for concussion management/treatment (select all that apply)?

- National Athletic Trainers' Association position statement
- International Consensus Statement on Concussion in Sport (Zurich/Berlin)
- American Academy of Neurology
- NCAA Best Practice Guidelines
- Other (please specify):

Demographics and Professional Experience

- ❖ 15-items
- ❖ Evaluate age, gender, years of experience, practice setting, employment model, and sport responsibilities
- ❖ Additional school-specific questions on enrollment and competition level if applicable
- ❖ Initial screening questions were used to determine WATA membership and athletic training practice within the State of Wisconsin

Clinical Practice Patterns

- ❖ 25 Questions
- ❖ Focused on clinical patterns of practice and management of athletes:
 - What tools are used?
 - When are they used?
 - What tools are avoided and why?
- ❖ Specific RTP practices such as use of graded exertion programs and coordination with other healthcare providers
- ❖ Endorsement of specific SRC guidelines

Educational Practice Patterns

- ❖ 15 Questions
- ❖ Focused on educational practice patterns among athletes, ATs, and parents
 - Who receives education (audience)?
 - How is it presented (format)?
 - What is presented (content)?
 - What is perceived as most valuable?
- ❖ Additionally, ATs were asked about why they were successful or unsuccessful at providing education to athletes and parents

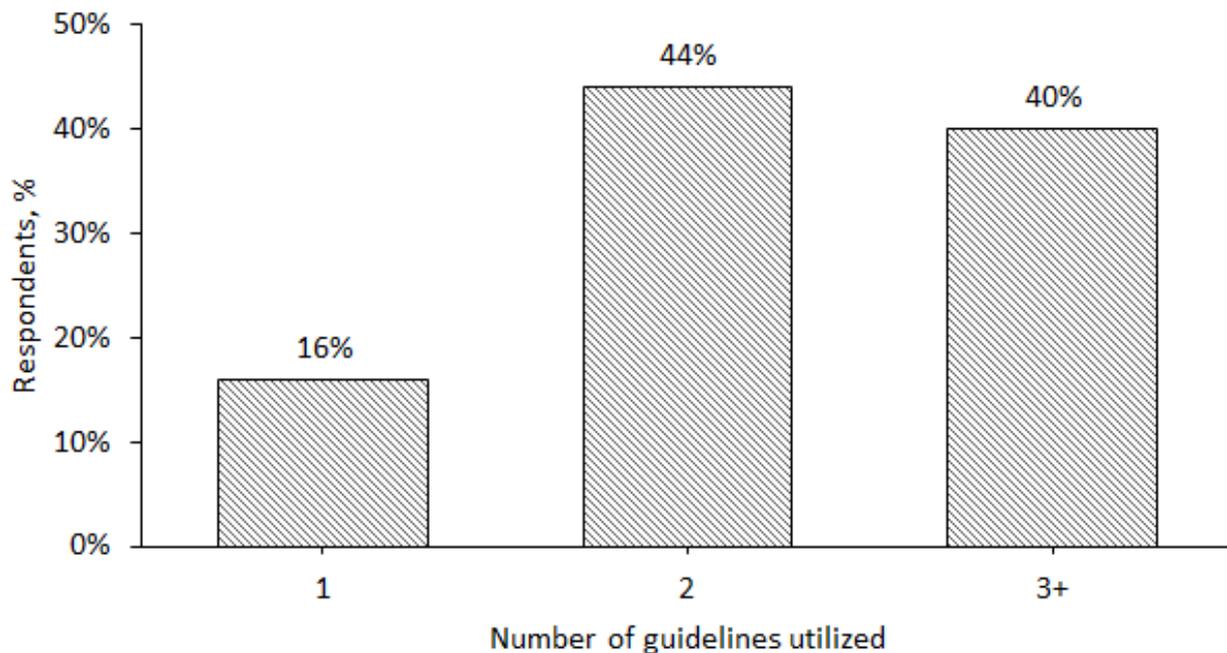
Survey Results

- ❖ 7.6% (52/680) estimated WATA membership response rate
 - ❖ $N = 50$ valid survey responses included in analysis
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Sample Description

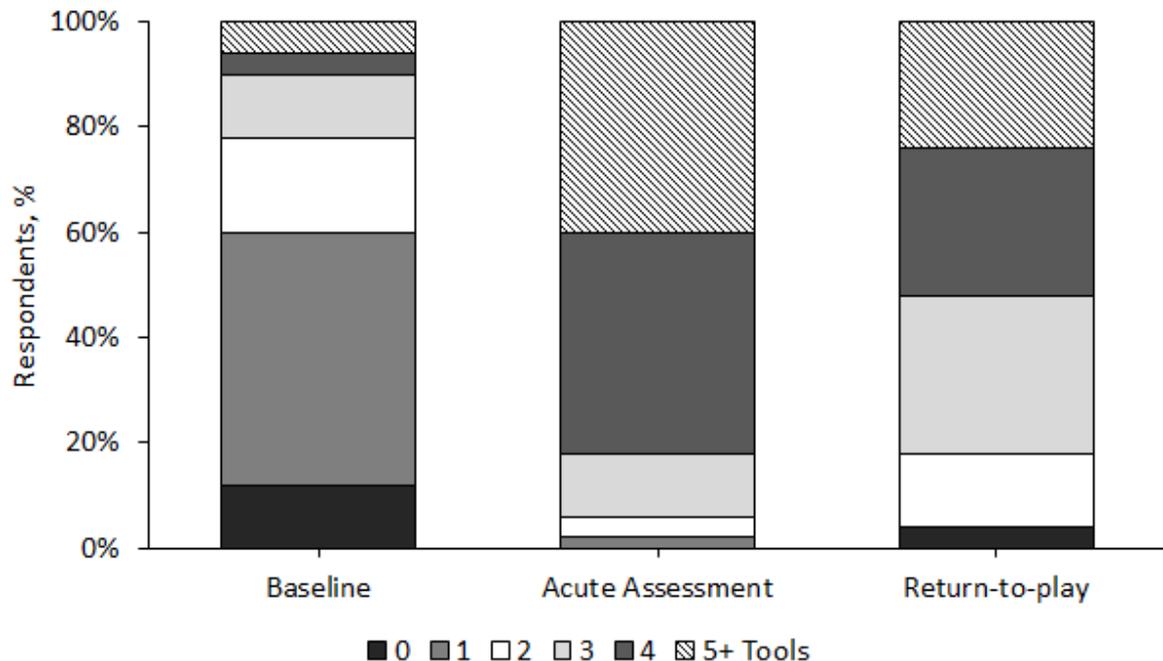
- ❖ 56% of respondents were female
- ❖ Typically between ages of 35 to 44 years old
- ❖ 11 to 15 years of professional experience
- ❖ 54% had a Master's degree or higher
- ❖ Distributed between rural (42%), urban (32%), and suburban (24%) practice settings
- ❖ Wide range of sport responsibilities (Median = 11), most commonly including football, basketball, soccer, track and field, and volleyball

Guideline Utilization



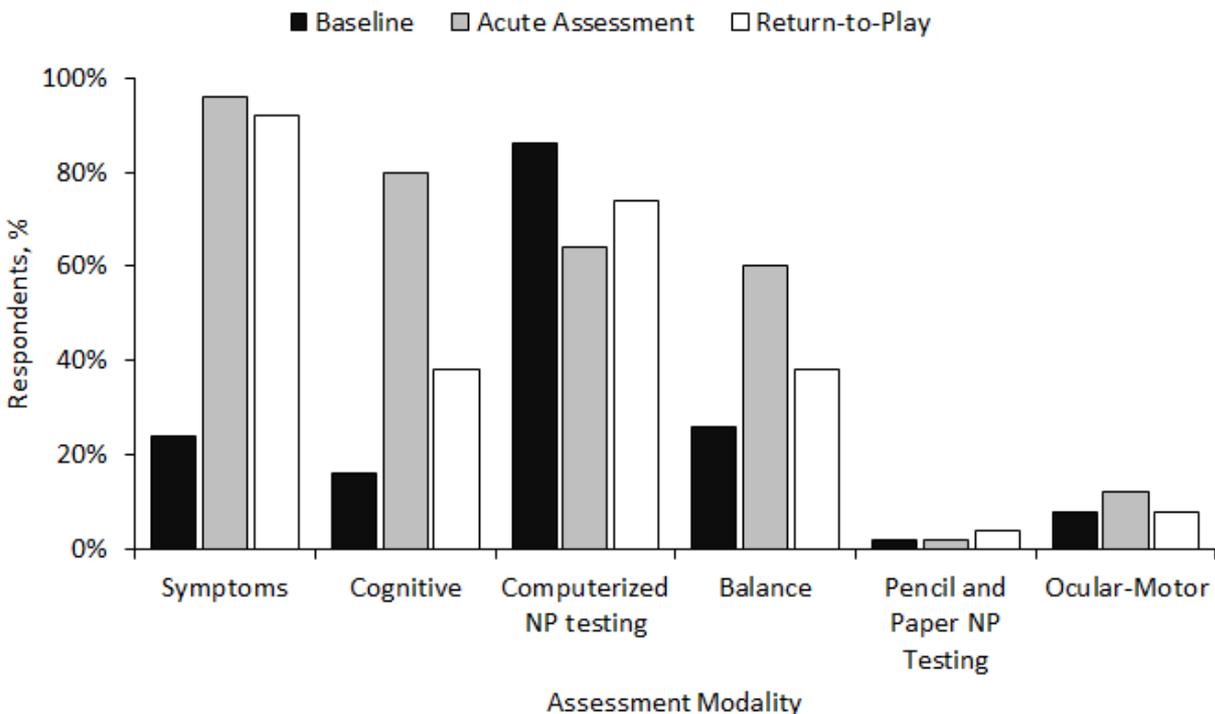
- ❖ Most ATs (84%) use 2 or more guidelines
 - All indicated using at least one guideline
- ❖ Most commonly endorsed:
 - NATA Position Statement (96%)
 - Concussion in Sport Group guidelines (78%)
- ❖ Most ATs endorse recently published guidelines

Assessment Timing and Utilization



- ❖ Limited multifaceted assessment at baseline (20%).
- ❖ But, extensive multifaceted assessment acutely (94%) and during RTP (82%)
- ❖ 12% did not report conducting baseline assessments
- ❖ Baseline testing was most commonly conducted every 2 years (68.2%) or at sport enrollment (50%)

Assessment Timing and Utilization

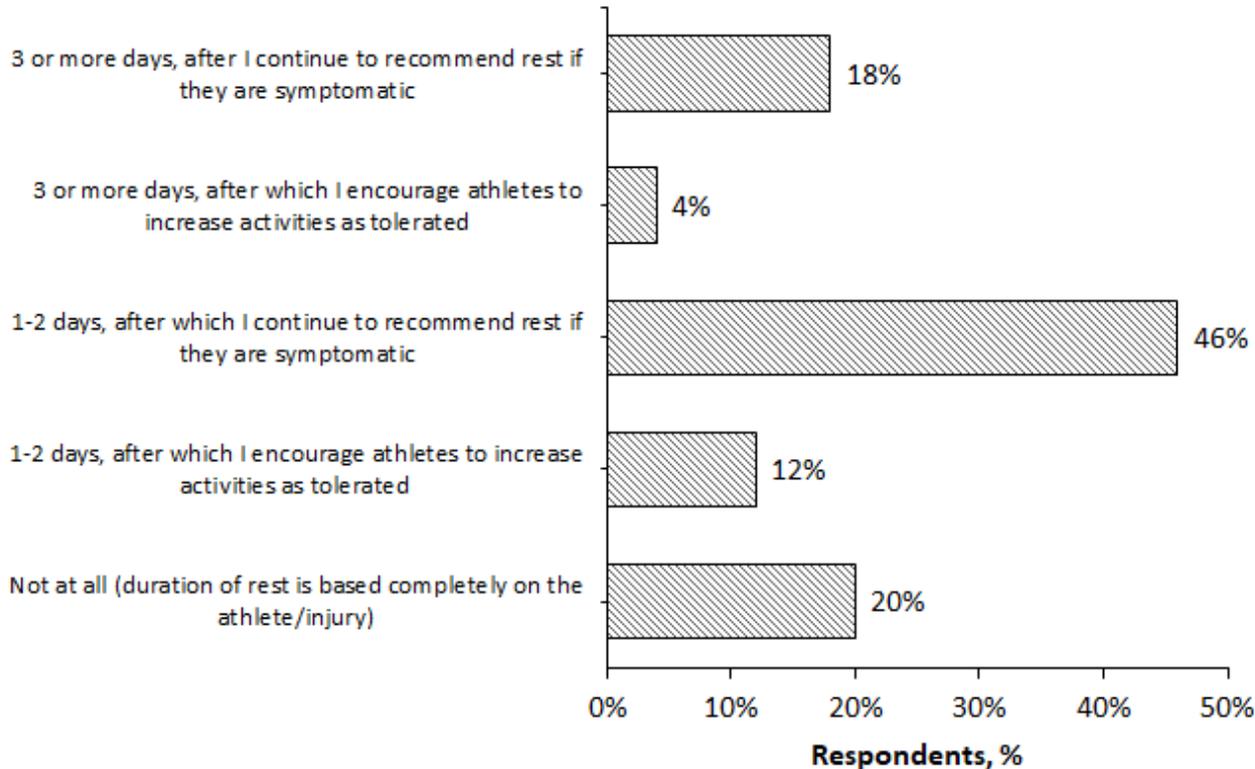


- ❖ Extensive use of computerized neuropsychological testing (CNT) at baseline (86%)
- ❖ Limited use of pencil and paper NT (2-4%) and Ocular-Motor testing (6-8%)
- ❖ Symptom checklist is most utilized tool both acutely (96%) and at RTP (92%)
- ❖ Concussion grading scales were sometimes used (14-16%)

Resource Avoidance

- ❖ ATs report commonly avoiding resources due to cost (36%) or convenience (44%)
- ❖ Most (92%) have adequate access, but many (36%) feel overwhelmed by the number available
- ❖ Resources requiring the use of other technologies (e.g., laptops, tablets, or smartphones) or had a substantial cost associated with them
 - Including: ImPACT, BESS, VOMS, King-Devick, and Sway-Balance

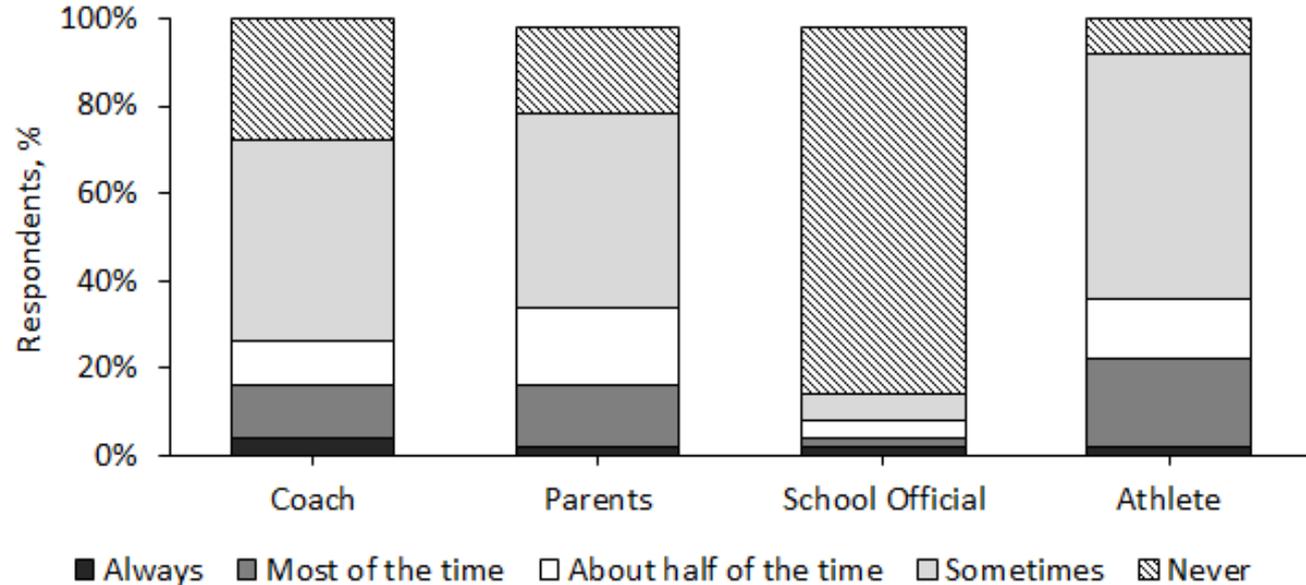
Return-to-Play and Injury Management



- ❖ Most ATs reported waiting to resume activity until after the athlete was symptom-free
- ❖ 92% reported using a graded exertion program
- ❖ Majority (60%) felt that current guidelines/approaches are effective but require more refinement and study

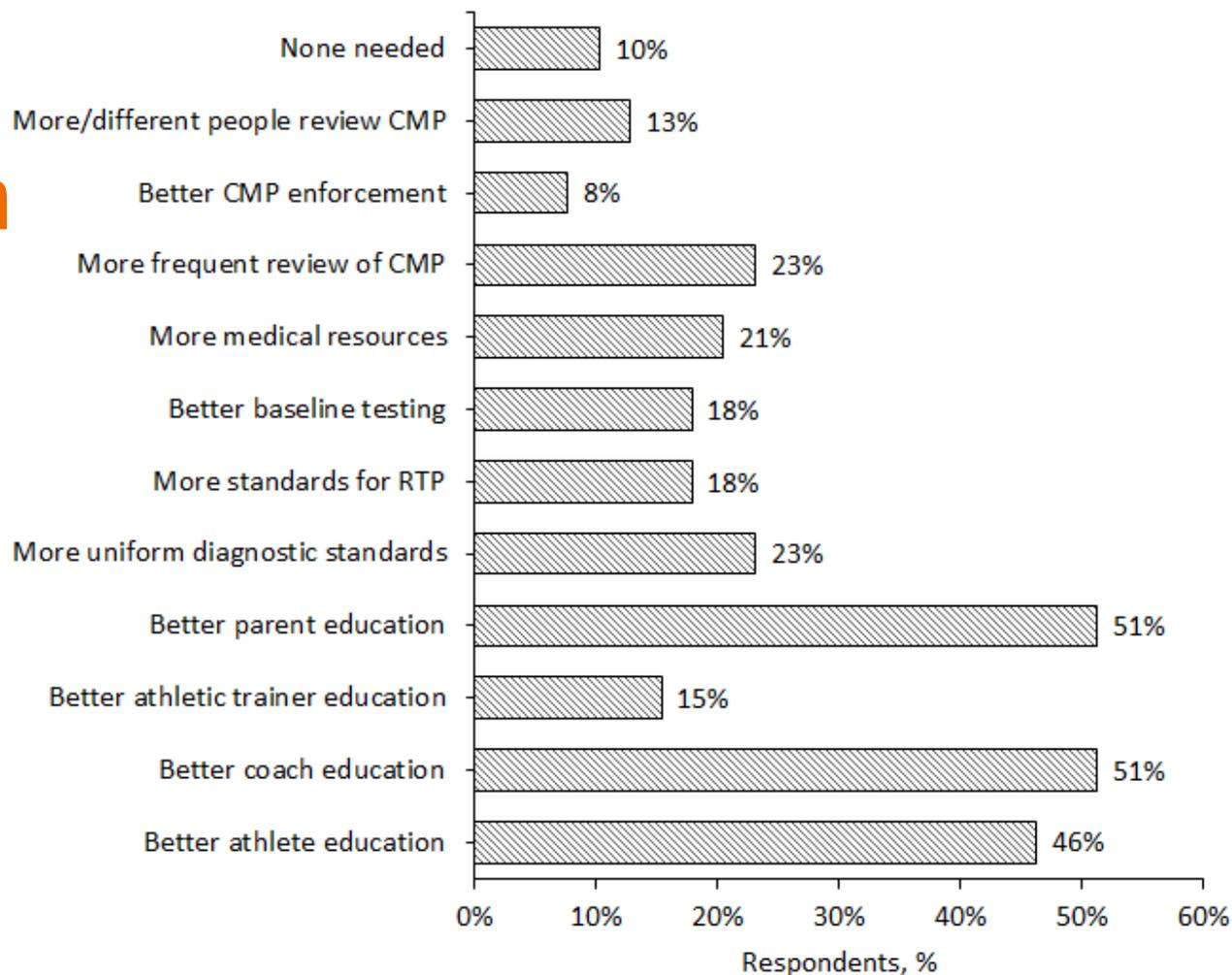
Return-to-Play and Injury Management

- ❖ ATs sometimes or more than sometimes felt pressured by coaches (72%), parents (80%), and athletes (92%) to manage a concussed athlete in a way which is not ideal



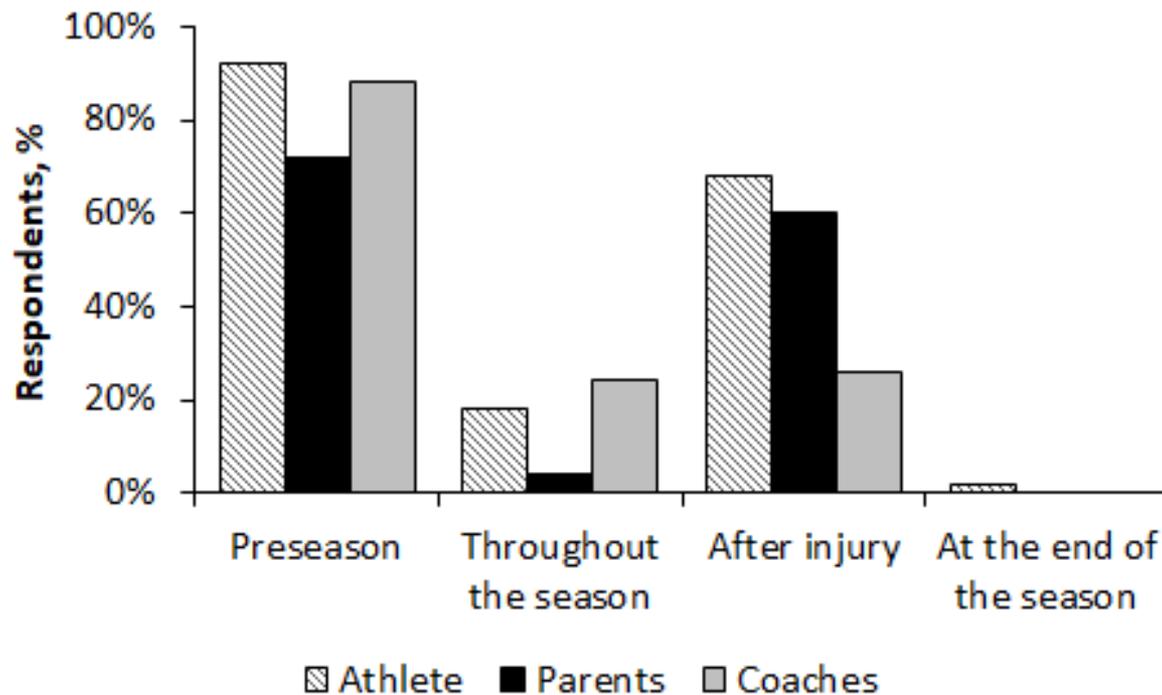
Concussion Management Plan

- ❖ Suggested improvements primarily emphasize parent (51%), coach (51%), and athlete (46%) education
- ❖ Only 10% indicate that no improvements are needed.



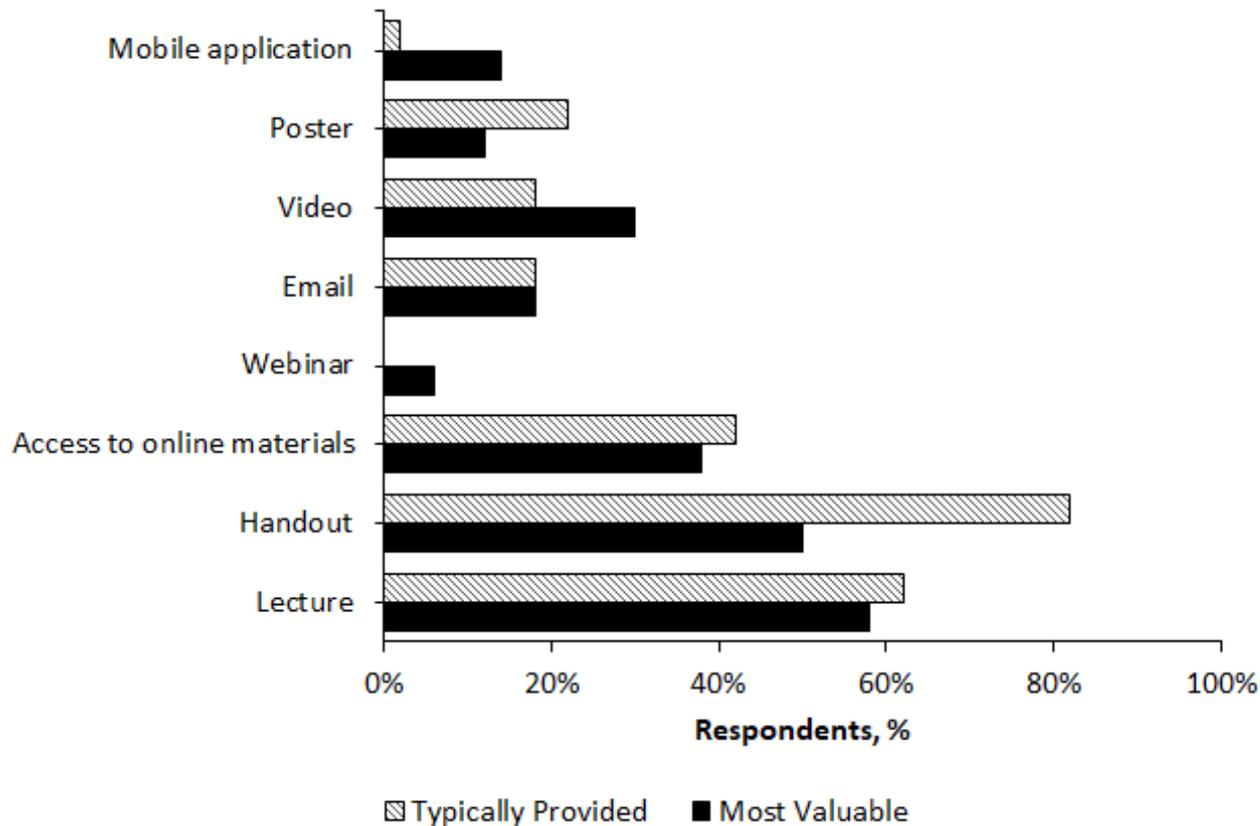
Educational Practice Patterns

- ❖ Typically provided during the preseason and after injury
- ❖ 26% of parents were not provided preseason concussion education and only 60% after injury
- ❖ 70% indicated that all or nearly all athletes were provided the state-mandated concussion information sheet



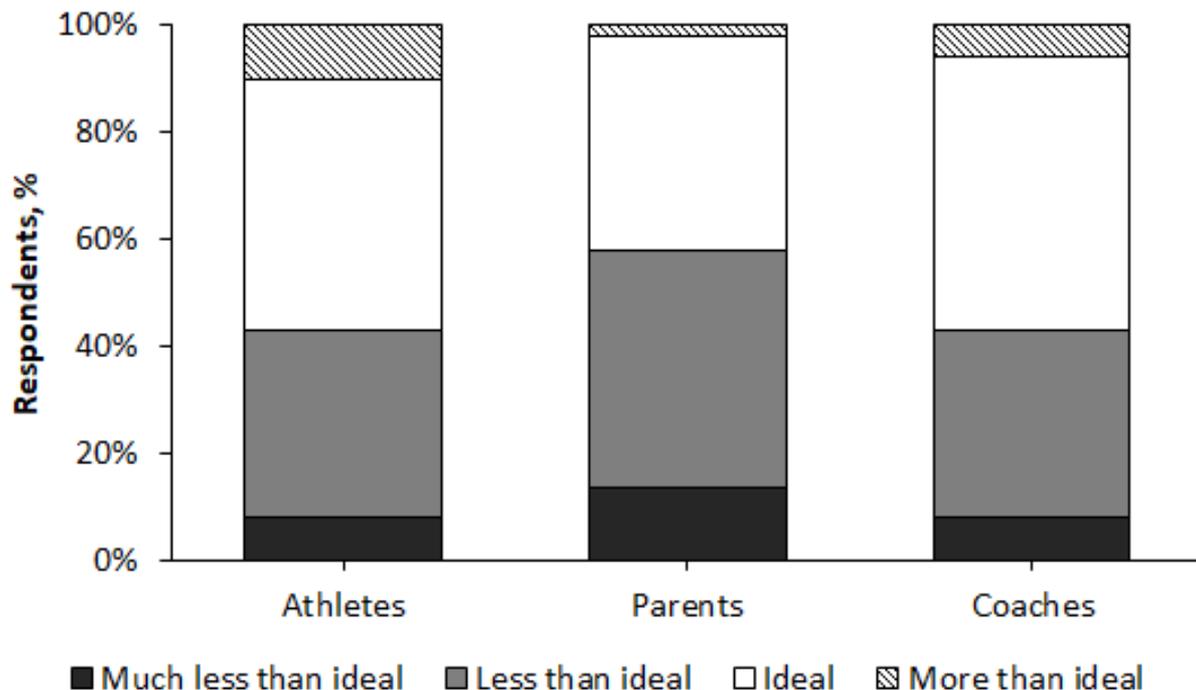
Educational Practice Patterns

- ❖ Most commonly used handouts (82%) and lectures (62%)
- ❖ Mobile applications and videos were rated more valuable than they were used
- ❖ Handouts and posters were used much more often than they were thought to be valuable



Educational Practice Patterns

- ❖ The amount of education provided to athletes (43%), parents (57%), and coaches (43%) was commonly reported as less than ideal
- ❖ ATs rarely reported that athlete (10%), parent (2%), and coach (6%) was more than ideal



Discussion

Discussion

- ❖ Clinical practice patterns largely comply with recently published concussion guidelines including baseline testing, graduated return to activity, and multifaceted assessment acutely after injury and at RTP
- ❖ Areas of Improvement:
 - Lack of multifaceted baseline testing, instead opting for use of CNTs (86%)
 - Constrained by lack of time, funding, and personnel
 - Continued use of concussion grading scales (14-16%) may indicate that athletes are not being managed according to current guidelines
 - ATs often feel overwhelmed by the number of clinical resources
 - Commonly avoid resources due to cost and/or convenience
 - Around 50% of ATs feel that there are gaps in athlete, parent, and coach education
 - Also a disparity between what is being used and what is felt to be valuable

Limitations

- ❖ Response rate was limited at only 7.6% of the target audience
 - Less than previous state and national investigations of AT concussion management practices (9.0-40.2%) (Baugh et al., 2014; Buckley et al., 2015)
- ❖ Most ATs indicated assessing athletes using a clinical examination acutely and at RTP
 - *Clinical examination* is not clearly defined and may refer to many different techniques or evaluations
- ❖ Lower rates of multifaceted baseline assessment may be overestimated
 - Many CNTs incorporate multifaceted components into one assessment including a health history, symptom checklist, and neuropsychological testing

Conclusions

Conclusions

- ❖ Although limited number of ATs continue to use outdated resources and guidelines, Wisconsin ATs largely follow current concussion management best practices including clinical management and education
- ❖ Less than ideal practice patterns are likely influenced by a lack of resources (i.e., time, personnel, or funding)
- ❖ Improvements in educational resource design, implementation, and frequency of use may alleviate gaps

Future Directions

- ❖ Implement knowledge translation strategies, such as the Knowledge to Action framework, can help bridge this gap by integrating researchers into the resource creation, evaluation, and refinement process (Graham, 2006)
- ❖ Future efforts should focus on further describing specific subsamples of ATs based on practice setting, competition level, and other demographic characteristics

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