

Orthopaedic Resident Preparation and Confidence in Treating On-Field Injuries

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Background: Orthopaedic surgery residents may cover athletic events, although the training provided to prepare residents for this role and oversight from attending physicians during these activities is not well understood.

Purpose: To survey orthopaedic residents about the training provided by their residency program for on-field athletic coverage and to understand their levels of preparation for this role and confidence in treating commonly encountered on-field conditions.

Study Design: Descriptive epidemiology study.

Methods: An anonymous survey was emailed to residents in all American College of Graduate Medical Education–accredited, allopathic, nonmilitary orthopaedic surgery residency programs. This survey queried residents about their demographics, the opportunities their residencies require or allow for athletic coverage, their level of preparation for serving an on-field physician, and their comfort level with treating a number of on-field conditions. Likert-type scales were used to assess resident comfort level for treating 13 orthopaedic and nonorthopaedic conditions as well as their perceived level of preparedness.

Results: Of 148 residency programs contacted, 57 programs responded (39%). Of the 57 programs responding, 51 (89.5%) allowed or required residents to cover athletic events, and 27 of 51 (52.9%) reported that training to prepare for this role was provided. Only 6 of 24 programs without training available (25%) had direct attending supervision of residents at all athletic events. Residents who answered that their residency programs mandate training prior to their participation in athletic coverage activities reported a higher level of preparation for this role than those with no training, optional training, or those who were unsure of their training requirement ($P < .0001$, $P = .035$, and $P = .013$, respectively). In addition, the more senior the resident was, the higher the level of confidence was in treating all orthopaedic and some nonorthopaedic conditions. Residents who had mandatory training displayed a higher comfort level in treating on-field orthopaedic and nonorthopaedic conditions than those without training.

Conclusion: Formal training of orthopaedic residents prior to their covering athletic events can improve confidence in treating orthopaedic and nonorthopaedic conditions. Many programs do not ensure that residents are familiar with key and potentially life-saving equipment. An opportunity exists to improve resident education.

Keywords: resident training; sideline coverage; event coverage; sports medicine

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Orthopaedic surgeons have the privilege of providing medical coverage for a diverse range of athletic events and are among a growing range of providers who share these responsibilities: certified athletic trainers, physical therapists, emergency medical technicians, nurses, and nonoperative physicians.¹⁸ While caring for athletes on the field, these providers may need to treat a broad array of injuries not limited to the musculoskeletal system,^{6-8,10,11,13,14,17} despite the fact that the education and training for each type of provider varies greatly.^{3,5,20,22,23,25} Many orthopaedic residency programs require residents to work as independent or assistant sideline physicians, but the training needed to effectively treat the wide variety of conditions, clinical situations, and ethical dilemmas¹² encountered is not standardized. Therefore, orthopaedic surgery residents may have different levels of preparation for and confidence in their ability to fulfill the duties of this role.

TABLE 1
Confidence of Residents Treating On-Field Conditions Related to Postgraduate Year^a

	Condition	PGY-1	PGY-2	PGY-3	PGY-4	PGY-5	P Value
Nonorthopaedic conditions	Commotio cordis/cardiac arrest	3.04	2.86	2.66	3.16	2.71	.53
	Dehydration	3.62	3.75	3.55	3.88	3.68	.66
	Eye injury	2.83	2.86	2.93	2.95	2.97	.544
	Heat stroke	3.22	3.27	3.21	3.35	3.42	.4119
	Laceration	4.42	4.62	4.72	4.77	4.65	.087
	Superficial infections/MRSA	3.58	4.05	4.17	4.19	4.16	.015 ^b
	Concussion/closed head injury	3.42	3.43	3.71	3.84	3.71	.078
	Orthopaedic conditions	Ankle fracture/dislocation/sprain	4.29	4.49	4.62	4.68	4.58
	Burner/stinger	3.29	3.50	3.97	3.86	4.06	<.001 ^b
	Cervical spine injury	3.04	3.51	3.69	3.84	3.68	.006 ^b
	Interphalangeal dislocation	4.17	4.24	4.34	4.67	4.61	.002 ^b
	Ligamentous knee injury	4.00	4.41	4.59	4.56	4.58	.004 ^b
	Shoulder dislocation	4.08	4.54	4.62	4.69	4.61	.005 ^b

^aScores based on a Likert-type scale (1 = extremely unconfident, 5 = extremely confident). MRSA, methicillin-resistant *Staphylococcus aureus*; PGY, postgraduate year.

^bTrend over all 5 PGYs showed positive correlations (ie, increasing confidence as postgraduate year increased).

The purpose of this study was to assess the prevalence of orthopaedic surgery residency programs that either mandate or allow residents to cover on-field athletic events, to quantify and qualify the training and oversight provided by these programs, and to assess orthopaedic residents' levels of preparation and confidence in treating on-field musculoskeletal and nonmusculoskeletal conditions. Given that curricula and competency requirements in orthopaedic surgery residency programs are comprehensive in musculoskeletal pathologies,¹⁵ it was hypothesized that orthopaedic surgery residents more senior in their training will have greater confidence in assessing and treating on-field orthopaedic conditions. Moreover, we expected that residents at residency programs that provide focused training designed to prepare residents for a role as an on-field team physician would feel more prepared for this role and have more confidence in treating both orthopaedic and nonorthopaedic conditions.

METHODS

A survey was created that ranged from 25 to 37 questions; the length was contingent on specific responses to questions (Appendix). This survey and the proposed study was approved by the institutional review board governing the authors' institution. The survey queried residents about their demographics, the opportunities their residency programs require or allow for participation in athletic coverage, their confidence level with treating a number of on-field injuries or conditions, and their specific experiences with athletic coverage if their programs allowed or required it. Answers were formatted as either multiple choice or 5-point Likert-type scale responses (1 = extremely unconfident, 5 = extremely confident). The survey was tested by the authors prior to its formal release to ensure user-friendliness and anonymity.

The program coordinators of all allopathic, nonmilitary, orthopaedic residencies within the United States were emailed a link to the survey and asked to disseminate the link to residents enrolled in their programs during the 2015-2016 academic year. Within this email, residents were given instructions on how to access the survey and were ensured of their anonymity given the lack of identifiable information that would be entered on the form.

For the demographics component of the survey, residents were asked to select their residency program from a dropdown menu, as well as current year of training, future intended field of orthopaedics (fellowship-trained sports medicine, fellowship-trained other subspecialty, general practice, or undecided), previous experience with care of athletes, previous engagement in organized sports, and whether they had experienced a sports-related injury that required on-field care. These questions were included to gain an understanding of the respondent's potential biases. Details about the opportunities for involvement in on-field athletic coverage provided by the respondent's residency program were elicited through questions about the settings in which they may work with athletes, whether coverage is required or even allowed, what level of athletics (eg, high school, collegiate) and specific sports are covered, which year in training they are allowed to begin coverage, the presence of attending surgeons and/or athletic trainers at sporting events, and their role in handling an on-field injury. The amount and type of training prior to athletic coverage by the respondent's program was determined by asking whether mandatory or optional training was provided, the kind of training that was provided (eg, patient simulation, lectures, preceptorship), and whether specific instruction in the use of a defibrillator or helmet/face mask removal tools was given. Finally, subjective resident confidence in the care of athletes with on-field injuries and conditions was assessed by asking about their feeling of preparedness by their residency program as well as their confidence in diagnosing and treating 13 common on-field problems (Table 1).

Statistical Analysis

The survey was generated, and all study data were collected and measured using Research Electronic Data Capture (REDCap).⁹ Residency response rates were based on the total number of allopathic, nonmilitary programs contacted. The individual survey response rate was determined based on the number of residents in the programs who responded. Collective resident totals for each program over the past 5 years was determined based on National Resident Matching Program data.¹⁶

Given an anticipated variability in the responses to specific residency program-related questions, an algorithm was created to determine a unified program-wide response based on the collective answers from all residents from each program. Resident responses were compiled for each relevant question focused on residency-wide issues (eg, "Is training available to you . . ."), and the answer choice with the majority of responses was selected.

The linear relationships between resident confidence level and postgraduate year as well as differences between resident confidence level when considering level of training available (Tukey adjustment for multiple comparisons) were assessed using generalized linear modeling (GLIMMIX procedure) assuming a binomial distribution (SAS version 9.4; SAS Institute).

RESULTS

Of the 148 residency programs contacted, residents from 57 programs responded, yielding a 39% program response rate. The total enrollment within these 57 residency programs during the 2015-2016 academic year was estimated at 1349, based on National Resident Matching Program data.¹⁶ With 165 resident responses, this represented a 12.2% response rate of residents who we can confirm had access to the survey.

Resident Demographics

Of the 165 respondents, 23 were in their first postgraduate year (PGY-1), and there were 37 PGY-2, 29 PGY-3, 45 PGY-4, and 31 PGY-5 residents. Approximately 28.5% of residents responded that they planned on advancing their training with a sports medicine fellowship, while 60.0% reported wanting to pursue a fellowship in a different specialty. Prior to residency, 34.5% of residents were involved in the care of athletes as either an assistant or athletic trainer. All residents personally participated in at least 1 level of athletics (recreational, high school, collegiate, minor league/semiprofessional, professional) and 50.9% participated in collegiate, minor league/semiprofessional, or professional athletics.

Program Characteristics

Aggregated resident responses for each program showed that 51 of the 57 programs that responded to the survey (89.5%) allowed or required coverage of at least 1 level of

athletic events. Most programs allowed coverage of high school or collegiate-level events (86.3% and 58.8%, respectively), and a few allowed coverage of minor league/semi-professional or professional-level events (7.8% and 3.9%, respectively). On average, programs allowed their residents to begin covering sporting events during PGY-2 (mean \pm SD, 2.2 \pm 1.1 years).

Training and Oversight

Of the 51 programs allowing or requiring resident coverage of athletic events, residents at 27 (52.9%) programs reported that they had training to prepare for this role. The programs that provided training did so through lectures (77.8%), preceptorships (44.4%), reading lists (37.0%), patient simulation (14.8%), or videos (14.8%). No program required formal testing prior to beginning coverage. Advanced training in the use of defibrillators and helmet/ facemask removal gear was provided by 19 (37.3%) and 17 (33.3%) programs, respectively. Eighteen programs (31.6%) had direct attending supervision at all events, and 22 (38.6%) had variable supervision by attending surgeons. Only 6 of 24 programs without training available (25%) had direct attending surgeon supervision of residents at all athletic events. All residents had the assistance of either an attending surgeon or a certified athletic trainer during events.

Effects of Resident Seniority on Confidence

The more senior the resident was, the higher his or her level of confidence was in treating a variety of orthopaedic and nonorthopaedic conditions (Table 1). This trend was true for all orthopaedic conditions (ankle injury, stinger, cervical spine injury, interphalangeal dislocation, knee injury, shoulder dislocation). Of the nonorthopaedic conditions (commotio cordis/cardiac arrest, dehydration, eye injury, heat stroke, laceration, superficial infection, concussion), the same trend was true only for superficial infections.

Effects of Resident Training on Preparedness and Confidence

Residents with mandatory training prior to their participation in on-field coverage reported that they felt better prepared for this role than those with no training, optional training, or those who were unsure of their training requirement ($P < .0001$, $P = .035$, and $P = .013$, respectively). Residents who had mandatory training displayed higher confidence levels in treating all on-field orthopaedic and nonorthopaedic conditions than those without training (Table 2), although dehydration, heat stroke, ligamentous knee injury, and shoulder dislocation were the only conditions displaying significant differences. The difference in confidence of residents who had training in the treatment of concussions compared with those who did not approached significance ($P = .07$).

TABLE 2
Average Confidence of Residents
in Treating On-Field Conditions^a

	Condition	No Training	Mandatory Training	P Value
Nonorthopaedic conditions	Commotio cordis/ cardiac arrest	2.82	3.11	.53
	Dehydration	3.44	4.13	.004 ^b
	Eye injury	2.65	3.05	.24
	Heat stroke	3.00	3.55	.046 ^b
	Laceration	4.58	4.74	.58
	Superficial infections/ MRSA	3.96	4.16	.69
	Concussion/ closed head injury	3.48	3.97	.07
Orthopaedic conditions	Ankle fracture/ dislocation/ sprain	4.48	4.74	.21
	Burner/stinger	3.73	4.08	.26
	Cervical spine injury	3.62	3.76	.90
	Interphalangeal dislocation	4.32	4.61	.24
	Ligamentous knee injury	4.31	4.74	.021 ^b
	Shoulder dislocation	4.35	4.82	.008 ^b

^aOptional training excluded. Scores based on a Likert-type scale (1 = extremely unconfident, 5 = extremely confident). MRSA, methicillin-resistant *Staphylococcus aureus*.

^bStatistical significance ($P \leq .05$).

DISCUSSION

On-field coverage of athletic events brings with it a multitude of challenges, especially when considering the breadth of injuries, conditions, and clinical situations faced by a treating provider. Although many different types of care providers may treat athletes on the field, this study shows that orthopaedic residents during their PGY-2 year, on average, are often given the opportunity to independently cover a variety of levels of sporting events during residency and that preinvolvement training is lacking. Resident confidence in treating orthopaedic conditions on the field was shown to be higher in the more senior residents. We also found that, compared with residents in programs with no training, those in programs with preinvolvement training had significantly greater confidence in treating nonorthopaedic conditions such as heat stroke and dehydration, a nearly significantly greater confidence in treating concussions, and a greater feeling of preparedness for the role of on-field physician. Although not statistically significant, confidence in treating every other nonorthopaedic condition was higher in the residents whose programs provided training.

In all American College of Graduate Medical Education–accredited residency programs, the treatment of patients

by residents, especially when done without direct supervision, requires a previous demonstration of competency.¹ Competency is achieved after appropriate training through lectures, supervised clinical experiences, or other means. In our cohort of orthopaedic residency programs, about half (52.8%) provided any form of preinvolvement training prior to allowing or requiring coverage of athletic events, and only 25.0% of programs that did not provide training had direct physician oversight of residents. Perhaps even more important, training on the use of a defibrillator—a potentially life-saving device—outside of basic life support training was strikingly low (37.3%). These concerning data suggest that while the process of educating orthopaedic residents for this role has long been left to the discretion of individual residency programs, an opportunity exists to develop a standardized curriculum that may increase resident confidence and potentially improve the care of athletes.

The results of this survey demonstrate that orthopaedic resident confidence in treating nonorthopaedic conditions is, on average, lower than the confidence in treating orthopaedic conditions and that confidence did not grow in treating almost all nonorthopaedic conditions over 5 years of residency. However, we did see that training may improve resident confidence, as confidence either significantly improved or trended toward improvement for those with training in many nonorthopaedic conditions. These findings are important, as physicians from other specialties, certified athletic trainers, physical therapists, emergency medical technicians, and nurses who care for athletes on the field may have more training, greater confidence, and therefore a potentially greater ability in treating these conditions. However, it is well known that physicians in nonorthopaedic specialties such as pediatrics,⁴ internal medicine,²³ and family medicine² have limited training and lower confidence in treating sports medicine–related and musculoskeletal conditions. This may be prohibitive for effective on-field athletic care, as up to 73% of physician evaluations of collegiate-level athletes involved musculoskeletal injuries.²¹ Regardless of the specialty of the individual serving as an on-field physician, he or she must “have a working knowledge of trauma, musculoskeletal injury, and medical conditions affecting the athlete.”²⁴

This study represents the experiences of an appropriate sample of residents from a broad range of residency programs. Residents were almost equally distributed among PGY level, and the percentage of residents who completed the survey who were interested in pursuing a fellowship in sports medicine was similar to the overall percentage of all orthopaedic residents participating in the San Francisco Match for an Orthopedic Sports Medicine Fellowship (28.5% and 28.2%, respectively).¹⁹ Residency programs were broadly distributed in terms of geography, size, academic focus, and athletic affiliations.

There are limitations to this study. First, although perception of confidence and preparedness may be a reasonable surrogate for actual performance,² this subjective variable is not a direct assessment of how effective residents are at treating on-field conditions. Second, while our distribution of residents and residency programs was

reasonable, our low response rate may be a source of bias. This survey did not parse out the topics of training that were provided; had this been done, a better understanding into the effectiveness of specific forms and topics of training may have been determined. Finally, the number of study participants who reported that they previously participated in collegiate, minor league, or professional athletics was 50.9%, and the number of participants who reported prior experience as a trainer was also high at 34.5%. While little reference exists to compare either of these to an expected range, these numbers are fairly high and may represent a bias toward increased experience and confidence among study participants. Training was reported as mandatory by residents in 10 programs (17.5%) and optional in 17 (29.8%).

Of the respondents in this study, 28.5% reported that they intended to pursue a fellowship in orthopaedic sports medicine. While it is difficult to differentiate between United States-based and foreign graduates participating in the sports medicine fellowship application process, data from the 2010 through 2015 matches are available and show a range from 212 to 260 applicants in recent years, which is in keeping with the numbers reported in this survey.^{16,19}

While the study findings support the view that the curricula of orthopaedic surgery residencies increases confidence in treating orthopaedic conditions, they also suggest that increased training in nonorthopaedic conditions correlates with greater confidence in treating such conditions. A need exists for more structured training in nonorthopaedic, sports medicine-related conditions in orthopaedic surgery residency to give orthopaedic residents the tools needed to care for athletes on the field.

CONCLUSION

Formal training of orthopaedic residents prior to their covering athletic events can improve confidence in treating orthopaedic and nonorthopaedic conditions. Many programs do not ensure residents are familiar with key and potentially life-saving equipment. This study highlights an opportunity to improve resident education.

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APPENDIX
Orthopaedic Team Coverage Survey

Please complete the survey below.
All answers will be blinded to the researchers.

Select your orthopedic residency program from the drop-down menu:

- Akron General Medical Center/NEOMED Program
- Albany Medical Center Program
- Albert Einstein Healthcare Network Program
- Allegheny Health Network Medical Education Consortium (AGH) Program
- Atlanta Medical Center Program
- Baylor College of Medicine Program
- Baylor University Medical Center Program
- Boston University Medical Center Program
- Brown University Program
- Carolinas Medical Center Program
- Case Western Reserve University/University Hospitals Case Medical Center Program
- Cedars-Sinai Medical Center Program
- Cleveland Clinic Foundation Program
- Cooper Medical School of Rowan University/Cooper University Hospital Program
- Dartmouth-Hitchcock Medical Center Program
- Detroit Medical Center/Wayne State University Program
- Drexel University College of Medicine/Hahnemann University Hospital Program
- Duke University Hospital Program
- Dwight David Eisenhower Army Medical Center Program
- Emory University Program
- Geisinger Health System Program
- George Washington University Program
- Georgetown University Hospital Program
- Grand Rapids Medical Education Partners/Michigan State University Program
- Greenville Health System/University of South Carolina Program
- Henry Ford Hospital/Wayne State University Program
- Hofstra Northwell School of Medicine at Lenox Hill Hospital Program
- Hofstra Northwell School of Medicine Program
- Hospital for Special Surgery/Cornell Medical Center Program
- Howard University Program
- Icahn School of Medicine at Mount Sinai Program
- Icahn School of Medicine at Mount Sinai/St Luke's-Roosevelt Hospital Center Program
- Indiana University School of Medicine Program
- Jackson Memorial Hospital/Jackson Health System Program
- John Peter Smith Hospital (Tarrant County Hospital District) Program
- Johns Hopkins University Program
- Kingsbrook Jewish Medical Center Program
- Loma Linda University Program
- Los Angeles County-Harbor-UCLA Medical Center Program
- Louisiana State University (Shreveport) Program
- Louisiana State University Program
- Loyola University Program
- Madigan Healthcare System Program
- Maimonides Medical Center Program
- Marshall University School of Medicine Program
- Massachusetts General Hospital/Brigham and Women's Hospital/Harvard Medical School Program
- Mayo Clinic College of Medicine (Arizona) Program
- Mayo Clinic College of Medicine (Rochester) Program
- McGaw Medical Center of Northwestern University Program
- McLaren-Flint Program
- Medical College of Georgia Program
- Medical College of Wisconsin Affiliated Hospitals Program
- Medical University of South Carolina Program
- Methodist Hospital (Houston) Program

- Monmouth Medical Center Program
- Montefiore Medical Center/Albert Einstein College of Medicine Program
- Mount Carmel Health System Program
- National Capital Consortium Program
- Naval Medical Center (Portsmouth) Program
- Naval Medical Center (San Diego) Program
- New York Medical College at Westchester Medical Center Program
- New York Presbyterian Hospital (Columbia Campus) Program
- New York University School of Medicine/Hospital for Joint Diseases Program
- Oakwood Hospital/Wayne State University Program
- Ochsner Clinic Foundation Program
- Ohio State University Hospital Program
- Oregon Health & Science University Program
- Orlando Health Program
- Palmetto Health/University of South Carolina School of Medicine Program
- Penn State Milton S Hershey Medical Center Program
- Rush University Medical Center Program
- Rutgers New Jersey Medical School Program
- Rutgers Robert Wood Johnson Medical School Program
- San Antonio Uniformed Services Health Education Consortium (SAUSHEC) Program
- Seton Hall University School of Health and Medical Sciences Program
- Sidney Kimmel Medical College at Thomas Jefferson University/TJUH Program
- Southern Illinois University Program
- St Louis University School of Medicine Program
- St Luke's Hospital Program
- St Mary's Hospital and Medical Center Program
- Stanford University Program
- Stony Brook Medicine/University Hospital Program
- Summa Health System/NEOMED Program
- SUNY Health Science Center at Brooklyn Program
- SUNY Upstate Medical University Program
- Temple University Hospital Program
- Texas A&M College of Medicine-Scott and White Program
- Texas Tech University (Lubbock) Program
- Tripler Army Medical Center Program
- Tufts Medical Center Program
- Tulane University Program
- UCLA Medical Center Program
- Union Memorial Hospital Program
- University at Buffalo Program
- University of Alabama Medical Center Program
- University of Arizona College of Medicine-Phoenix Program
- University of Arizona College of Medicine-Tucson Program
- University of Arkansas for Medical Sciences Program
- University of California (Davis) Health System Program
- University of California (Irvine) Program
- University of California (San Diego) Program
- University of California (San Francisco) Program
- University of California (San Francisco)/Fresno Program
- University of Chicago Program
- University of Cincinnati Medical Center/College of Medicine Program
- University of Colorado Program
- University of Connecticut Program
- University of Florida College of Medicine Jacksonville Program
- University of Florida Program
- University of Hawaii Program

- University of Illinois College of Medicine at Chicago Program
- University of Iowa Hospitals and Clinics Program
- University of Kansas (Wichita) Program
- University of Kansas School of Medicine Program
- University of Kentucky College of Medicine Program
- University of Louisville Program
- University of Maryland Program
- University of Massachusetts Program
- University of Michigan Program
- University of Minnesota Program
- University of Mississippi Medical Center Program
- University of Missouri at Kansas City Program
- University of Missouri-Columbia Program
- University of Nebraska Medical Center College of Medicine Program
- University of Nevada School of Medicine (Las Vegas) Program
- University of New Mexico Program
- University of North Carolina Hospitals Program
- University of Oklahoma Health Sciences Center Program
- University of Pennsylvania Program
- University of Puerto Rico Program
- University of Rochester Program
- University of South Alabama Program
- University of South Florida Morsani Program
- University of Southern California/LAC+USC Medical Center Program
- University of Tennessee College of Medicine at Chattanooga Program
- University of Tennessee Program
- University of Texas Health Science Center at Houston Program
- University of Texas Health Science Center School of Medicine at San Antonio Program
- University of Texas Medical Branch Hospitals Program
- University of Texas Southwestern Medical School Program
- University of Toledo Program
- University of Utah Program
- University of Vermont Medical Center Program
- University of Virginia Program
- University of Washington Program
- University of Wisconsin Program
- UPMC Medical Education (Hamot) Program
- UPMC Medical Education Program
- Vanderbilt University Medical Center Program
- Virginia Commonwealth University Health System Program
- Wake Forest University School of Medicine Program
- Washington University/B-JH/SLCH Consortium Program
- West Virginia University Program
- Western Michigan University Homer Stryker MD School of Medicine Program
- William Beaumont Army Medical Center/Texas Tech University (El Paso) Program
- William Beaumont Hospital Program
- Wright State University Program
- Yale-New Haven Medical Center Program

What is your current year of training?

- PGY-1
- PGY-2
- PGY-3
- PGY-4
- PGY-5

Which of these best describes your intended field of orthopedics?

- Fellowship trained sports medicine
- Fellowship trained other specialty
- General practice
- Undecided

Prior to your residency training, had you ever provided care to athletes, assisted athletic teams, or acted as a trainer/trainer's assistant?

- Yes
- No

In which levels of organized sports have you participated?

(check all that apply)

- Recreational
- High School
- Collegiate
- Minor League
- Professional

Have you ever had a sports-related injury that required ON-FIELD care?

- Yes
- No

In which settings do you work with athletes as a resident?

(check all that apply)

- Preseason athletic screenings
- Athletic training rooms
- Attending surgeons' private offices
- On-field sports coverage

Regarding coverage of athletic events, my residency program:

- does not allow it
- makes it optional
- requires it

	Recreational	High School	Collegiate	Minor League	Professional
Which level of athletics are you able to cover ON-FIELD?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Which level of athletics are you required to cover ON-FIELD?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Which level of athletics have you covered ON-FIELD?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

During which year of residency are you allowed/required to begin participating in on-field coverage?

- PGY-1
- PGY-2
- PGY-3
- PGY-4
- PGY-5

Which sports are you required to cover?

(select all that apply)

- Cross Country/Track/Field
- Basketball
- Football
- Gymnastics
- Hockey
- Lacrosse
- Soccer
- Volleyball
- Wrestling
- Other

Other:

Which sports are you allowed to cover?

(select all that apply)

- Cross Country/Track/Field
- Basketball
- Football
- Gymnastics
- Hockey
- Lacrosse
- Soccer
- Volleyball
- Wrestling
- Other

Other:

Which sports have you covered already?

(select all that apply)

-
- Cross Country/Track/Field
 - Basketball
 - Football
 - Gymnastics
 - Hockey
 - Lacrosse
 - Soccer
 - Volleyball
 - Wrestling
 - Other

Other:

Is any training available to you specifically designed to prepare you for your role as an on-field team physician?

- No
- Yes - optional
- Yes - mandatory
- Unsure

What kind of training is available to you (select all that apply)?

- Patient simulation
- Videos
- Lectures
- Preceptorship
- Formal testing
- Reading list/Literature
- Unsure

Is there available/required training in the use of a defibrillator aside from ALS/BLS/ATLS training in your residency?

- Yes
- No
- Unsure

Do you have training in the use of tools for removal of helmets/facemasks in your residency?

- Yes
- No
- Unsure

On a scale from 1 to 5 (1 - very poorly prepared, 5 - very well prepared), how do you feel your program does to ready you for the treatment of on-field sports-related injuries?

- 1 - very poorly prepared
- 2 - poorly prepared
- 3 - neutral
- 4 - well prepared
- 5 - very well prepared

Do you have direct oversight from an orthopedic attending at sporting events?

- Yes
- No
- Variable
- Unsure

Do you have athletic trainers at the sporting events you cover?

- Yes
- No
- Unsure

Who responds initially to player injuries on the field (select all that apply)?

- Trainer
- Attending
- Resident
- Unsure

On a scale from 1-5 (1 - extremely unconfident, 5 - extremely confident), how confident are you in acutely diagnosing and managing the following conditions ON THE FIELD:

	1 - extremely unconfident	2 - unconfident	3 - neutral	4- confident	5 - extremely confident
Ankle	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fracture/Dislocation/Sprain	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Burner/Stinger	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cervical Spine Injury	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Commotio Cordis/Cardiac Arrest	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Concussion/Closed Head Injury	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dehydration	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Eye Injury	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Heat Stroke	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Interphalangeal Dislocation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Laceration	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ligamentous Knee Injury	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Shoulder Dislocation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Superficial Infections/MRSA	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
