

Original Research

# Attributes, Attitudes, and Motivations of Personnel Involved with Sports Physical Therapy Residency Training

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### Background

Post-professional residency training in sports physical therapy has undergone rapid growth since its inception over 20 years ago with 58 programs currently accredited.

### Purpose

The purpose of this survey was to describe and contrast the demographics, motivations, and selection influences from the perspective of both potential training applicants and program faculty.

### Study Design

Cross-sectional descriptive survey

### Methods

156 physical therapists identified as stakeholders in sports residency and fellowship training were invited to participate in a 115-item survey. Descriptive measures of central tendencies to describe the data and Mann Whitney Rank Sum tests were used to detect differences between the perspectives of applicants and faculty.

### Results

50 program faculty and 57 applicants responded to the survey for a 69% response rate. Motivations for post-professional training categorized as extremely important were largely intrinsic behavioral modifiers centering on improved knowledge, skills, and outcomes while satisfying a passion for sports specialty training and enhancing job opportunities in the field. 7 of the 10 highest rated application motivations were rated as significantly more important by applicants than faculty members ( $p < 0.05$ ). The two most highly rated influences for choosing to apply to a specific residency site were the perception for subsequent job opportunities and perceived relationship and qualifications with the residency director and staff. The importance of job opportunities in sports PT was rated much higher by the applicant than the faculty ( $p = 0.003$ ).

### Conclusions

While the motivations for residency training may be slightly different between groups the importance of information acquisition and methods for residency selection criteria seem more congruent. Residency faculty may underestimate the importance of some of the most important motivations that prompt interest in residency training. Recognition of these factors may alter the presentation and content design of residency curriculums.

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## INTRODUCTION

Physical therapy residency and fellowship training in the United States is a recognized and promoted path to afford advanced training opportunities in specialty practice areas. The content of the specialty expertise is captured by the description of residency practice and governed by the American Board of Residency and Fellowship Education.<sup>1-7</sup> As of January of 2021 there were 58 accredited sports physical therapy residency programs with an additional 14 programs in a developmental or candidacy status.<sup>8</sup> Additionally, there are nine fellowship training programs relevant to the practice of sports physical therapy (performing arts, upper extremity athlete, and D1 athlete) and three more fellowship programs in the development stage.<sup>8</sup> Residency and fellowship programs exist to improve skill and expertise, provide structured mentoring, expose the trainee to event coverage, and potentially offer an accelerated track to attaining clinical specialist recognition.

In part, the popularity and exponential growth in sports physical therapy residency and fellowship training over the past two decades may be attributable to the opportunity for young, less experienced clinicians to interact with, learn from, and network with like-minded advanced practitioners. What is less clear is what specifically motivates clinicians to pursue this optional, post-professional training in this specific field of physical therapy.<sup>9-11</sup> Even though residents and fellows usually have a high work demand and are compensated at a lower rate, the number of qualified applicants for these training opportunities far exceed the number of positions available.<sup>8</sup> Even more striking is that this strong interest exists despite increasing stress over educational debt and the recognized value of return on investment analysis in regards to debt to income ratios.<sup>12</sup> Despite all these factors, interest in sports physical therapy residency training remains very high. In light of this, programs providing advanced sports physical training often have a deep field of applicants from which to make a candidate selection. It is unclear what motivations, attributes, and attitudes make a residency or fellowship application competitive. It would be advantageous to both the program and applicant to know what characteristics enhance the match between these two entities of interest. Ideally, the application process will maximize the likelihood of the optimal training opportunity being provided by the strengths of particular training program.<sup>11,13-17</sup>

Given the importance of mentorship and direct, collegial communication between the resident and program faculty mentor(s), this study aims to evaluate the characteristics, components, and elements of the residency experience that are important to ensure a good match for both parties.<sup>14,15</sup> The purpose of this study was to describe and contrast the demographics, motivations, and selection influences from the perspective of both potential training applicants and program faculty. This purpose has four principal objectives. First, to better understand the factors that motivate the pursuit of sports residency training and contrast how important these factors are to resident applicants versus faculty providers. Second, to identify factors that influence the match (application to or acceptance of residents to a training program). Third, to identify the importance and pre-

ferred methods to acquire, exchange, and disseminate information about the program between the applicant and provider. And finally, provide insight regarding the factors and criterion used to differentiate and select applicants for residency positions.

## METHODS

An online cross-sectional survey was designed, further described below, to collect information regarding the motivations, attitudes, and attributes of individuals involved with sports physical therapy residency and fellowship education.

## PARTICIPANTS

Two groups of individuals from a sample of convenience were invited via email during May of 2020. All physical therapists listed as residency or fellowship directors on the directory provided by the American Board of Physical Therapy Residency and Fellowship Education (ABPTRFE) website as well as all members of the American Academy of Sports Physical Therapy (AASPT) Specialization special interest group was included.<sup>8,13</sup> Because Residency and Fellowship Physical Therapy Centralized Activation Service (RF-PT-CAS) and the ABPTRFE are prohibited from disseminating personal contact information on residency applicants and graduates we asked these 156 individuals to assist with distributing the invitation link. They were asked to forward the email invitation to all current applicants and all past graduates. The goal was to obtain at least 50 responses from both resident applicant and faculty member categories. This would represent at least an average of two responses from each program accredited at the time of the survey. Based on a 95% confidence level, at least 105 responses (67% response rate) were needed from known invited group members to bring the statistical random sampling margin of error to within  $\pm 5\%$ .

## SURVEY ADMINISTRATION

Study data were collected and managed using REDCap electronic data capture tools hosted at UT Southwestern Medical Center in Dallas, TX. REDCap (Research Electronic Data Capture) is a secure, web-based application designed to support data capture for research studies, providing: 1) an intuitive interface for validated data entry, 2) audit trails for tracking data manipulation and export procedures, 3) automated export procedures for seamless data downloads to common statistical packages, and 4) procedures for importing data from external sources.<sup>18</sup>

The invitation cover letter described the study's purpose, emphasized anonymity through aggregate-only reporting, and stated that voluntary consent was designated by responding to the survey link. The instructions reminded respondents that there were no correct or preferred opinions and that the results would be used by AASPT and ABPTRFE leadership to develop initiatives and services to promote post-professional sports physical therapy education and training. After the initial email was extended, follow-up requests were sent at one and two weeks. The survey was closed when the final invitation did not generate more than

a 10% response increase. Before dissemination, the survey was reviewed and determined to meet exempt criteria by the Institutional Review Board at UT Southwestern Medical Center in Dallas, TX. All responses were anonymous.

## TOOL DEVELOPMENT

The survey tool was initially developed by an AASPT member with 40 years of academic, residency, and sports specialty clinical experience. Previous studies with similar objectives were also used as a reference to inform survey organization and format.<sup>1,9,14,15,19</sup> The initial survey draft was piloted with four AASPT members familiar with post-professional education. Their critique regarding the survey's questions, organization, and readability enhanced the face validity of the content. Based on this collective input, the survey was modified and finalized for distribution. The final data collection instrument was a 116-item questionnaire.

The general categories for data capture on the survey were divided into five sections. For sections two through five, the survey respondent ranked each factor on an ordinal scale from 0-5 ranging from not important to extremely important.

*Section 1:* Twenty-five demographic questions regarding respondent's age, sex, ethnicity, marital status, geographical location, membership status, clinical experience, educational background, credentials, athletic interests, residency/fellowship involvement, and employment title and responsibilities.

*Section 2:* Fifteen items that solicited the applicant's motivations and faculty respondent's perception on the importance of values that motivate the pursuit of residency education and training.

*Section 3:* Forty-five items that solicited the applicants and faculty's opinions on the variables that influence the application and/or acceptance to a specific residency or fellowship training site.

*Section 4:* Eleven items regarding the importance of various methods to acquire, exchange, and disseminate specific details inherent to individual residency programs from the perspective of both applicants and providers

*Section 5:* Thirteen items that solicited opinions regarding factors relevant to the match and selection of a resident to a particular training program.

## DATA ANALYSIS

Measures of central tendencies were derived using a spreadsheet generated from a Microsoft Excel Data Analysis, 2010 package to describe the demographic profile of the respondents. Scores on each item, regardless of section, were calculated from the sum of rating values for each question. Based on distributions of the sum, Mann-Whitney Rank Sum tests from an on-line program at [www.vassarstats.net](http://www.vassarstats.net) were used to detect differences between the perspectives of applicants and faculty with a significance level of  $p < 0.05$  being considered significant.<sup>20</sup> Ordinal rankings of importance were created based on the median percentiles for both groups for each category of assessment. Factors characterized as "not important" were items that ranked in the bot-

tom 20% percentile, mildly important in the 20-39% percentile, moderately important in the 40-59% percentile, very important in the 60-79% percentile, and extremely important in the top 20% percentile.

## RESULTS

The 156 invitations resulted in 157 responses to the survey. Fifty-seven residents or residency applicants and 50 residency/fellowship program faculty members completed the survey for a 69% known response. Fifty additional surveys were received in which the respondent indicated they had not been involved in a residency or fellowship training program as an applicant or faculty member. These responses were not used for the statistical analysis. 71% of all the respondents were male with a mean age of  $33.1 \pm 9.4$ . All were AASPT members and represented 88% of the states with accredited residency programs. As anticipated there was a significant difference between faculty and applicants in regards to age ( $40.0 \pm 9.6$  vs.  $26.9 \pm 2.1$ ;  $p < 0.0001$ ), experience ( $7.7 \pm 9.4$  vs.  $0.25 \pm 0.49$  years;  $p < 0.0001$ ), entry-level professional degree (52% DPT vs 100% DPT), marital status (80% vs. 26% married), and athletic training licensure (34% vs. 14% Athletic Trainer, Certified [ATC]). There was no difference between groups in regards to sex (74% vs 68% male;  $p = 0.62$ ), AASPT membership status (both 100%), race/ethnicity (both 94% white of those reporting), personal competitive athletic background (both 100%), Certified Strength and Conditioning Specialist credential (CSCS) (44% vs 40%) or perception in ideal clinical productivity ( $30.2 \pm 12.7$  vs.  $29.4 \pm 11.5$  daily units charged;  $p = 0.65$ ). (Table 1)

Table 2 details the importance of the factors that may motivate the pursuit of residency education and training. Of the 15 factors surveyed, eight were rated as significantly more important to the resident than to the program faculty ( $p \leq 0.03$ ). This included seven of the 10 most important factors. Motivations that were rated as extremely important by both parties included the acquisition of clinical skills, knowledge, and critical thinking under the guidance of an accomplished mentor while fulfilling a personal passion and desire to practice in the sports physical therapy field.

Table 3 details the applicant's and faculty's opinions on what variables influence the application and/or acceptance to a specific residency or fellowship training site. Of the 45 variables surveyed there were four rated as significantly more important to the resident/fellow applicant than to the program faculty and four additional variables that were significantly more important to the program faculty than resident/fellow applicants. The only variable rated as extremely important was the potential for future job opportunities by the resident ( $4.32$  vs  $3.81$ ;  $p < 0.003$ ).

Multiple other factors were rated as very important in influencing an applicant to apply to or accept an offer from a particular program with a premium on the overall perception from the interview experience in regards to the faculty's qualifications, stability, and mentoring abilities. Additionally, the clinic infrastructure, learning opportunities, and ability to work in specific sports were highly valued. The variables rated more important to the resident than the program faculty were the future job opportunities, a preference for an academic environment with teaching oppor-

**Table 1. Demographic characteristics of survey respondents**

Demographic Characteristic	Residents/Applicants (n=57)	Directors/Faculty (n=50)
Age (mean $\pm$ SD) (range)	26.9 $\pm$ 2.1 (24-33)	40.0 $\pm$ 9.6 (29-72)
Sex	39 male; 18 female	37 male; 13 female
APTA member (% yes)	57/57 (100%)	50/50 (100%)
AASPT member (% yes)	57/57 (100%)	50/50 (100%)
Race	50 White (not of Hispanic origin) 4 (Asian or Pacific Islander) 2 Hispanic/Latino 1 Other	47 White (not of Hispanic origin) 2 Hispanic/Latino 1 Asian or Pacific Islander
Marital Status	42 single (74%) 15 married (26%)	40 married (80%) 7 single (14%) 1 divorced (2%) 1 widowed (2%) 1 prefer not to answer (2%)
Physical Therapy School Location	23 unique states	21 unique states
Experience (yrs) (mean + SD) (range)	0.25 $\pm$ 0.49 (0-2)	7.7 $\pm$ 9.4
Entry Level Degree	57 DPT (100%)	26 DPT (52%) 17 Masters (34%) 6 Baccalaureate (12%) 1 Certificate (2%)
Highest Degree	57/57 no further degrees (100%)	42 no further degrees (84%) 9 tDPT (18%) 6 Post-Doctoral (12%)
Personal Competitive Athletic Background	57/57 (100%)	50/50 (100%)
Youth Athlete High School Athlete Collegiate Athlete Professional Athlete	43/57 (75%) 34/57 (60%) 31/57 (54%) 2/57 (4%)	38/50 (76%) 28/50 (56%) 26/50 (54%) 1/50 (2%)
Possess Additional Relevant Certifications	27/57 (47%)	45/50 (90%)
% of each	8/57 (14%) ATC 23/57 (40%) CSCS 2/57 (3%) OCS 0/57 (0%) FAAOMPT	17/50 (34%) ATC 22/50 (44%) CSCS 16/50 (32%) OCS 3/50 (6%) FAAOMPT
Job Title	36/57 (63%) Resident/Fellow 12/57 (21%) Staff Clinician 5/57 (9%) Student Physical Therapist 4/57 (7%) Other	17/50 (34%) Supervisor/Director 16/50 (32%) Staff Clinician 13/50 (26%) Faculty 4/50 (8%) Administrator/Manager/ Owner
Number of Residency Applications Submitted	4.6 $\pm$ 2.3	Not applicable

APTA – American Physical Therapy Association

AASPT – American Academy of Sports Physical Therapy

DPT – Doctor of Physical Therapy

tDPT – Transitional Doctor of Physical Therapy

ATC – Athletic Trainer, Certified

CSCS – Certified Strength and Conditioning Specialist

OCS – Orthopedic Clinical Specialist

FAAOMPT – Fellow of the American Academy of Orthopedic Manual Physical Therapists

tunities, and the potential for supplemental learning opportunities beyond didactic accreditation requirements ( $p \leq 0.02$ ). Conversely, there were four variables rated as significantly more important by faculty than resident/fellow applicant respondents. Two such factors that were rated as very important included the regional and/or national reputation of the program ( $p = 0.001$ ) as well as the program's

historical passing rate on the sport's specialty ( $p = 0.02$ ) examination. Faculty also overestimated the importance of the geographical location of the residency as well as the needs, desires, and preferences of their spouse or significant other ( $p \leq 0.01$ ). Although only rated as somewhat important, faculty also assigned more importance to post-interview follow-up or contact by the program ( $p = 0.001$ ).

**Table 2. Values that motivate the pursuit of residency education and training**

Parameter	Group	Categorical Ranking Importance Range	Median Category	Mean	p-value
Gain knowledge, skills, and expertise in the practice of sports physical therapy	Residents	VI - EI	EI	4.83 ± 0.38	0.31
	Faculty	SI - EI	EI	4.79 ± 0.46	
Enhance clinical reasoning and critical thinking skills	Residents	VI - EI	EI	4.81 ± 0.40	0.02*
	Faculty	SI - EI	EI	4.58 ± 0.58	
Fulfill passion and desire to practice sports physical therapy	Residents	VI - EI	EI	4.77 ± 0.42	0.32
	Faculty	SI - EI	EI	4.66 ± 0.52	
Enhance the ability to examine, diagnose, prognose, and improve patient outcomes	Residents	SI - EI	EI	4.60 ± 0.62	0.02*
	Faculty	SI - EI	VI	4.33 ± 0.69	
Enhance career advancement and future job opportunities	Residents	MI - EI	EI	4.56 ± 0.71	0.02*
	Faculty	SI - EI	VI	4.31 ± 0.68	
Access to an accomplished mentor to provide feedback and boost confidence	Residents	MI - EI	EI	4.52 ± 0.73	0.33
	Faculty	MI - EI	EI	4.54 ± 0.62	
Enhance the ability to use current best evidence patient management strategies	Residents	SI - EI	EI	4.51 ± 0.66	0.03*
	Faculty	SI - EI	VI	4.29 ± 0.69	
Enhance future leadership opportunities within the field of sports physical therapy	Residents	MI - EI	VI	4.12 ± 0.81	0.001*
	Faculty	MI - EI	VI	3.76 ± 0.72	
Validate a commitment to lifelong learning	Residents	NI - EI	VI	4.09 ± 0.1.08	0.01*
	Faculty	MI - EI	VI	3.73 ± 0.96	
Contribute to the evolution of the physical therapy profession	Residents	NI - EI	VI	4.04 ± 0.93	0.02*
	Faculty	NI - EI	VI	3.54 ± 0.90	
Fast track to sports specialization credential	Residents	NI - EI	VI	3.60 ± 0.1.35	0.18
	Faculty	MI - EI	VI	4.09 ± 0.86	
Enhance the ability to conduct and interpret research	Residents	NI - EI	SI	3.47 ± 0.97	0.05*
	Faculty	MI - EI	SI	3.20 ± 0.71	
Enhance the potential for future income	Residents	NI - EI	SI	3.40 ± 0.1.10	0.32
	Faculty	MI - EI	SI	3.41 ± 0.89	
Gain recognition from physicians or other types of sports healthcare providers	Residents	NI - EI	SI	3.23 ± 1.12	0.35
	Faculty	MI - EI	SI	3.29 ± 0.89	
Gain recognition from other physical therapists	Residents	NI - EI	SI	2.93 ± 1.09	0.31
	Faculty	MI - EI	SI	3.20 ± 0.76	

EI: Extremely important VI: Very Important SI: Somewhat Important MI: Mildly Important NI: Not Important

\*  $p < 0.05$ 

Table 4 details the perceived value of 11 methods to acquire exchange and disseminate information about residency and fellowship programs. Both cohorts found the interview day to be the most important mechanism to reveal specific details inherent to individual residency programs. Other areas rated as very important included access to the program director's phone number and email contact, web site content, RF-PTCAS synopsis and links, and potential contact with previous or current residents or fellows. The opportunity for applicants to contact previous or current residents was rated significantly higher by faculty than applicants ( $p = 0.04$ ). Providing printed materials with resi-

duency program information was rated significantly lower by the applicant than the faculty ( $p = 0.04$ ).

The most consistent area of agreement between faculty and applicant respondents was in the area of factors that are important to the match and selection of a resident to a particular training program. Two areas that were rated as extremely important by both groups were the interview performance and letters of recommendation. There was also concurrence at the other end of the importance spectrum with the past and future geographical location preferences rated as minimally important. The one area in which there was a difference in opinion was the perception of the like-

**Table 3. Variables that influence the application and/or acceptance to a specific residency or fellowship training site**

Parameter	Group	Categorical Ranking Importance Range	Median Category	Mean	p-value
Future job opportunities	Residents	MI - EI	EI	4.32 ± 1.04	0.003*
	Faculty	MI - EI	VI	3.81 ± 0.94	
Perceived relationship between resident(s) and program director/faculty	Residents	MI - EI	VI	4.30 ± 0.85	0.2
	Faculty	MI - EI	VI	4.19 ± 0.70	
Impression and qualifications of residency program faculty and clinical personnel	Residents	MI - EI	VI	4.05 ± 0.72	0.27
	Faculty	MI - EI	VI	4.21 ± 0.71	
Advice from trusted mentor or colleague	Residents	MI - EI	VI	4.04 ± 0.80	0.18
	Faculty	MI - EI	VI	4.27 ± 0.71	
Overall interview experience	Residents	MI - EI	VI	4.00 ± 0.87	0.32
	Faculty	MI - EI	VI	4.19 ± 0.64	
Perceived stability of department or clinic that is sponsoring residency program	Residents	NI - EI	VI	3.96 ± 1.03	0.06
	Faculty	NI - EI	VI	3.79 ± 0.98	
Additional or supplemental learning opportunities made available and/or required (continuing ed classes, grand rounds, journal clubs, etc)	Residents	MI - EI	VI	3.93 ± 1.05	0.02*
	Faculty	NI - EI	VI	3.66 ± 0.89	
Impression and qualifications of residency program director	Residents	NI - EI	VI	3.86 ± 0.83	0.49
	Faculty	MI - EI	VI	3.94 ± 0.86	
Personal interactions (in person or electronic) with previous and/or current residents	Residents	NI - EI	VI	3.84 ± 1.08	0.06
	Faculty	MI - EI	VI	3.73 ± 0.68	
Clinic infrastructure, organization, space, and equipment	Residents	MI - EI	VI	3.82 ± 0.95	0.40
	Faculty	MI - EI	VI	3.98 ± 0.73	
Access to and/or interaction with physicians (clinics, rounds, surgery observation, etc)	Residents	NI - EI	VI	3.82 ± 0.91	0.26
	Faculty	MI - EI	VI	3.77 ± 0.90	
Opportunity to work with a specific type of sport or activity	Residents	NI - EI	VI	3.79 ± 1.25	0.29
	Faculty	MI - EI	VI	4.06 ± 0.92	
Access to and/or interaction with other health care professionals	Residents	NI - EI	VI	3.79 ± 0.98	0.18
	Faculty	MI - EI	VI	3.71 ± 0.90	
Residency is designed or embedded within an academic environment or university setting	Residents	NI - EI	VI	3.79 ± 1.26	0.001*
	Faculty	NI - EI	SI	3.17 ± 1.12	
The format, methods, and content of the didactic curriculum that accompanies the residency	Residents	MI - EI	VI	3.67 ± 0.87	0.37
	Faculty	NI - EI	VI	3.65 ± 0.96	
Opportunities for teaching physical therapy students or other health care professionals during the residency program	Residents	NI - EI	VI	3.65 ± 1.33	0.02*
	Faculty	NI - EI	SI	3.34 ± 0.98	
Program's affiliation with a specific sports team	Residents	NI - EI	VI	3.58 ± 1.13	0.24
	Faculty	NI - EI	VI	3.96 ± 0.81	
Regional and/or national reputation of program	Residents	NI - EI	VI	3.56 ± 1.05	0.001*
	Faculty	MI - EI	VI	4.17 ± 0.83	
Patient caseload diagnostic diversity and/or emphasis	Residents	NI - EI	VI	3.49 ± 1.18	0.34
	Faculty	NI - EI	VI	3.56 ± 0.92	
Perceived camaraderie or current or past residents	Residents	NI - EI	VI	3.38 ± 1.09	0.45
	Faculty	NI - EI	SI	3.46 ± 0.74	

Parameter	Group	Categorical Ranking Importance Range	Median Category	Mean	p-value
Program's historical passing rate for the sports specialty exam	Residents	NI - EI	VI	3.35 ± 1.32	0.02*
	Faculty	NI - EI	VI	4.00 ± 1.08	
Opportunities for participating in research activities during the residency program	Residents	NI - EI	SI	3.19 ± 1.23	0.34
	Faculty	NI - EI	SI	3.17 ± 0.88	
Projected daily/weekly caseload (productivity expectation)	Residents	NI - EI	SI	3.09 ± 1.24	0.17
	Faculty	NI - EI	SI	3.35 ± 0.84	
Clinic hours (daily schedule, hours of operation, hours/week of work, etc)	Residents	NI - EI	SI	3.05 ± 1.26	0.49
	Faculty	NI - EI	SI	3.19 ± 0.89	
Salary offered by residency program	Residents	NI - EI	SI	3.05 ± 1.06	0.12
	Faculty	MI - EI	SI	3.35 ± 0.81	
Benefits package available to residents (insurance, retirement plan, continuing education, vacation, sick leave, etc)	Residents	NI - EI	SI	3.04 ± 1.21	0.12
	Faculty	MI - EI	SI	3.38 ± 0.82	
Geographic location of the residency	Residents	NI - EI	SI	3.04 ± 1.40	0.01*
	Faculty	MI - EI	SI	3.53 ± 0.86	
Extent and availability of library and professional journal resources	Residents	NI - EI	SI	2.98 ± 1.27	0.25
	Faculty	NI - EI	SI	2.88 ± 1.02	
Residency is designed or embedded within a clinical environment in the community	Residents	NI - EI	SI	2.96 ± 1.30	0.26
	Faculty	NI - EI	SI	2.96 ± 0.97	
Placement in subsequent fellowship or advanced training programs	Residents	NI - EI	SI	2.96 ± 1.46	0.37
	Faculty	NI - EI	SI	2.93 ± 1.35	
Needs, desires, or preferences of spouse or significant other	Residents	NI - EI	SI	2.95 ± 1.29	0.001*
	Faculty	NI - EI	SI	3.30 ± 1.12	
Perceived favorable training environment for women	Residents	NI - EI	SI	2.93 ± 1.77	0.14
	Faculty	NI - EI	SI	3.23 ± 1.48	
Perceived favorable training environment for minorities	Residents	NI - EI	SI	2.93 ± 1.77	0.11
	Faculty	NI - EI	SI	3.21 ± 1.48	
Residency is designed in a collaborative model between an academic institution and a private clinic partner(s).	Residents	NI - EI	SI	2.92 ± 1.60	0.22
	Faculty	NI - EI	MI	2.61 ± 1.27	
Length of residency training program	Residents	NI - EI	SI	2.91 ± 1.25	0.24
	Faculty	NI - EI	SI	3.28 ± 0.80	
Characteristics of the area in which the residency is located (urban vs suburban vs rural, social atmosphere, recreational opportunities, etc)	Residents	NI - EI	SI	2.84 ± 1.21	0.43
	Faculty	NI - EI	SI	3.00 ± 0.92	
Post-interview follow-up or contact by the program (perceived likelihood of acceptance)	Residents	NI - EI	MI	2.49 ± 1.29	0.04*
	Faculty	NI - EI	SI	3.04 ± 1.09	
Cost of living in the city where the residency resides	Residents	NI - EI	SI	2.40 ± 1.13	0.001*
	Faculty	NI - EI	SI	2.96 ± 0.74	
Emphasis on local, state, and/or national APTA membership and involvement	Residents	NI - EI	MI	2.39 ± 1.05	0.41
	Faculty	NI - EI	MI	2.46 ± 0.94	
Residency accepts at least two residents in each cohort	Residents	NI - EI	MI	2.35 ± 1.52	0.46
	Faculty	NI - EI	MI	2.55 ± 1.39	
Opportunity to pursue additional degrees or certifications at the institution	Residents	NI - EI	MI	2.13 ± 1.26	0.45
	Faculty	NI - EI	MI	2.33 ± 1.16	

Parameter	Group	Categorical Ranking Importance Range	Median Category	Mean	p-value
Tolerance and allowances regarding remediation policies	Residents	NI - EI	NI	2.12 ± 1.39	0.17
	Faculty	NI - EI	MI	2.15 ± 0.99	
Opportunity, availability, and/or allowance for supplemental moonlighting work	Residents	NI - EI	NI	1.77 ± 1.18	0.25
	Faculty	NI - EI	MI	1.95 ± 1.10	
Residency accepts only one resident for each cohort	Residents	NI - EI	NI	1.47 ± 0.98	0.12
	Faculty	NI - EI	MI	1.95 ± 1.14	
Opportunity for part-time and/or reduced-pace program	Residents	NI - EI	NI	1.38 ± 0.95	0.18
	Faculty	NI - EI	MI	1.74 ± 1.13	

EI: Extremely important VI: Very Important SI: Somewhat Important MI: Mildly Important NI: Not Important  
 \* p ≤ 0.05

**Table 4. Importance of various methods to acquire, exchange and disseminate residency program information**

Parameter	Group	Categorical Ranking Importance Range	Median Category	Mean + SD	p-value
Interview Day	Residents	MI - EI	EI	4.45 ± 0.74	0.41
	Faculty	MI - EI	EI	4.40 ± 0.84	
Email contact with program director and/or faculty	Residents	NI - EI	VI	4.11 ± 0.99	0.16
	Faculty	MI - EI	VI	4.30 ± 0.72	
Phone contact with program director and/or faculty	Residents	MI - EI	VI	4.06 ± 1.13	0.18
	Faculty	MI - EI	VI	4.27 ± 0.79	
Program's Website	Residents	NI - EI	VI	3.93 ± 1.02	0.27
	Faculty	MI - EI	VI	3.92 ± 0.77	
Contact with previous/current residents	Residents	NI - EI	VI	3.80 ± 1.12	0.04*
	Faculty	MI - EI	VI	4.30 ± 0.71	
RFPTCAS information and links	Residents	NI - EI	VI	3.61 ± 1.12	0.46
	Faculty	MI - EI	VI	3.71 ± 0.80	
Participation in the match day notification process	Residents	NI - EI	SI	3.24 ± 1.58	0.17
	Faculty	NI - EI	SI	2.69 ± 1.40	
CSM TeamMates reception	Residents	NI - EI	SI	2.80 ± 1.28	0.47
	Faculty	NI - EI	SI	2.80 ± 1.13	
Social Media (Facebook, Twitter, etc)	Residents	NI - EI	SI	2.50 ± 1.14	0.14
	Faculty	NI - EI	SI	2.91 ± 1.05	
Printed Materials or Brochures from the program	Residents	NI - EI	MI	2.31 ± 1.26	0.04*
	Faculty	NI - EI	SI	2.64 ± 0.89	
Online blogs, internet sites, chat rooms	Residents	NI - EI	MI	2.18 ± 1.21	0.30
	Faculty	NI - EI	SI	2.43 ± 0.89	

EI: Extremely important VI: Very Important SI: Somewhat Important MI: Mildly Important NI: Not Important  
 \* p ≤ 0.05

likelihood of post-residency employment retention as being an influential factor in decision-making (p = 0.01) (Table 5)

## DISCUSSION

The results of the survey give preliminary insights into the

**Table 5. Factors and criterion that are important to the match and selection of a resident to a specific residency/fellowship program.**

Parameter	Group	Categorical Ranking Importance Range	Median Category	Mean	p-value
Interview performance	Residents	SI - EI	EI	4.70 ± 0.50	0.32
	Faculty	SI - EI	EI	4.78 ± 0.47	
Letters of recommendation	Residents	MI - EI	EI	4.47 ± 0.66	0.15
	Faculty	SI - EI	EI	4.33 ± 0.75	
Future career goals	Residents	MI - EI	VI	4.28 ± 0.82	0.13
	Faculty	MI - EI	VI	4.12 ± 0.86	
Content of application essay(s)	Residents	MI - EI	VI	4.21 ± 0.75	0.37
	Faculty	MI - EI	VI	4.18 ± 0.78	
PT school clinical rotation and/or previous job performance	Residents	MI - EI	VI	3.84 ± 0.77	0.35
	Faculty	MI - EI	VI	3.80 ± 0.89	
Previous certifications, licenses, credentials, or specific work experience	Residents	MI - EI	VI	3.67 ± 0.91	0.43
	Faculty	NI - EI	VI	3.69 ± 0.87	
Previous relationship with program and/or faculty	Residents	NI - EI	VI	3.54 ± 1.10	0.28
	Faculty	NI - EI	VI	3.49 ± 1.06	
Past research accomplishments and/or expressed interest in conducting research	Residents	MI - EI	SI	3.33 ± 0.81	0.24
	Faculty	NI - EI	SI	3.25 ± 0.78	
Reputation of physical therapy school attended	Residents	NI - EI	SI	3.21 ± 1.08	0.06
	Faculty	NI - EI	SI	2.98 ± 0.90	
Involvement in local, state, or national professional organizations	Residents	MI - EI	SI	3.19 ± 0.81	0.45
	Faculty	MI - EI	SI	3.30 ± 0.75	
Previous continuing education experiences	Residents	NI - EI	SI	3.07 ± 0.87	0.26
	Faculty	NI - VI	SI	2.96 ± 0.79	
Likelihood of employment retention post residency	Residents	NI - EI	SI	2.98 ± 1.37	0.01*
	Faculty	NI - EI	MI	2.41 ± 1.15	
PT school class rank (GPA and/or transcript findings)	Residents	NI - EI	SI	2.88 ± 1.10	0.11
	Faculty	NI - VI	SI	2.67 ± 0.94	
Pro bono or community service record	Residents	NI - EI	SI	2.79 ± 0.94	0.49
	Faculty	NI - EI	SI	2.82 ± 0.78	
Geographical location preference for future employment	Residents	NI - EI	SI	2.64 ± 1.23	0.08
	Faculty	NI - EI	MI	2.33 ± 1.11	
Geographical background/heritage	Residents	NI - EI	MI	2.04 ± 1.21	0.12
	Faculty	MI - VI	MI	1.73 ± 0.82	

EI: Extremely important VI: Very Important SI: Somewhat Important MI: Mildly Important NI: Not Important

\*  $p < 0.05$ 

attributes, attitudes, motivations, and values of applicants to sports physical therapy residency and fellowship programs and contrast these perspectives with the perceptions of the faculty members who provide these training experiences. The survey respondents appear to be representative of the subjects of interest and their demographic characteristics are representative of the AASPT membership and other research projects of similar intent.<sup>4-8,14,15,17</sup>

The variables that influence a decision to pursue sports

physical therapy residency and specialization credential have remained relatively consistent over the past 20 plus years.<sup>16,17</sup> It appears that applicant's impetus to pursue residency training is intrinsically driven as they demonstrate autonomous motivations that fully endorse and show commitment to training for the sake of training. They pursue residency opportunities to access accomplished mentors who will enhance their abilities to think, reason, and appropriately apply evidence in their decision-making in a

specific discipline in which they can establish a professional network of colleagues. The applicants appear to value personal growth, achievement, and knowledge acquisition that will benefit both their athletic patients and the profession in which they serve. They are less inspired by externally controlled rewards such as titles, recognition from other health care providers, or the capacity for improving their future salary compensation package. These factors are very consistent with the findings of Gusman et al and Osborne et al from broader surveys of physical therapy residency applicants.<sup>9,10</sup>

Although only ranked at the “very important” level, residency/fellowship applicants rated the development of their future leadership skills, the establishment of life-long learning habits, and contributions to the evolution of sports physical therapy at a significantly higher level of importance than was perceived by program faculty. This finding offers further evidence to endorse the intrinsic behavioral nature that stimulates interest and commitment to residency or fellowship training in these post-professional learners.<sup>9,10,21</sup>

The results of this survey offer keen insight to program directors, coordinators, and faculty as to what specific types of training opportunities are valued by applicants. While the applicants do not seem to be as concerned by the level of salary compensation they do seem to visualize residency training programs as a means to identifying and finding future job opportunities in the field. The job opportunities specific to sports physical therapy, particularly at the highest levels of competition (collegiate and professional environments), are limited and it appears that training applicants view advanced training as a means to be familiar with the landscape, access the influential decision-makers, and acquire the skills necessary to be viable in this relatively narrow field of job opportunities. This factor was the only motivation rated as “extremely important” by the applicant cohort. This finding is consistent with the finding of Briggs et al that identified that employers rate residency and fellowship-trained clinicians superior in the domains of leadership, communication, clinical aptitude, scholarship, and teaching.<sup>14</sup> Residency faculty should be cognizant of this variable and ensure that the training circumstance they provide is consistent with the applicant’s future employment aspirations.

Other incentives that were rated significantly higher by applicants as a rationale for applying to a particular residency program centered on educational opportunities. Resident applicants highly valued a residency program housed within an academic institution with ample opportunity for supplemental learning activities and the chance to teach. It is unclear if this tendency was influenced by the nature of the survey items or if the invitations to potential applicants were biased by a larger percentage of academic education providers encouraging participation. However, this sentiment is consistent with the findings of Hartley et al in their survey of applicants from a variety of specialty disciplines in physical therapy.<sup>11</sup>

Motivations that may have been overrated by program faculty as a rationale for application to a particular program included the perceived reputation of the program, the program’s past specialty examination pass rate, the geographi-

cal location of the program, and the needs/desires of the applicant’s significant other. The considerations for location and needs of a significant other may be mitigated by the fact that the typical residency training commitment is only for one year and many applicants and their spouses may be young enough to not yet have established familial or occupational roots in a particular community. While still rated as “very important” by applicants, residency faculty may be surprised by the comparatively lower significance assigned to program reputations and exam pass rates. The extremely high historical pass rates for all residency program graduates and high accreditation benchmarks may assure applicants that all programs have high standards and successful examination outcomes.

Analysis of the results highlighted other areas that both cohorts concur to be of higher importance in identifying desirable training opportunities. These include the recognition of a kindred connection with program faculty who possess exemplary qualifications and experience. Additionally, it appears that the applicant’s personal network of advice from respected mentors and colleagues is valued more than the general reputation of a particular program. Variables that seem to have little influence on a training site’s appeal include the availability of part-time participation, the number of other residents in the training cohort, the ability to moonlight during residency, or the future educational training opportunities at the residency institution.

To make intelligent decisions on where to apply or accept post-professional training opportunities it is necessary to acquire, exchange, and disseminate information between the training sites and the potential applicant candidates. The survey results indicate that both cohorts have similar perspectives on the most effective ways to communicate program information. Both groups valued email and phone contact with program personnel as influential in deciding where to apply and using the interview day to clarify how well the needs of both entities could be met. The face-to-face interaction, typically offered on an interview day, was rated as extremely important in helping each party decide upon the suitability of the applicant and the congruency of the desired learning opportunity. The survey did not evaluate the benefit or impact of the Mobilize platform provided by the AASPT web site to help inform applicants of the unique characteristics inherent to each residency training program as it was not available at the time of the investigation. It is likely this vehicle will become a valuable repository of residency program information that will be beneficial to all sports physical therapy academy members.

The final section of the survey evaluated which factors and criteria are influential in matching residents to programs. In all but one instance, the resident and faculty cohorts agreed on the importance of each potential selection criterion. The variables that were rated by both groups as “extremely important” could be divided into factors that helped the applicant get an interview and the criterion that was used to distinguish which of those interviewed were offered residency employment. Letters of recommendation from applicant’s faculty, clinical instructors, and previous employers along with the content of their essay question responses were highly rated as a means to identify applicants that could be successful in a given program. The ap-

plicant interview performance, previous relationships with program faculty, and personal certifications, licenses, and experience all were important in honing the application field down to those who receive an appointment offer. The one item in which residents perceived the program would rate as more important was the likelihood of the resident staying with the institution after the conclusion of their training. This finding would indicate that programs do not necessarily view residency training programs as an employee retention tool although the nature of this study design cannot be conclusive in this perspective.

Despite an array of noteworthy findings, this descriptive study is not without limitations. While the survey appears to be comprehensive in scope it is possible that influential characteristics, factors, or criteria were not evaluated. Additionally, the applicant cohort included all respondents who indicated they had applied to a residency program independent of acceptance or completion of the program. Similarly, the program cohort represented both program directors and faculty. In both cases, no attempt was made to distinguish the perspectives of the different types of survey respondents assigned to each group. Also, the survey did not identify the type of sponsoring programs (hospital-based, academic, private-practice, etc) so it is not possible to generalize these findings to a specific type of organizational structure. Additionally, the nature of the survey did not allow the respondents to request clarifications on survey questions which allows for the possibility of some items being erroneously interpreted by the respondent. While the response rate of 69% is high, it does not represent all programs and has a 5% margin of error. It is also important to note that these results only reflect the perspectives of personnel involved with sports physical therapy post-professional training. Consequently, the results of this survey should not be generalized to other specialty disciplines accredited by the ABPTRFE. As the purpose of the project was exploratory, it should be noted that Bonferonni correction for multiple comparisons were not conducted so there is a likelihood that many, if not all, of the factors may not represent significant differences between applicant and faculty cohorts.

## CONCLUSION

Post-professional residency and fellowship training appears to be a relationship-focused interaction. Both faculty and applicants value direct communication and acknowledge the importance and worth of mentorship-based communications and the establishment of long term network relationships. Sports resident applicants are particularly motivated by the opportunity to make connections in a niche field of practice and perceive residency and fellowship training as means by which to enhance their employability in a competitive job market.

While the motivations for residency training may be slightly different between residency provider and recipient cohorts the importance of information acquisition and methods for residency selection criteria seem quite congruent. However, residency faculty may underestimate the importance of some of the most important motivations that prompt interest in residency training. Chief among these motivations is the intrinsic catalyst for learning. Recognition of these factors may affect how residency program content and experiences are constructed and delivered.

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## CONFLICTS OF INTEREST

I declare that I do not have any conflicts of interest in the authorship or publication of this contribution.

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