

ORIGINAL RESEARCH

COMPETENCY REVALIDATION STUDY OF SPECIALTY PRACTICE IN SPORTS PHYSICAL THERAPY

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ABSTRACT

Purpose. The primary purpose of this study was to revalidate the competencies that define the practice of sports physical therapy. Additionally, the study allowed for the comparison of responses of board certified specialists in sports physical therapy to respondents who were not specialists.

Methods. A survey instrument based the on American Board of Physical Therapy Specialties practice analysis template and The Guide to Physical Therapist Practice was developed by the Sports Specialty Council and a panel of subject matter experts in sports physical therapy. The instrument was sent to 630 physical therapists, 315 of whom were board certified specialists in sports physical therapy and 315 of whom were randomly selected members of the Sports Physical Therapy Section who were not board certified specialists in sports physical therapy. Two hundred and thirty seven subjects returned completed surveys for a 41% response rate. One hundred and fifty eight respondents were sports specialists

Results. The survey results were reviewed by the Sports Specialty Council and another panel of subject matter experts. Using a defined decision making process, the results were used to determine the competencies that define the specialty practice of sports physical therapy. Survey results were also used to develop the sports physical therapy specialty board examination blue print. A number of significant comparisons between the specialists and non-specialists were identified.

Conclusion. The competency revalidation process culminated in the publication of the Sports Physical Therapy Description of Specialty Practice. This document serves to guide the process related to the attainment and maintenance of the board certified clinical specialist in sports physical therapy.

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INTRODUCTION

The sports physical therapist working in today's challenging clinical environment has numerous responsibilities. They are required to perform a thorough examination and evaluation, identify a diagnosis and prognosis, and successfully implement appropriate interventions for the athlete. The sports physical therapist must also accurately determine the anticipated or expected outcomes for an athlete following an injury. Additionally, they serve a critical role in the education of coaches, parents, and administrators regarding prevention of injury and enhancement of performance.¹

Specialist certification exists to provide formal recognition for sports physical therapists who possess advanced clinical knowledge, experience, and skills in these areas. In 1978, the American Physical Therapy Association (APTA) identified this process by which physical therapists with advanced knowledge could be formally recognized as certified clinical specialists in their respective areas of specialization.² The first four areas of specialization in physical therapy, cardiopulmonary, neurology, orthopedics, and pediatrics, were recognized that same year. Historically, the Board for Certification of Advanced Clinical Competency (BRACC) was the governing body that oversaw the administration and development of the specialization process. In 1985, the BRACC was replaced by the American Board of Physical Therapy Specialties (ABPTS).¹

The Sports Physical Therapy Section initially began work on the clinical specialization process in the mid-1970s with the creation of advanced clinical competencies and completion of a task analysis. Through this process, 18 advanced competency statements were developed and in 1981, the Sports Physical Therapy Section petitioned the BRACC for recognition as a specialty area. The House of Delegates approved sports physical therapy as an area of specialization the same year.³ Subsequently, those therapists meeting the required criteria for this distinction were recognized as certified sports clinical specialists.

After approval from the House of Delegates as an area of specialization, a second major study was conducted to validate the original competency statements. This validation study was completed in 1984 and guided the development and implementation of the examination used to identify clinical specialists in sports physical therapy from 1986-1994.^{4,5}

The ABPTS requires that each specialty area revalidate its competencies every 10 years to determine if any changes in the scope of practice have occurred. The Sports Specialty Council completed a revalidation study in 1992 and this study identified 30 different competency statements in 9 different areas. The results of the 1992 revalidation study were used to create the Description of Advanced Clinical Practice (DACP) and to identify the competencies that would be assessed by the certification process.¹ By defining the competencies related to the practice of sports physical therapy, the DACP provided interested individuals with a template for self-assessment in determining their readiness to engage in the certification process.

In 2001, a second revalidation study of specialty practice was initiated. The purposes of this revalidation study were to assess the currency of competency statements regarding the practice of sports physical therapy and to develop a new Sports Physical Therapy Description of Specialty Practice (DSP) to replace the DACP. In addition to updating the description of the practice of sports physical therapy, per the ABPTS defined template, the DSP was to be consistent with the Guide to Physical Therapist Practice, 2nd edition.⁶ The survey was created in 2001, piloted and revised, and the final survey was distributed in 2002. In the spring of 2003, members of a subject matter expert group and members of the Sports Physical Therapy Specialty Council met to discuss the results of the survey and to write the DSP.

The primary purpose of the 2001 study was to revalidate the competencies related to the specialty practice of sports physical therapy. Additionally, the study allowed for the comparison of responses of board certified specialists in sports physical therapy to respondents who were not specialists.

A full description of each competency can be found in the document entitled "Sports Physical Therapy Description of Specialty Practice"⁵. This document is available from the Department of Specialist Certification, American Physical Therapy Association.

METHODS

Practice Analysis Overview

The Sports Specialty Council was responsible for carrying out the practice analysis within the guidelines developed by the ABPTS. The analysis was designed to define the

professional practice behaviors and knowledge areas in the practice domain of sports physical therapy specialists. The initial step in the practice analysis was development of a survey questionnaire which was undertaken by the Sports Specialty Council in collaboration with an ABPTS appointed consultant and an subject matter expert group in sports physical therapy. The supporting documents used to develop the questionnaire included the 1994 DACP,⁷ the Guide to Physical Therapist Practice,⁶ and the ABPTS approved survey instrument template.

The initial form of the practice analysis questionnaire was piloted on a group of 30 specialists who were selected by the subject matter expert panel from a list provided by the Sports Specialty Council. Pilot data helped clarify the current competencies and identify new ones. The final version of the survey questionnaire consisted of 171 items, 128 of which asked the participant to respond to that item on 3 different scales.

The ABPTS approved form of the survey questionnaire was sent to a sample consisting of 95% of the current specialists and an equal number of randomly selected Sports Physical Therapy Section members who were not specialists. A cover letter that accompanied the questionnaire explained the purpose of the questionnaire and encouraged respondents to return the survey within 3 weeks. Follow-up reminders were sent 2 weeks later and again just prior to the indicated deadline. Those not responding by the first deadline were sent a second copy of the questionnaire which was followed up by reminders to non-responders at 3 and 6 weeks. Survey recipients were encouraged to contact the Sports Specialty Council Chair if they had questions about the survey.

Following tabulation of the questionnaire responses, the results were reviewed by the Sports Specialty Council, another subject matter expert panel, and an ABPTS appointed consultant. These groups met and, based on the survey results, developed the DSP for sports physical therapy.

Survey Instrument

The survey instrument was based on the ABPTS mandated model and consisted of 7 sections: 1) patient/client management model; 2) consultation, education, and critical inquiry; 3) tests, measures, and procedural interventions; 4) knowledge areas; 5) recommendations for examination content; 6) ranking of body regions treated;

and 7) demographic information. Each item in Sections 1 through 3 was assessed on three scales: frequency (never, less than once a month, monthly, weekly, or daily), importance (not important, of little importance, moderately important, and very important) and criticality (not critical, minimally critical, moderately critical, extremely critical). Items in Section 4 were assessed on three scales as well using the same frequency and importance scales but replacing the criticality scale with a knowledge level scale (do not use, recall, application, analysis). Section 5 items asked respondents to provide estimates for weighting of examination content categories. Section 6 asked respondents to estimate the percentage of their patient populations based on body regions treated. Finally, Section 7 requested respondent demographic information. A copy of the survey instrument can be requested from the American Physical Therapy Association Department of Specialist Certification.

Sample

The survey questionnaire was sent to 630 physical therapists of which 315 were certified sports clinical specialists, hereafter referred to as specialists. This represented 95% of the total specialists at the time of the survey. Another 315 survey questionnaires were sent to randomly selected current members of the Sports Physical Therapy Section who were not certified sports clinical specialists, hereafter referred to as non-specialists.

Data Analysis and Decision Model

Survey responses were analyzed using standard descriptive statistical techniques. Univariate inferential statistics were used to determine correlations and examine differences in the responses between specialist and non-specialist respondents. Nonparametric tests were utilized for univariate comparisons for items in Sections 1 through 4 of the survey because data from these sections was ordinal, and the distributions of responses for most of these items were highly skewed. Parametric testing was used to make comparisons in survey Sections 5, 6, and where appropriate in Section 7 because the data from these sections (all in 5 and 6 and some in 7) were continuous. When the equal variance assumption for parametric tests was not met an appropriately adjusted p-value was used.

The competency revalidation process required a decision model to determine item content that would be included in the new DSP. The decision model was developed by a

revalidation panel that included the Sports Specialty Council, a second SME panel, and an ABPTS appointed consultant. While the panel reviewed the descriptive results for each survey item, the decision model was designed to facilitate discussion as well as improve the efficiency of the process. For items in survey Sections 1 through 3, if the descriptive results showed that at least 75% of the respondents reported the item was at least moderately important and at least moderately critical regardless of the frequency of use, the item was used in the development of the new DSP competencies and not discussed further unless a panel member requested specific discussion regarding the item. Items not meeting these criteria were discussed individually by the revalidation panel and a consensus decision was made whether or not to include the item as part of a competency in the new DSP. The same decision model was used for items in Section 4 of the survey (knowledge areas) except the criteria were that at least 75% of the respondents reported the item was at least moderately important and required at least an application level of knowledge, regardless of the frequency of use. Descriptive results for items in Sections 5 and 6 of the survey were not used to develop competencies per se, but were used to guide decisions in determining content area weighting for the board certification examination blueprint.

RESULTS

Of the 630 surveys sent, 42 were returned unanswered due to either address errors or because the respon-

dent did not wish to participate. Of the 588 remaining surveys, a total number of 237 were returned for an overall response rate of 41%. The response rates varied by group with 49% of the specialists responding compared to 27% of the non-specialists. Table 1 provides general demographic data of the responders grouped by level of board certification.

Based on the described decision process, most of the survey items were used to develop the DSP competencies. All items in Section 1 of the survey (patient/client management model) met the inclusion criteria. Two items from Section 2 of the survey (consultation, education, and critical inquiry) were not included in new DSP competencies. These two items were related to educating professionals and the public to the role of sports physical therapy. The consensus of the revalidation panel was that while these items were very important to the profession and the specialty, they were not items that could be reasonably

defined or measured by the methods used to determine those with the knowledge and skill set of a specialist. Seven items in Section 3 (tests, measures, and procedural interventions) were not used to develop DSP competencies. The consensus from the revalidation panel regarding these items was that they were not significant components of the sports specialty practice. These items included tests and measures of ventilation and respiration, prosthetic devices, and neuro-motor development, as well as procedural interventions of

Table 1. Respondent Demographic Data

	Specialists	Non-Specialists
Sex		
Male	71%	68%
Female	29%	32%
Age		
25 – 34 yrs	11%	35%
35 – 44 yrs	51%	36%
45 – 54 yrs	35%	25%
55 – 64 yrs	3%	3%
> 65 yrs	0%	1%
Years in PT Practice		
1-2 yrs	0%	3%
3-5 yrs	1%	19%
6-10 yrs	12%	19%
11-15 yrs	29%	17%
16-20 yrs	31%	9%
21+ yrs	28%	33%
Professional Level of Education		
BS	56%	50%
Post-bac certificate	13%	11%
MS	28%	39%
DPT	1%	0%
Other	3%	0%
Highest Level of Education		
BS	25%	43%
MS	59%	51%
PhD	17%	7%
Treat without physician referral		
Yes	73%	67%
No	27%	33%

lymphatic drainage, prosthetic devices, and prosthetic device training. An additional item (conduct test and measures for assistive and adaptive devices) in Section 3 was removed because the revalidation panel determined that this skill did not distinguish sports specialty practice.

One item from Section 4 of the survey was not used to develop DSP competencies. This item was related to the knowledge of legal limitations on the scope of practice. The consensus of the revalidation panel was that this item, while critical to every day practice, did not distinguish the sports specialist from the non-specialist. Additionally, the variation between state statutes and regulations would also make this item very difficult to define and measure using a national set of competencies. The remaining 117 items from survey Sections 1 through 4 were used to develop competencies in the new DSP.

After reviewing all survey results and going through the decision model, the revalidation panel developed new categories for the competencies based on the results and the model of physical therapy practice as described in the Guide to Physical Therapist Practice.⁶ Once the new competency categories were determined, the DSP panel incorporated the results from Section 5 (weighting recommendations for examination content) of the survey with the results from survey Sections 1 through 4 to determine the relative weighting of the examination content based on the competency categories. Examination and interventions were ranked as the top two weighted content areas by the respondents in Section 5 of the survey, while critical inquiry was ranked as the lowest weighted content area. Table 2 contains the competency categories with their respective weight on the board exam.

In the first three sections of the survey there were significant strong positive correlations between the importance and criticality scales for each item. Because of this consistent relationship, to reduce the number of analyses, the importance scales and criticality scales

Table 2. 2004 Description of Specialty Practice Competency Categories

New DSP Categories	Target Percentage on Exam
Rehabilitation/Return to activity:	20%
Examination/Evaluation/Diagnosis Rehabilitation/Return to activity:	20%
Prognosis/Intervention/Outcomes	15%
Injury prevention and wellness	15%
Sports science	15%
Medical/surgical conditions	15%
Acute injury/illness management	10%
Critical inquiry	5%

were summed. Based on the sum of these two scales, the items were rank-ordered by their mean summed scores. The maximum possible score was 6, and 0 was the lowest. Items with means closer to 6 are interpreted as having a greater perceived importance and criticality to the practice of sports physical therapy. Table 3 contains the top 10 ranked items from each of the first three sections of the survey. While all items from Section 1 of the survey were retained, the lowest ranked of the patient/client management model items were assisting in human performance enhancement; inspection of practice and competition venues for safety risks; and plan, coordinate, administer pre-participation physical exams. Most of the lower ranking items from the tests and measures component of Section 3 were items more traditionally considered to be of greater importance in the domain of neuromuscular physical therapy practice. Examples of these items included tests and measures of arousal, attention, cognition, response to stimuli, and neuromotor development. However, one of the lower ranking items was tests and measures of aerobic capacity/endurance, which had a mean sum score of 3.6. The lower ranking items from the procedural intervention component of Section 3 were primarily items related to physical agents and electrical stimulation modalities.

Table 4 contains the top 10 rated knowledge areas based first on importance to the practice of sport physical therapy and second based on the knowledge level required of the sports physical therapist. The maximum score for each of these scales was 3 and the lowest was 0. As evident from Table 4, the top rated items, while differing in exact rank order, were considered to be of higher importance and were also items that required the sports physical therapist to function at a

higher cognitive level. The lowest ranking knowledge areas on both of these scales were histology and physiology of "other" systems such as endocrine, reproductive, and digestive systems.

Tables 5 through 7 contain the items

Table 3. 10 Highest Rated Items for Survey Sections 1 Through 3

Section 1 Patient/client management model	Mean	SD
Prescribe appropriate rehab program*	5.80	0.57
Implement functional tests to determine athletes' ability to return to desired activity	5.69	0.64
Establish plan of care*	5.59	0.80
Determine extent of injury to determine in athlete has ability to continue participation without further injury*	5.58	0.96
Develop working diagnosis*	5.57	0.73
Select tests and measures*	5.56	0.79
Evaluate and interpret data from the exam	5.53	0.76
Interpret data from history and systems review	5.50	0.78
Identify history of complaints*	5.50	0.81
Recognize injuries and illnesses that require emergency medical interventions*	5.46	1.12
Section 2 Consultation, education, and critical inquiry**		
Critical Inquiry: Apply principles of evidence based practice	5.33	1.03
Critical Inquiry: Maintain "state of art" knowledge and skill	5.28	1.08
Educate and provide recommendations to coaches, athletes, parents, and administrators	4.88	1.11
Critical Inquiry: Contribute to the body of knowledge of sports physical therapy	4.56	1.37
Section 3 Conducts tests and measures		
Joint integrity and mobility	5.59	0.87
Muscle performance	5.57	0.83
Range of motion including muscle length*	5.26	1.11
Signs of inflammation	5.26	1.08
Motor function*	5.01	1.24
Gait, locomotion and balance	4.98	1.37
Motor and sensory distribution	4.95	1.19
Posture	4.90	1.24
Orthotic, protective, and supportive devices	4.83	1.21
Circulation	4.54	1.41
Section 3 Procedural interventions		
Educate patients/clients on diagnosis, prognosis, treatment, responsibility, and self-management*	5.58	0.83
Muscle performance*	5.54	0.87
Motor function*	5.50	0.93
Joint mobilization	5.39	1.08
Injury prevention or reduction	5.25	1.15
Supportive devices and equipment	5.15	1.06
Passive range of motion	5.13	1.23
Soft tissue mobilization	5.05	1.24
Aerobic capacity/endurance conditioning and reconditioning	4.94	1.23

mean rank based on the sum of the importance and criticality scales for the item

*response differed between specialists and non-specialists

**only four items from this section were retained for DSP development

from Sections 1, 3, and 4 of the survey in which specialist respondents differed in their responses from those respondents who were not specialists. These comparisons were made using a Mann-Whitney test. Due to the large number of items in the survey, the use of the Bonferroni correction

technique for multiple univariate comparisons was not feasible. As such, the results presented in the tables must be interpreted with caution; however, they do provide some information regarding the possible differences in perception between specialists and non-specialists. The results

Table 4. 10 Highest Rated Items for Survey Section 4

Section 4 Knowledge Areas: Importance Scale	Mean	SD
Human anatomy and physiology: Musculoskeletal system	2.99	0.11
Human anatomy and physiology: Neuromuscular system	2.95	0.24
Emergency care and safety precautions: Recognize injuries and illnesses that require emergency medical intervention*	2.92	0.32
Evidence based sports theory and practice: Differential diagnosis*	2.90	0.30
Movement science: Kinesiology/Clinical biomechanics	2.90	0.32
Evidence based sports theory and practice: Theory and application of therapeutic exercise	2.89	0.35
Medical/Surgical interventions: Understand and recognize the goals, principles, and surgical techniques used for common athletic injuries*	2.87	0.39
Pathology/Pathophysiology: Tissue inflammation, healing, repair	2.87	0.38
Evidence based sports theory and practice: Theory and application of manual therapy techniques	2.80	0.42
Emergency care and safety precautions: Understand and develop knowledge of infection control procedures	2.76	0.50
Section 4 Knowledge Areas: Knowledge Level Scale		
Movement science: Kinesiology/Clinical biomechanics	2.90	0.32
Evidence based sports theory and practice: Differential diagnosis*	2.88	0.36
Human anatomy and physiology: Musculoskeletal system	2.87	0.38
Evidence based sports theory and practice: Theory and application of therapeutic exercise	2.87	0.39
Emergency care and safety precautions: Recognize injuries and illnesses that require emergency medical intervention*	2.82	0.48
Human anatomy and physiology: Neuromuscular system	2.80	0.46
Evidence based sports theory and practice: Theory and application of manual therapy techniques	2.78	0.48
Medical/Surgical interventions: Understand and recognize the goals, principles, and surgical techniques used for common athletic injuries*	2.77	0.49
Pathology/Pathophysiology: Tissue inflammation, healing, repair	2.75	0.51
Pathology/Pathophysiology: Pathokinesiology	2.67	0.59

mean rank based on the sum of the importance and criticality scales for the item

*response differed between specialists and non-specialists

presented in Tables 5 through 7 are ordered by their survey item number, not in a rank order. There were no significant differences between specialist and non-specialist responses for Section 2 (consultation, education, and critical inquiry) of the survey questionnaire.

Table 8 contains items in Sections 5, 6, and 7 in which specialist respondents differed in their responses from those respondents who were not specialists. These comparisons were made using independent samples t-Tests because of

the continuous nature of the data. For comparisons that did not meet the equality of variance assumption, appropriately adjusted p-values are reported. Again, the number of items that were compared made the use of the Bonferroni correction technique unfeasible and, as such, the same cautions apply to the interpretation of the results.

DISCUSSION

The primary purpose of this study was to revalidate the competencies that define the specialty practice of sports

Table 5. Section 1 Patient/client management model comparisons

Item	Scale	p-value	Direction of Difference
Develop and implement performance based functional progression protocols	Frequency Importance/ Criticality	.01 .05	Specialists performed more frequently Specialists rated item as more important/critical
Select, fit, maintain athletic equipment according to national standards	Importance/ Criticality	<.01	Specialists rated item as more important/critical
Educate athlete/coach/administration on injury prevention	Frequency	.02	Specialists performed more frequently
Inspect practice and competition venues for safety risks	Importance/ Criticality	.01	Specialists rated item as more important/critical
Recognize injuries and illnesses that require emergency medical intervention	Importance/ Criticality	.03	Specialists rated item as more important/critical
Determine extent of the injury to determine if athlete has ability to continue participation without further injury	Importance/ Criticality	<.01	Specialists rated item as more important/critical
Determine sport-specific criteria and recommendations regarding athlete's readiness to return to participation	Frequency Importance/ Criticality	.01 .02	Specialists performed more frequently Specialists rated item as more important/critical
Assist with remediation of patient's functional limitation & disability	Importance/ Criticality	.04	Specialists rated item as more important/critical

physical therapy. The results of the study led to the development of the current DSP published in 2004. The DSP defines the practice of sports physical therapy and is used as the guiding document for the development of the sports physical therapy board certification examination as well as for the other requirements to attain and maintain the designation of a board certified sports physical therapist. The DSP is available from the Department of Specialist Certification, American Physical Therapy Association.

Comparison of the 1993 and 2003 Practice Analyses

It is difficult to make direct comparisons between the DSP based on this practice analysis and the DACP that was developed based on the 1993 sports physical therapy practice analysis.¹ Not only had the survey instruments them-

selves changed substantially, but also significant environmental changes occurred since the 1993 practice analysis. Some of these included: the change in the entry-level education model, the development of the Guide to Physical Therapist Practice,⁶ changes in reimbursement, and the significant growth in the number of sports specialists. All these factors have had a substantial impact in the evolution of the practice of sports physical therapy, and as such, the weighting of board certification examination content. In general, the current version of the board certification examination blue print has a greater percentage of items reflecting competencies related to the patient/client management model. Direct administration content has been reduced in the current examination blue print and the research related content has evolved into critical inquiry

Table 6. Section 3 Tests, measures, and procedural interventions comparisons

Item	Scale	p-value	Direction of Difference
Conducts test and measures: circulation	Frequency	.02	Specialists performed more frequently
Conducts test and measures: skin characteristics	Importance/Criticality	.02	Specialists rated item as more important/critical
Conducts test and measures: motor function	Importance/Criticality	.03	Specialists rated item as less important/critical
Conducts test and measures: neural mobility	Frequency Importance/Criticality	.05 .05	Specialists performed less often Specialists rated item as less important/critical
Conducts test and measures: neuromotor development and sensory integration	Frequency Importance/Criticality	.02 <.01	Specialists performed less often Specialists rated item as less important/critical
Conducts test and measures: Range of motion including muscle length	Frequency	<.01	Specialists performed more frequently
Conducts test and measures: sensory integrity	Frequency	.04	Specialists performed more frequently
Procedural interventions: educate patients/clients on diagnosis, prognosis, treatment, responsibility, and self-management	Frequency	.05	Specialists performed more frequently
Procedural interventions: motor function	Frequency	.05	Specialists performed more frequently
Procedural interventions: muscle performance	Frequency	.02	Specialists performed more frequently
Procedural interventions: therapeutic massage	Frequency	.05	Specialists performed less often
Procedural interventions: protective devices and equipment	Importance/Criticality	.04	Specialists rated item as more important/critical

reflecting a greater influence of the evidence-based practice model. The number of specialists participating in this practice analysis was 158, while there were 49 in the 1993 practice analysis. All of these factors support the ABPTS requirement that the Specialty Councils perform practice analyses at least every 10 years in order to maintain relevancy in the specialties. Similar to the 1994 DACP,⁷ the DSP has competency categories based on the practice analysis and, while the titles of these sections are comparable, the content of each competency category reflects the continued growth and maturity of not only the practice of sports physical therapy, but also the profession of physical therapy as a whole.

Specialist and Non-specialist Comparisons

In addition to aiding in the development of the DSP competencies, the practice analysis also allowed for the comparison of the responding specialists to those respondents who were Sports Physical Therapy Section members but not specialists. This process revealed some interesting contrasts between specialists and non-specialists.

Regarding demographic characteristics, the specialists had more years in physical therapy practice than non-specialists. Only 1% of the specialist respondents had 1 to 5 years of physical therapy practice, while 22% of the non-specialists had this level of practice experience (*Table 1*). This

Table 7. Section 4: Knowledge areas comparisons

Item	Scale	p-value	Direction of Difference
Physiology other systems eg endocrine, reproductive, digestive	Knowledge level	.04	Specialists rated item as requiring a higher level of knowledge
Human growth and development across the lifespan	Knowledge level	.01	Specialists rated item as requiring a higher level of knowledge
Physiologic components relating to performance enhancement	Importance Knowledge level	.04 .02	Specialists rated item as more important Specialists rated item as requiring a higher level of knowledge
Pathokinesiology	Frequency	.02	Specialists used knowledge more often
Understand use and purpose of ancillary tests as related to athletic injuries	Importance	.04	Specialists rated item as more important
Understand and recognize the metabolic and physiologic consequences associated with medical conditions	Importance	.02	Specialists rated item as more important
Understand and recognize the goals, principles, and surgical techniques for common athletic injuries	Importance	.04	Specialists rated item as more important
Recognize injuries and illnesses that require emergency medical intervention	Importance	<.01	Specialists rated item as more important
Differential diagnosis	Frequency	.05	Specialists used knowledge more often
Appraisal of research findings on sports physical therapy practice	Frequency	.01	Specialists used knowledge more often
Application of research findings to sports physical therapy practice	Frequency Knowledge level	.02 .03	Specialists used knowledge more often Specialists rated item as requiring a higher level of knowledge

difference likely reflects the time required to meet the requirements to be eligible to sit for the board examination and is consistent with the results reported in the previous revalidation study.¹ Another result that was consistent with the 1993 practice analysis was the comparison of specialists to non-specialists relative to the highest level of education. Seventeen percent of the specialist respondents in the current analysis held an advanced doctoral degree compared to 7% of the non-specialists. Zachazewski et al¹ reported similar findings with 12% of responding sports specialists holding advanced doctoral degrees compared to 5% of all respondents in their survey. The difference in advanced doctoral prepared respondents may be reflective of the

practice setting differences between specialists and non-specialists. In the current practice analysis, 18% of the specialists reported academia as their primary practice setting compared to 9% of the non-specialists. Again, a similar relationship was reported in the 1993 practice analysis (10% specialists versus 4% all respondents).¹ It is not possible to determine from the results of either revalidation study if these consistent differences in advanced degrees and academic setting reflects greater experience, greater recruiting to academia, or an intrinsic difference in education/professional advancement behaviors between specialists and non-specialists.

Zachazewski and associates¹ reported that specialists spent less time in clinical care than non-specialist respondents in their practice analysis. They attributed the difference to the shift in professional responsibilities related to the professional growth, suggesting that such growth leads to a gradual reduction in direct clinical care responsibilities. The current practice analysis did not find similar results. There was no difference in the total percent of time in direct clinical care of patients between specialists and non-specialists (62% vs 66%, $p = 0.24$). Differences in the way the variables were measured may account for the different results between the 1993 and 2003 practice analyses, but it appears that in both analyses specialists spent approximately 60% of their time in direct patient care. Thus, the lack of difference in the 2003 practice analysis may indicate a general shift in the practice of physical therapy to increased professional responsibilities and reduction in direct care responsibilities.

Specialists did spend significantly more time in two areas of practice compared to the non-specialists: direct sports patient/client management (33% vs. 26%) and research

(3% vs. 1%) and significantly less time in direct patient/client management other than sports (29% vs 41%). The direct patient care caseload differences are intuitive. The difference in time spent in research activities may again be a reflection of the greater percentage of specialists who are practicing in academia. There were no significant differences between specialists and non-specialists in the percent of time spent in consultation ($p = 0.35$), administration/management ($p = 0.65$), or teaching activities ($p = 0.06$). This perhaps is further support that the roles of physical therapists in general have shifted somewhat away from direct care responsibilities.

The responses differed between specialists and non-specialists for 16 items from the patient/client management model section (Section 1) of the survey (Table 5). Of these 16 items, 10 can be considered relatively “generic” to the practice of physical therapy (ie. prescribe appropriate rehabilitation program), while six are more specific to the practice of sports physical therapy (ie. determine extent of the injury to determine if athlete has ability to continue participation without further injury). In every one of these

Table 8. Survey Section 5, 6, and 7 comparisons

Item	Scale	p-value	Direction of Difference
Section 5			
Human anatomy and physiology	% of exam	.02	Specialists suggested a lower percentage of the exam be related to this content
Medical/surgical interventions	% of exam	.02	Specialists suggested greater percentage of the exam be related to this content
Procedural interventions	% of exam	.03	Specialists suggested greater percentage of the exam be related to this content
Section 6			
Cranial/mandibular	% of caseload	.04	Specialists saw fewer patients with these impairments
Cervical spine	% of caseload	.02	Specialists saw fewer patients with these impairments
Lumbar spine	% of caseload	.04	Specialists saw fewer patients with these impairments
Shoulder	% of caseload	<.01	Specialists saw more patients with these impairments
Thigh/knee	% of caseload	.02	Specialists saw more patients with these impairments
Section 7			
Time in direct sports patient/client management	% of time	<.01	Specialists spent greater percentage of time
Time in direct patient/client management other than sports	% of time	<.01	Specialists spent a lower percentage of time
Time in research	% of time	<.01	Specialists spent greater percentage of time

16 items, the specialists either performed the competency more often or rated it as being more important/critical to sports physical therapy than non-specialists did. Seven of these differences were on items ranked in the top 10 based on importance/criticality (*Table 1*) to sports physical therapy. While these items reflect a perception of greater importance for higher levels of cognitive and professional functioning as well as clinical decision making, it is unclear from this study if these results represent true differences between the specialist and non-specialist or if these results are related to confounding factors such as greater number of years in practice for the specialists compared to the non-specialist. Similar results have been reported in practice analyses of physical therapists that were board certified clinical specialists in orthopedic physical therapy.⁸ Future studies should be designed to investigate factors associated with these differences in perceived importance of higher level clinical functions.

Compared to the total number of comparisons (54 items, 108 comparisons), there were few differences (13 items, 15 comparisons) between specialist and non-specialist responses in the tests, measures, and procedural interventions section of the survey (Section 3). The items measured in this section of the survey were primarily related to psychomotor skills, which while important, did not appear to differ greatly between specialists and non-specialists. The reasons behind the few differences were intuitive. For example, sports specialists conduct tests and measures of neuromotor development and sensory integration less often and perceive these skills to be less important than non-specialists (*Table 6*).

Like Section 3 of the survey, there were few differences (11 items, 13 comparisons) compared to the total number of comparisons (38 items, 114 comparisons) made in Section 4 of the survey (knowledge areas) between specialist and non-specialist responses. For all 13 significant comparisons, the specialist rated the items as either “knowledge used more frequently”, “more important”, or “required a higher level of knowledge” compared to the non-specialist ratings (*Table 7*). Six of the 11 items were specific to the domain of sports physical therapy while the other five items were factors that would be common to all physical therapy practice. Again, because the study’s primary purpose was revalidation of competencies that define specialty practice, the study was not designed to distinguish if the differences in perception, especially those common to all practice patterns, were a result of greater clinical experi-

ence, greater reliance on clinical decision making skills, or higher cognitive or professional functioning. A recommendation can be made for the need of further research designed specifically to determine factors related to these apparent differences.

Few differences existed between specialist and non-specialist responses for survey Sections 5, 6, and 7 (*Table 8*). The reasons for identified differences were intuitive, based on the patient/client population managed by specialists. For example, specialists reported higher percentages of patient/clients with shoulder and thigh/knee pathologies and a lower percentage caseload of patient/clients with axial skeleton disorders compared to non-specialists. Specialists also spent a greater percentage of their direct patient care time managing problems as a result of athletic participation and a smaller percentage of direct care time managing problems not a result of sports participation.

CONCLUSION

The primary purpose of this study was to revalidate the competencies that define the practice of sports physical therapy. In doing so, the cognitive as well as psychomotor skill domains, which were perceived to be of greater importance to the practice of sports physical therapy, were identified. The results of the study were used by a panel of experts in sports physical therapy to develop the guidelines which will be used until 2014 to define and guide the requirements to attain and maintain the designation of a board certified clinical specialist in sports physical therapy in the United States. This information was also used to guide the development of the competencies that define the practice of a specialist in sports physical therapy. These competencies are described in detail in the Sports Physical Therapy Description of Specialty Practice.

This practice analysis allowed for several comparisons with the 1993 practice analysis of sports physical therapy. It appears that a number of characteristics identified in the 1993 practice analysis remain consistent characteristics of specialists in sports physical therapy. These characteristics included a greater number of years of experience in physical therapy practice, greater percentage of persons holding advanced doctoral degrees, and a greater number of persons working in academia when compared to members of the Sports Physical Therapy Section who were not specialists in sports physical therapy.

The study also allowed for numerous comparisons between those who were specialists and non-specialists. These comparisons identified some interesting differences in the perceived importance and frequency of use of a number of items related to higher levels of clinical reasoning and decision making. Future studies should be designed to determine factors and characteristics associated with these differences in perception.

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