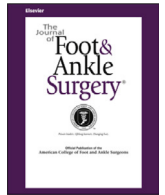




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Fellowships in Podiatric Medicine

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ABSTRACT

Graduating podiatric medicine and surgery residents are increasingly likely to pursue fellowship training. Nonetheless, there has been a lack of formal characterization of fellowship training in the field. The present study aimed to characterize fellowship training through an online survey. Two separate surveys were created, 1 for fellowship directors and 1 for fellows. Fellowship directors and fellows were asked questions pertaining to daily responsibilities, quality of training, work-life balance, the application process, fellow selection, and program selection. A total of 33 fellowship directors and 49 fellows responded to the survey, which was delivered over a 2-year period. Overall, fellows were generally satisfied with their respective programs, though greater satisfaction was associated with increased time allowed for research, as well as greater perceived quality of research training, clinical training, surgical training, and practice management training. When selecting a program, the 3 highest-rated factors were focus of the program, reputation of the fellowship director, and career options, and the 3 most important foot and ankle topics were hindfoot/ankle arthrodesis surgery, arthroscopy, and trauma. Open-ended responses from both fellowship directors and fellows reflected a range of opinions and recommendations, which may be helpful for future fellows or for fellowship program faculty. Notably, both fellowship directors and fellows commonly reported that the application process was in need of improvement, with increased standardization of the application process suggested. The results of the present study reflect baseline data on the topic, and may help facilitate improvement of the fellowship experience.

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Fellowship programs in the field of podiatric medicine have undergone dynamic growth in recent years. Formerly considered by residency graduates with specific interests, fellowships have increasingly become a standard consideration for the graduating resident of podiatric medicine and surgery.

The American College of Foot and Ankle Surgeons (ACFAS) maintains an online directory of fellowship programs, listed separately as recognized, conditional, and probationary conditional programs (1). The Council on Podiatric Medical Education (CPME) also maintains an online directory of fellowship programs under the header of “List of Approved Fellowships” (2). An additional number of fellowship programs in the field of podiatric medicine exist, unlisted on either directory (3).

While fellowships in the field of podiatric medicine are becoming increasingly numerous, there has been a lack of formal characterization of these programs. The purpose of this study was to present the perspectives of current fellows and fellowship directors.

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Materials and Methods

An electronic survey was constructed using Qualtrics® (<https://www.qualtrics.com/>), an online web-based survey program. The survey began with a brief informed consent, and directed respondents to either questions for fellows or fellowship directors. The survey questions were created with consideration of previously published reports of fellowship experiences in an array of specialties (4–16). After initially drafting the fellow and fellowship director surveys, feedback was solicited from current residents, former fellows, current residency directors, and current faculty of residency and fellowship programs. Based on this feedback, the survey questions were edited and then finalized. The full questionnaire can be seen in Appendix A.

Survey questions were written to capture the fellowship experience. This included questions on the quality of training, the application process, selection of fellows, program selection, and work-life balance. Conditional branching was utilized to direct respondents to appropriate questions based on their responses, and the survey included both closed-ended and open-ended questions. The survey was distributed to programs listed on either the CPME or ACFAS directories; unlisted programs with an online presence were also included. Programs <1 year in duration were not included.

The survey was distributed by e-mail, with 2 weekly e-mail reminders. Fellowship directors were asked to forward the survey to their own fellows. To achieve a sufficient volume of responses from fellows, the survey was distributed to fellows in 2 consecutive years.

Descriptive statistics were compiled for survey responses. In addition, inferential statistics were generated based on how satisfied current fellows were with their respective programs and based on respondent gender. Statistical significance was defined at the 5% ($p \leq .05$) level.

Results

As of 2018, ACFAS lists a total of 44 programs (1). The CPME lists 13 accredited programs (2). Including podiatric fellowships with an online presence not listed on either directory, a total of 63 programs were identified. The fellowship directors of each of these 63 programs were contacted for participation. In total, 33 program directors (52.38%) responded to the survey, with individual questions answered by between 31 (46.97%) and 33 directors (52.38%). A total of 49 fellows (45.37%) responded to the survey, with individual questions answered by between 42 (38.89%) and 49 (45.37%) fellows.

Survey reliability, determined by evaluating internal consistency, was good-to-excellent. Among fellows, Cronbach's α overall was 0.866 (95% confidence interval [CI] 0.802–0.926). Cronbach's α was 0.936 (95% CI 0.902–0.961) for the 10 questions relating to program satisfaction, and 0.841 (95% CI 0.759–0.908) for the 23 questions related to program selection. Among directors, Cronbach's α overall was 0.919 (95% CI 0.861–0.959). Cronbach's α was 0.921 (95% CI 0.885–0.949) for the 15 questions related to candidate selection, and 0.906 (95% CI 0.838–0.954) for the 5 research-related background questions. Internal consistency among individual participants was also evaluated through a comparison of items of similar themes. The perceived importance of research opportunities among current fellows when selecting a program was significantly correlated with how many papers they intended to submit to peer-reviewed journals ($r=0.302$, $p=.031$). Perceived importance of research opportunities was also significantly higher among fellows who identified research as the focus of their fellowship programs ($r=0.302$, $p=.048$), and, among programs with a combined fellowship focus, was positively correlated with an increasing focus placed on research ($r=0.614$, $p=.042$). Among directors, the number of surgical procedures performed in an average week was correlated with the importance of evidence attesting surgical skill level when selecting a fellow ($r=0.317$, $p=.041$), as well as the number of days fellows were on call during an average month ($r=0.243$, $p=.188$), though the latter relationship was short of statistical significance.

Fellow Responses

The mean age of responding fellows was 32.29 ± 3.97 years of age. There were 24 female (48.98%) and 25 male (51.02%) respondents. The vast majority of programs were 1 year in duration ($n=43$, 87.76%), whereas the other 6 programs were 2 years in duration ($n=6$, 12.24%). Fellowships were associated with a range of facilities, most commonly private practice ($n=16$, 32.65%), university hospitals ($n=15$, 30.61%), community hospitals ($n=10$, 20.41%), and surgery centers ($n=7$, 14.29%). One fellowship (2.04%) was associated with a Department of Veterans Affairs hospital. Nearly one-third of programs were directly affiliated with a podiatric medicine and surgery residency program ($n=16$, 32.65%).

When asked to define the focus of their fellowship, approximately one-third of fellows ($n=17$, 34.69%) identified that their program had a combined focus across multiple podiatric specialties. Of the remaining fellows, the focus was identified as the following: reconstructive surgery ($n=14$, 28.57%), sports medicine ($n=9$, 18.37%), limb salvage ($n=4$, 8.16%), research ($n=4$, 8.16%), and wound care ($n=1$, 2.04%).

When asked about future plans, 13 fellows planned to join an orthopedic group (26.53%), 11 planned to join a solo or group podiatric private practice (22.45%), 10 planned to join an academic institution (20.41%), 7 planned to join a hospital system (14.29%), 7 stated that they were not decided (14.29%), and 1 planned to join a multispecialty group practice (2.04%).

Fellows identified performing a mean of 11.23 ± 10.33 surgical procedures per week. Fellows reported receiving a mean of 11.45 ± 6.34 vacation days per year. During a typical month, fellows reported being on call 8.69 ± 8.16 days.

Table 1

Importance of specific factors when fellows were choosing their fellowship program

Factor	Response (Based on a 5-Point Likert Scale, 5 as the Highest Possible Score; n = 42)
Focus of the program	4.57
Reputation of the fellowship director	4.24
Career options	4.20
Independence in surgery	4.10
Program reputation	3.95
Research opportunities	3.44
Independence in clinic	3.41
Teaching opportunities	3.17
Location	2.77
On-call requirements	2.39
Salary	2.27

Fellows were asked to identify the relative importance of specific factors when they selected their fellowship program. The 3 highest-rated factors were the focus of the program, reputation of the fellowship director, and career options (Table 1). Fellows were also asked the relative importance of various foot and ankle topics when deciding to pursue fellowship training. The 3 most important topics were hindfoot/ankle arthrodesis surgery, arthroscopy, and trauma (Table 2).

Fellows spent a mean of 6.89 ± 8.72 hours on research per week. Fellows identified they either submitted or planned to submit a mean of 2.51 ± 2.18 studies to peer-reviewed journals during their fellowship. In rating the guidance and support for completing research, 12 fellows felt it was deficient (30.00%), 19 felt it was adequate for their needs (47.50%), and 9 felt it was above and beyond what they needed (22.50%).

Application Process

Fellowship interviews most frequently occurred in the month of September ($n=10$, 23.81%). Nonetheless, interviews were conducted in a wide distribution of months, including every month except May and June (Table 3). Fellows reported applying to a mean of 3.39 ± 2.31 different fellowship programs. Fellowships either began in June ($n=1$, 2.38%), July ($n=22$, 52.38%), August ($n=17$, 40.48%), or September ($n=2$, 4.76%). The vast majority of interviews were conducted in person ($n=38$, 90.48%), whereas 2 were conducted by telephone (4.76%), 1 by webcam (2.38%), and 1 by a combination of methods (2.38%). Approximately half of fellows heard back about acceptance within a week following their interview ($n=22$, 52.38%), 11 heard back within a month ($n=26.19\%$), and 9 did not hear back for over a month (21.43%).

Table 2

Importance of various foot and ankle topics when fellows were deciding to pursue fellowship training

Factor	Response (Based on a 5-Point Likert Scale, 5 as the Highest Possible Score; n = 42)
Hindfoot/ankle arthrodesis surgery	4.15
Arthroscopy	3.67
Trauma	3.50
Sports medicine	3.46
Total ankle replacement surgery	3.35
Forefoot surgery	3.17
Charcot reconstruction surgery	3.07
Limb salvage surgery	3.02
External fixation	2.90
Biomechanics	2.85
Pediatrics	2.55
Wound care	2.37

Table 3

Fellow responses to, "During what month was your fellowship interview for this program conducted?" (n = 42)

Month	Number of Respondents	Percentage of Respondents
January	4	9.52%
February	1	2.38%
March	3	7.14%
April	4	9.52%
May	0	0.00%
June	0	0.00%
July	3	7.14%
August	4	9.52%
September	10	23.81%
October	3	7.14%
November	5	11.90%
December	5	11.90%

Fellow Satisfaction

Fellows were asked their overall satisfaction with their respective programs on a 5-point Likert scale (very unsatisfied, unsatisfied, neutral, satisfied, and very satisfied). Just over half of respondents were "very satisfied" with their program (n = 26, 61.90%), whereas 16 identified that they were "satisfied" with the program (38.10%). No respondents were less than satisfied with their program.

Respondents that identified they were "very satisfied" with their program were considered against those that were simply "satisfied." Fellows that were "very satisfied" were able to dedicate more hours to research than those that were "satisfied" (9.38 ± 10.51 hours vs 3.50 ± 2.00 hours, $p = .0334$). Fellows that were "very satisfied" with their program were also more likely to be satisfied with the quality of research training ($p < .0001$), clinical training ($p < .0001$), surgical training ($p = .0003$), and practice management training ($p = .0013$).

Fellows that were "very satisfied" identified fewer call days, though the difference was just short of statistical significance (6.90 ± 7.27 days per month vs 11.69 ± 8.86 days per month, $p = .0637$). Finally, fellows that were "very satisfied" with their program were more likely to be satisfied with their total program stipend amount, though the difference was also just short of statistical significance ($p = .0572$).

Responses of all fellows regarding satisfaction of various aspects of their fellowship programs are reflected in Table 4.

Gender

A total of 24 female (48.98%) and 25 male (51.02%) fellows participated in the survey. Female respondents were found to perform fewer surgical procedures per week than male respondents (7.60 ± 6.01 procedures per week vs 14.25 ± 12.06 procedures per week; $p = .019$).

Table 4

Fellows' satisfaction with various aspects of their fellowship program

Factor	Response (Based on a 5-Point Likert Scale, 5 as the Highest Possible Score; n = 42)
Quality of clinical training	4.69
Amount of clinical training	4.69
Overall satisfaction with the program	4.62
Quality of surgical training	4.43
Amount of surgical training	4.24
Amount of practice management experience	3.98
Quality of practice management training	3.93
Quality of research training	3.85
Amount of research training	3.76
Total stipend amount	3.76

Female respondents were also found to rank the importance of biomechanics higher when choosing their program (3.25 vs 2.48 on a 5-point Likert scale; $p = .033$). Relevantly, all 4 of the fellows who identified the focus of their fellowship as research were female.

Fellowship Directors

A total of 33 fellowship directors participated in the survey (52.38%), though individual questions were answered by between 31 (46.97%) and 33 directors (52.38%). Approximately a quarter of programs received institutional funding for their fellow (n = 8, 25.81%), whereas 3 programs received peer-reviewed foundation grants to support their fellow (9.68%). Nearly two-thirds of programs bill and collect for fellows' activities (n = 20, 64.52%).

The majority of directors required that a fellow author at least 1 publication (n = 19, 61.29%); 6 directors required at least 2 publications (19.35%), and 3 directors required at least 3 publications (9.68%). Three (9.68%) directors did not specifically require publications from their fellows.

Directors identified the relative importance of various attributes when selecting incoming fellows. The 5 most important attributes were interpersonal skills, evidence of professionalism and ethics, interactions with faculty, evidence of leadership, and perceived interest in the program (Table 5).

Open-ended Questions

A series of open-ended questions were included in both surveys. Fellows were asked about the strengths of their respective programs: common responses included high surgical case volume and variety, high patient volume, and autonomy (Table 6). Fellows were also asked about the negative aspects of their programs and how their experiences could have been better: fellows commented on a lack of time for research, a lack of mentorship and guidance from attendings, and a wide range of other program-specific concerns (Tables 7 and 8).

Both fellows and directors were also asked how the application process may be improved (Table 9). The most frequent suggestion, from

Table 5

Importance of various attributes as fellowship directors are considering the selection of a fellowship candidate

Item	Response (Based on a 5-Point Likert Scale, 5 as the Highest Possible Score; n = 32)
Interpersonal skills	4.84
Evidence of professionalism and ethics	4.77
Interactions with faculty	4.48
Evidence of leadership	4.48
Perceived interest in the program	4.45
Evidence attesting surgical skill level	4.35
Feedback from current residents and fellows	4.32
Evidence attesting clinical skill level	4.26
Reputation of the candidate's residency program	3.90
Other life/extracurricular experiences	3.90
Letters of recommendation	3.77
Personal statement	3.61
Academic performance during the interview	3.58
Podiatric medical school performance	3.42
Fluency in language(s) spoken by your patient population	3.29
<i>Research-related attributes</i>	
Clinical research experience	3.71
Demonstrated involvement in basic science research	3.58
Previous academic presentations	3.55
Previous publications	3.19
MPH, MBA, MS, or equivalent	2.45

Table 6

Fellow responses to, "What would you consider to be the strengths of your current fellowship?"

Orthopedic affiliation, complex pathology, external fixation and deformity correction, fellow clinic and patient base
Training within a teaching tertiary care/referral medical center with strong orthopedic didactics, research, and surgery. The program is flexible and provides a variety of possible areas of focus depending on interest
High-volume total ankle replacement, reconstruction, sports medicine, and trauma surgery
Total ankle replacements, sports medicine, and reconstructive rearfoot surgery mentorship; time for research; resources
Wound care, vascular surgery, limb salvage, clinic
High patient volume, learning practice management
Autonomy, case diversity
1. Complicated cases; 2. Fellow has their own clinic, own patients, own surgeries; 3. Able to teach local podiatric medical students and residents
All areas of foot and ankle reconstruction with some trauma
Great training in limb salvage and infection management
My fellowship director, he is an incredible teacher and mentor
Large variety of pathology, autonomy, large patient volume
Great exposure to a wide variety of cases that present. Strong evidence-based medicine
Amount and variety of surgical cases
Strong academics, strong research, strong clinical arm
Case volume, case diversity, autonomy in the operating room. Pearls about running a private group practice
Complex deformity correction and limb salvage utilizing internal and external fixation, Charcot reconstruction, sports medicine, also high populations pediatrics, and healthy young adult reconstructive foot and ankle surgery
More elective reconstructive cases, higher volume than residency (about 30 cases weekly), private practice perspectives on billing and coding as well as practice management
High surgical volume, diversity of cases, and pathology
Surgical volume; all faculty are fellowship-trained; access to orthopedic surgeons; faculty name recognition; industry training
Large surgical experience with advanced reconstructive cases including larger exposure to total ankle replacement, ankle scopes, trauma, and external fixation
Rearfoot pathology, surgical volume, office exposure, and autonomy
Sports medicine (conservative and operative), Level 2 trauma management and surgical correction, elective reconstruction workup, and surgical correction, clinical patient management, decision making, and treatment, orthotics/biomechanics
Variety of cases and pathologies. Collective clinical experience of group
Ethical, wide variety of pathology, huge surgical volume, attending input from training across the country/globe, and a very academic environment at which to learn everything one should from a fellowship
Sports medicine (clinic and surgical intervention), biomechanics/orthotics, reconstructive surgery including joint-sparing procedures
Autonomy and private practice experience – decision-making enhanced
Very well-rounded experience in elective outpatient surgical procedures and office experience. Strong biomechanics implementation in the office with practice in casting, taping, and treating sports medicine-related injuries
Surgical volume and diversity
Busy department, I have my own clinic 5 days a week
Our faculty members and the ability to work with residents
I have an amazing fellowship director who is always available to teach his residents and fellows. I get to learn how to critically evaluate research and journal articles. Also, as a fellow,
I get to attend lectures from the clinical epidemiology and biostatistics department from the school of medicine that is affiliated with our hospital
Continued knowledge and surgical experience with foot and ankle pathology and surgery in the sports medicine setting. Research is another strong point
Autonomy, self-directed
Everything is a strength. Autonomy. High-volume reconstructive surgery, sports medicine surgery, trauma surgery. A good high-volume clinic
Volume of patients and exposure to very well-rounded array of surgical cases for forefoot and rearfoot/ankle
Autonomy, diversity of surgery
Huge patient volume, a lot of surgical cases, and good diversity
Independence, operating in the operating room as a primary surgeon without direct supervision, your own wound care clinics to develop your own evidence-based protocol
Access to well-trained renowned surgeons
Surgical volume and variety of pathology
Detailed work up and surgical planning for complex deformity correction

Table 7

Fellow responses to, "What would you consider to be the negative aspects of your current fellowship?"

Amount of daily travel
Concern with American Orthopaedic Foot and Ankle Society retribution makes some foot and ankle orthopedists anxious about scrubbing with a podiatry fellow
No guarantee for job afterward
No affiliated residency; inconsistent time for research; busywork
Nonlimb salvage elective cases, trauma, sports medicine
No inpatient surgeries
Lower income patient population. Difficult to get Medicaid approval for wound care
1. One practitioner vs multiple surgeons to work with; 2. No research support personnel
Minimal external fixation
Minimal trauma exposure. No major skin flap surgery
Not being able to perform surgery
Limited scheduled time for research
Heavy wound care
Busy hours, not enough help sometimes
Covering multiple surgery centers and hospitals, requiring a lot of travel
Work with a group of podiatrists and foot and ankle orthopedists that have surgery times that overlap, and sometimes needing to give up doing certain surgeries over another
I'm paid \$50,000 per year, easily 1/3 of what I'd make as associate. I am on call Monday-Friday, some weekends, holidays, etc. I get less trauma than in residency being that I'm with a private practice podiatry group
Looking for more reconstruction cases
Minimal wound care/clinic
Single surgeon experience
Due to the hospital setting, billing is not emphasized to the extent of some of my colleagues in other fellowship programs. Similarly, there were not as many job connections on a large scale due to my fellowship specifically, although fellowship training did seem to make me more marketable
Private practice management (hospital setting does not expose you to that aspect of medicine)
Because it is a small private practice, little marketing was done for certain reconstructive procedures such as total ankle replacements. I only performed 2 during my year
No hospital privileges to scrub more complex cases
New program
No rearfoot and ankle, fellowship cases do not count toward American Board of Foot and Ankle Surgery certification
Lack of surgical procedures, given this is a research fellowship
Lack of total ankle replacement surgery
The 6-month orthopedic rotation. I was pinning hips and doing hand surgery, which sometimes made me feel that I was not concentrating on my profession
Research has been tough to get going but we are starting to get lots of good studies going
Volume of patients is very high, so less time able to be allotted to academics/research
Not enough cases, too much control by residents
Director is not hands-on enough in the operating room; his associates let me do more but I mostly watched his surgeries, or he left me by myself with no pearls or instruction (in contrast to his associates who did provide such)
Little support for research
No true guidance or mentorship with research
Little to no formal academics and lack of willingness on part of a couple attendings to be involved with educational requirements as set down by ACFAS
Limited attending diversity

Abbreviation: ACFAS, American College of Foot and Ankle Surgeons.

both fellows and directors, was to develop a standardized application process.

Fellows and directors were asked for helpful suggestions for future fellows. Comments from both fellows and directors referenced the importance of reaching out early to programs, visiting multiple programs in person, maintaining personal relationships, and staying motivated through residency (Table 10).

Directors were asked if they had any suggestions for other fellowship directors. Responses referenced the importance of making the fellowship experience dynamic and special, rather than akin to a fourth year of residency, and to prepare fellows to be successful financially (Table 11). When asked about any difficulties they may have encountered since serving as fellowship directors, directors most commonly cited funding issues, and issues with incoming fellows not meeting expectations (Table 12).

Table 8

Fellow responses to, “Thinking back on your fellowship, what might have made your experience better?”

Having clear and concise information regarding professional organizations I should be a part of and licenses I should obtain
More exposure to total ankle replacements; more autonomy in clinic and the operating room; more formal didactic sessions
More surgery (although I am happy with the quality and quantity of surgery)
I wish I did an away rotation to do more total ankle replacements and I wish there was more generous with funding for continuing medical education
I have not completed my fellowship yet. It could be better organized
More time in the operating room
Dedicating more time for research
If my director who I spent the most time with doing surgery, gave me more opportunities to be hands on in the operating room, with some guidance and advice. He only either let me watch or left the room
More complex limb salvage cases
Less wound care
Having privileges at the nearby hospital do scrub cases with my fellowship director to get experience in those cases
More total ankle replacement surgeries
More research time
Getting malpractice insurance – this process should be arranged by the program and could have gone smoother
Less call, more help on the floors, more dedicated research time
Spending less money to visit and interview at all the programs
More dedicated clinic time
Having my own patients in clinic and own operating room day
Practice management and arthroscopy
Learning more about vascular surgery
Loved my fellowship experience. If I could go back in time, I would have started looking into fellowships earlier so I could check out some other programs

Discussion

As fellowships are becoming increasingly more numerous in the field of podiatric medicine, formal characterization of these programs is increasingly valuable. Considering the perspectives of both fellowship directors and fellows, for example, may help direct future improvements.

Responses from fellows and directors agreed that improvements were needed in the fellowship application process. Both fellows and directors repeatedly suggested a centralized, standardized application process, with a standardized timeline. Other feedback included suggestion of a system where the interview occurs at the same time as the program visit, increased use of videoconference interviews, and improved online availability of fellowship program information.

These responses are consistent with trends in other medical fellowships. Use of a computer-based scheduling program has been described (17), as have experiences with using videoconferencing to conduct fellowship interviews (18). Studies critical of the accessibility and content of online fellowship information have been performed in an array of specialties, including among orthopedic trauma fellowships and orthopedic foot and ankle fellowships (19–23).

When selecting fellows, directors identified that the most important factors were interpersonal skills, evidence of professionalism and ethics, interactions with faculty, evidence of leadership, and perceived interest in the program. For reference, a study of orthopedic sports medicine fellowships by Baweja et al in 2017 found that the most important factors were the fellowship interview, letters of recommendation, the applicant's residency program, research production, and personal connections (24). A study by Egro et al in 2017 of hand surgery fellowships identified that the most important factors were interactions with faculty during the interview and visit, interpersonal skills, overall interview performance in the selection process, professionalism and ethics, and letters of recommendation from hand surgeons (11). A similar study of craniofacial surgery fellowships identified the most important factors as professionalism and ethics, perceived commitment to

Table 9

Responses to, “How do you think the application process could be improved for podiatric fellowships in general?”

<i>Director responses</i>
The accuracy of the information posted about the fellowships and preferred methods of contact could be improved. Some of the fellowships described on the ACFAS site were no longer operational when I was applying
More standardized application process
A standardized process conducted earlier in the year would be better. Most other fellowships begin to make decisions in October
Clearly communicate deadlines because too many residents apply too late
The process could be standardized, and acceptance/rejection would ideally be done within the second year of residency. This would keep the fellowship application process from delaying residents from searching for jobs (if they are not accepted)
Webcam interviews becoming more commonplace to avoid travel expenses
Perhaps more organized and standardized like the residency match process
Have a match process similar to that for residency
More structured online process possibly. Maybe each fellowship can have its own unique website where they outline their specific application requirements
Greater structure with regards to the timing of fellow selection
More centralized application
A match day so that all fellows are choose on the same day to make it easier for residents and fellowship directors
Have mandated accreditation through a governing body that can standardize the application process and the fellowship requirements. Having ACFAS, etc., be the source for most of the programs is odd given they are not a governing accreditation body for residencies
Consistent interview timeline
Standardize the dates fellows are chosen by the programs
Standardize it like the match. People get caught with 1 program offering, which may not be their top program, and having to accept or turn it down while they wait for the others
<i>Fellow responses</i>
A centralized application process for all fellowship programs
Standardization of dates. There are fellowships that make offers in October, whereas others interview in December and do not offer until February. There is another I am aware of that does not interview until March. This creates a situation where you feel obligated to take a fellowship offer just to have a secured position rather than gamble on a program you may want more, but has not even interviewed yet
More centralized, less travel. More like the allopathic medical fellowships where the visit and interview are the same time
It should be standardized instead of needing to contact each fellowship individually
Unified deadline of applications and acceptance, similar to orthopedic foot and ankle fellowship timeline
Match process or agreed upon dates for when fellowships will decide on candidates
Standardized interview deadlines, and acceptance deadlines
One deadline date
More standardized application and interview process
I think that the process is fine. It would be nice to have something posted saying whether or not the position has been filled. I have heard that some programs pick fellows a year or 2 in advance
Fellowship programs should require visitation from prospective candidates prior to application deadline
I used the standardized packet and found it helpful
I am satisfied with my application process
Universal application deadline and offer date

Abbreviation: ACFAS, American College of Foot and Ankle Surgeons.

craniofacial surgery, interactions with faculty and staff, interpersonal skills, and overall interview performance (25). Lastly, a study of microsurgery fellowships identified the most important factors as letters of recommendations by microsurgeons, interactions with faculty, overall interview performance in the selection process, and professionalism/ethics (26).

Previous studies have considered the factors related to the satisfaction of residents of podiatric medicine and surgery (27). Similarly, the factors related to the satisfaction of fellows were considered in the present study. While no fellows were dissatisfied with their respective programs, better perceived research, clinical, surgical, and practice management training generally translated to a higher level of satisfaction. Highly satisfied fellows were able to dedicate more hours to

Table 10

Do you have any recommendations for current residents that might help them be better prepared for fellowships?

Fellow responses

Be open to new learning and teaching styles and new opinions. Have an open mind because your training is not necessarily the only or the best way

Apply early and to more than 1 program

Not necessary, but beneficial only if you find one with good surgical volume

Work hard

Start looking at fellowships early in your residency

Shadow before starting

Research and contact fellowships early, show interest, practice interviewing

Know what you want out of a fellowship and what type of practice you hope to have when you are done so that you may better focus your fellowship experiences

Start early, network, do research, know why you want a fellowship

Network as much as possible

Only do a fellowship in what you really have a passion about. Not because it makes you look better on paper

Do a fellowship if you enjoy what you are doing currently

Do research about them and know what you are getting into

Stay in contact with the director of the program you want to go to. If they are involved in a society, then get involved there. If they put on an event, attend that event. Keep reading the latest research

Do not limit yourself to location. Visit as many and as often as you can

Start early, and show interest in your second year

Research the fellowship well. Make sure it is a good fit for you. For example, if there is a large research requirement at the fellowship, but you do not enjoy research, you should look for a different fellowship

Visit in person. Everyone has different views and how they get along with the fellowship leadership and doctors in the program. Go somewhere where you will be happy and treated well.

That kind of learning environment will help you excel and be the best you can be with hard work and integrity

Apply early. Understand fellowships vary in strengths and weaknesses and choose wisely according to what you value most in training

Contact current fellows, be involved with research, graduate from a well-known residency program with respected attendings

Get a good residency that challenges you surgically, clinically, and academically. Stay involved with extras (research, leadership positions, etc.)

Start contacting places and current fellows early, understand the programs expectations for selecting a fellow, know what you want out of the fellowship year... many different kinds of fellowships out there

Due to the lack of standardization getting to know the current/past fellows, and the director early on can really help your chances of acceptance. Often times the fellow is selected more on personality and the potential for a good work relationship, than academic accolades

Visit early, establish connections to a program if you are interested. Get involved with research

Be authentic during the interview. Do not try to impress people too much. Be confident with a touch of enthusiasm

Learn to be a good team player (since you work with a lot of attendings) and have good bedside manner

Start early, talk to a lot of people, understand what you want to get out of a fellowship

Visit early and apply early

Research and visit places

Plan early

Continue to read journals as much as possible. Do not slack off in your third year of residency, scrub into as many cases as possible whether they are big or small. There is always something to be learned

Every fellowship is different. Knowing what you are going to fellowship for is best and then making the best us of your time

Work hard. Have a good attitude

Think of research topics and start right away with data collection; prepare for surgical cases by looking at radiographs; and asking yourself what you would do (instead of being told what to do by attending)

Practice surgical techniques at home as much as possible, and read articles about new developments in surgical techniques

Understand why you are pursuing a fellowship and what you hope to gain from it. Challenge yourself to actively pursue your advanced education rather than relying on the director to do it for you

Apply to fellowships that hone in on the aspects of foot and ankle surgery you enjoy as a resident. Use it as an opportunity to become an expert in that area of podiatry

Set goals for the year and try to find a fellowship that will help accomplish those goals

Decide what goals you want to achieve and apply accordingly

Director responses

Monastic dedication during their fellowship

If you want to do a fellowship, do not do one for the sake of doing any fellowship. Pick a program you are specifically interested in

Know what the program wants and that it fits your expectations

Be smart

Important to visit the program and spend time with the fellowship team

Scrub as many cases as possible

Visit the program. Show interest early and often

Be looking to learn how to make a living

Inquire, visit, familiarize with common procedures and publications. Good residency performance and get along with peers

Look at what the directors' interests are, plan on being prepared with research topics, know the program and talk to the past fellows

Important for them to understand the difference in fellowship accreditation. Important to see the fellowship and where it is housed out of (e.g., a hospital or office)

Complete the best possible residency program that you can

Site visit

Visit the program and spend time with the fellowship director. Appear eager to learn

Find one that is part of a residency. There needs to be structure; academic structure, teaching, access to academics, teaching, students, residents

Take leadership opportunities, give more lectures, pay attention to details

Figure out what limitations you had in your residency program and fill those limitations or deficiencies with your fellowship

Determine a specific career direction related to fellowship discipline

Visit and show early interest

Have a solid idea what you are looking for in a fellowship program and definitely speak with the current or past fellows to get a better perspective on the nature of the program

Hands-on cadaver courses outside of residency publications/presentations outside the required program

Learn everything you can in all disciplines

Visit programs of interest

Have a good idea of what you want to get out of the program and show you have prepared for it up to that point

Strive to learn as much as possible in and out of the program

Do it early

Visit and find a program that matches personal skills and goals

Table 11

Director responses to, “Do you have any advice or tips for other fellowship directors that may help them improve their fellowship programs?”

The way that educators/mentors are gauged is not only by their personal progeny, but by their professional progeny
Do not compromise your expectations. These residents are the best of the best and are fully capable of fulfilling your goals for the program. Have an open collegiate dialogue and collaborate with other directors
Choose wisely
Start research as early as possible because the year goes by very fast
Fellows should be independent practitioners. They should be responsible for their own patients and fully credentialed at the hospital. The idea is to take a step up in independence and leadership and not make it a glorified fourth year of residency
Teach these kids how to make a living
Reach out to ACFAS fellowship committee for assistance as needed
Raise the bar and produce research, publish, and keep the next generation engaged
Explore different funding opportunities
Focus on the fellow and training fellows and not treat the fellow like a cheap associate
Set expectations and goals. Meet regularly
Make academics and teaching a critical part. These fellows should become leader and directors, and need our guidance
Pick a fellow who has good surgical skills, and not make the fellowship equivalent to a fourth year of residency
Make the fellowship as unique as you can. Fellows should be looking for skillsets to obtain, and not just a glorified fourth year of training
Clinic is very important. Impart some of the business knowledge also
Directors should have some type of presentation that potential candidates would have access to that give an idea of the surgical exposure they would encounter with the fellowship faculty
Remember, fellowship year is a unique training year and experience. It is not just cheap labor for a year or just another year of residency
Allow fellows to develop and grow their confidence and provide more individual responsibility
Pick a fellow who is a leader
Speak with other directors and continue to improve the curriculum
Let fellows learn the business of the practice and billing

Abbreviation: ACFAS, American College of Foot and Ankle Surgeons.

research than those that were simply satisfied; they also had fewer call days and were more likely to be satisfied with their program stipend, though these 2 relationships were just short of statistical significance.

Disparities based on gender were also found. Female fellows completed significantly fewer surgical cases per week, and also placed greater importance on biomechanics when selecting a program. The disparity in surgical cases may be explained by the fact that all 4 of the fellows completing research fellowships were female. Still, further consideration of the impact of gender on fellowship training may be worthwhile.

The principal limitation of this study was the variety of fellowships considered. Fellowships that focus on limb salvage, reconstructive surgery, research, sports medicine, trauma, or wound care each have a range of distinct activities and goals. Considering these separately would lead to small subsets, while considering them together yields heterogeneity. Careful consideration of open-ended responses is especially useful in this context, with representation of a diverse range of opinions maintained.

Table 12

Director responses to, “What are some difficulties you have encountered running fellowship program?”

Fellow is not who I thought they would be in terms of effort, skill, performance and drive
Not getting to meet all the applicants prior to interview. I get applicants from all over the country
Funding
No research experience in residency
Funding
Managing expectations of the fellow. Balancing the responsibility of being a fellowship director and many of the other leadership roles I have in our profession. Keeping track of the academic responsibilities of the fellow
Babysitting residents who were underprepared during their residency program
Funding for extra-curricular continuing medical education or courses that fellows want to go to
Establishing original research with institutional review board approval and funding at a Department of Veterans Affairs institution
Teaching vs running a business
Balancing clinical education with teaching billing/coding/office skills
Mostly administrative
Residency program believing fellow would detract from training (opposite occurred)
Fellows can at times be lazy

A second limitation of this study is that the survey was distributed across 2 years. While this helped improve the volume of responses, changes that may have occurred year-over-year could have detracted from the validity of the findings.

Furthermore, survey results may be subject to response bias, with participants perhaps more likely to portray opinions based on how they believe they should be feeling. Nonresponse bias may have also impacted the results, as the directors and fellows who chose to participate in the survey may have had a more critical opinion than those who elected not to participate.

Basement and ceiling effects were also considered as potential limitations. A significant ceiling effect was observed concerning program satisfaction, an effect not anticipated based on the feedback generated during survey development. Just over half of responding fellows identified that they were “very satisfied” with their program ($n = 26, 61.90\%$). Of the 5 possible choices on the satisfaction Likert scale, “very satisfied” represented the highest possible option. This likely affected the quality of the interpretation of factors related to fellow satisfaction, and certain relationships related to fellow satisfaction may not have been captured. Still further, the questionnaire development that we employed for this survey, while based on an understanding of prior questions associated with surveys with similar aims, their reliability was not rigorously tested, and this may have imparted some information bias, despite the face validity of each question.

In conclusion, the results of this study reflect a baseline characterization of fellowships in the field of podiatric medicine. These results may be helpful to podiatric medical students or residents of podiatric medicine and surgery as they consider pursuing a fellowship program. The results may also be helpful for new or current fellowship directors in improving the quality of their respective programs. Future investigations may choose to focus on a specific type of podiatric fellowship, or may seek perspectives from fellowship faculty beyond the program director.

Supplementary Materials

Supplementary material associated with this article can be found in the online version at <https://doi.org/10.1053/j.jfas.2020.06.001>.

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