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Dry Needling Competencies Review: Report Memo 2020

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This memo summarizes the processes and results of the review of dry needling competencies conducted by the Federation of State Boards of Physical Therapy (FSBPT) and the Healthcare Regulatory Research Institute (HRRI), in partnership with the Human Resources Research Organization (HumRRO). The activities documented in this report were conducted in November and December 2020 with a task force established by FSBPT/HRRI. The task force consisted of 11 physical therapists who have experience performing dry needling and/or teaching dry needling principles and techniques. A complete list of the task force members is presented in Appendix A.

The goals of this effort were to (a) assess the current state of the competencies needed by physical therapists to perform dry needling safely and effectively, and (b) determine the need for additional research to ensure the competencies accurately and faithfully represent the domain of practice for dry needling. The work described in this report represents a continuation of FSBPT's efforts to support state boards' decisions regarding the scope of practice of physical therapy related to dry needling. This work builds on the 2015 analysis of dry needling competencies conducted by FSBPT and HumRRO to define the minimum competency requirements for dry needling (Caramagno, Adrian, Mueller, & Purl, 2015), as well as the recurring analysis of practice studies FSBPT conducts to define the entry-level knowledge and skill requirements for physical therapists (see Rogers & Caramagno, 2020; Rogers & Caramagno, 2019; Caramagno, 2018; Caramagno, Cogswell, & Waugh, 2018a).

Background Information

In 2015, FSBPT sponsored a study to analyze and identify the competencies needed by physical therapists to perform dry needling safely and effectively (Caramagno, Adrian, Mueller, & Purl, 2015). The study activities involved compiling, reviewing, and finalizing a set of competencies that accurately reflect the scope of practice for the intervention. The results of the study led to the creation of two lists of work and worker requirements identified as relevant and important for dry needling. One list defined 123 work activities (WAs), or job tasks, that physical therapists carry out when performing dry needling, and the other list defined 117 knowledge and skills requirements (KSRs) that physical therapists must possess to perform the work activities safely and effectively.

A key step in the development of the dry needling competencies was a thorough review of entry-level physical therapy requirements specified on the content outline for the National Physical Therapy Examination (NPTE) licensure exam (published in 2013). In fact, a majority of the WAs and KSRs identified as necessary for dry needling are taken directly from the NPTE content outline. This content similarity is important because it establishes an empirical link between the two sets of competencies and provides evidence for the validity of the dry needling WAs and KSRs.

One of the notable findings from the study was the large proportion of KSRs that are considered "entry-level." More than four-fifths (86%) of the knowledge and skills physical therapists need to demonstrate competence in dry needling is acquired during entry-level physical therapist education. In other words, a substantial part of dry needling competence is part of the standard clinical practice of physical therapy (e.g., gathering information, determining the best treatment

options, documenting a plan of care and progress). A small but critical proportion of additional knowledge and skills must be developed through post-graduate or specialized training in dry needling.

Several important developments have occurred since the publication of the dry needling competencies report. First, FSBPT continually evaluates and updates the NPTE content outline through practice analysis studies conducted approximately every five years. FSBPT completed the last full practice analysis study in 2016 and published a new NPTE content outline in 2018. Second, in 2018, FSBPT began administering practice analysis surveys annually to monitor ongoing and emerging trends in entry-level requirements. As a result, changes have been made to the content outline that are not reflected in the dry needling competencies (which are based on the 2013 NPTE content outline).

FSBPT/HRRI sponsored the work described in this report to (a) determine if the changes made to the NPTE content outline since 2016 are also applicable to the dry needling competencies, and (b) gather feedback to help inform the design and administration of the next full analysis of dry needling competencies study. The remainder of this report describes the processes and outcomes of the work.

Methodology

The methodology for reviewing the dry needling competencies involved three steps. Each step is presented below with summary descriptions to clarify important details.

Independent Review

Task force members completed an independent rating assignment to answer the question: *Do changes made to the NPTE content outline apply to the dry needling competencies?* The rating assignment required each task force member to review changes made to individual WAs and KSRs as part of the ongoing NPTE updates. Changes included:

- Editorial revisions (e.g., adding or removing punctuation, replacing individual words to improve clarity/comprehension).
- Substantive revisions (e.g., adding or removing examples presented in parentheses after WAs and KSRs, separating or combining WA and KSR statements).
- Whole statement changes (i.e., adding or removing entire WAs or KSRs).

Task force members made a dichotomous choice for each WA or KSR. They were asked to choose one of the following responses:

- Agree: This change is appropriate for the dry needling competencies.
- Disagree: This change is NOT appropriate for the dry needling competencies.

Task force members reviewed proposed changes for 74 WAs and 64 KSRs. However, task force members were invited to provide commentary and feedback on any WA or KSR, including competencies for which no changes were proposed. Each task force member reviewed a training video prior to beginning the assignment. The training video provided comprehensive

guidance on the background of the current work and the process for comparing and evaluating the competencies.

Compilation and Discussion

HumRRO compiled the task force members' ratings and examined task force members' written feedback to identify competencies that required further review and discussion. We calculated a numeric threshold to identify WAs and KSRs where there was disagreement among the ratings. The numeric threshold was based on Lawshe's Content Validity Ratio (CVR) and Ayre and Scally's (2014) critical values table.¹ We established a minimum threshold of 9 out of 11 votes in favor of the changes to indicate adequate agreement among the task force members (i.e., the task force believes the changes are appropriate). Fewer than nine votes in favor of the changes for a given WA or KSR resulted in flagging the competency for discussion.

The analysis of written feedback focused on the content and tone of the task force members' comments. WAs and KSRs were flagged for discussion if at least one task force member provided feedback indicating (a) the changes were not applicable, (b) the changes might be applicable with additional discussion, or (c) the changes should be discussed with the full task force. We note that, in some cases, WAs or KSRs that received the minimum number of votes in favor of the changes were flagged based on the written feedback.

In total, 25 competencies were flagged for discussion (15 WAs and 10 KSRs). Of these, seven (7) WAs and three (3) KSRs were flagged because they did not receive the minimum number of votes in favor. The remaining competencies were flagged due to the written feedback.

It is important to acknowledge that the task force members' feedback sometimes included recommendations for specific edits they believe should be made to the competencies. In some cases, these recommendations strain the link between the dry needling competencies and the NPTE content outline. That is, the changes they proposed to the phrasing of the competencies alters their underlying meaning, transforming them into fundamentally different WAs or KSRs. Because this was not the focus of the current effort, FSBPT and HumRRO staff decided to abstain from implementing the recommendations. However, the feedback and recommendations will be reviewed by a separate panel of subject matter experts during future practice analysis activities to determine if, when, and how the recommendations should be implemented.

Task Force Meeting

The task force members participated in a 3-hour online meeting to review the compiled results and discuss the flagged WAs and KSRs. The purpose of the meeting was to reach a final decision on whether the changes that were applied to the WAs and KSRs on the NPTE content

¹ The CVR (Lawshe, 1975) is a statistic used to estimate the amount of agreement among a panel of judges/experts on whether an item (e.g., test item, job task, competency statement) is a member of a set (e.g., test blueprint domain, group of critical/important elements, job task category, competency category). It is a linear transformation of the proportional level of agreement among the panel of judges/experts. CVR values range from -1.00 (perfect disagreement) to 1.00 (perfect agreement). Values greater than 0 indicate that more than half of the panel members agree. Ayre and Scally (2014) provided a critical values table based on exact binomial probabilities to aid in identifying the minimum number of judges/experts needed to agree that an item is a member of a set. Critical values vary based on the total number of judges/experts participating in the judgment activity. The critical values provide statistical support that the agreement among the judges/experts is not due to chance.

outline should also be applied to the flagged dry needling competencies. The meeting was conducted via Microsoft Teams® and attended by 11 task force members, two FSBPT staff members, two HumRRO staff members, and liaisons from the FSBPT Board.² Of the 25 competencies reviewed during the meeting, the changes proposed for 24 were identified by the task force as appropriate for dry needling. The task force rejected the proposed changes for one WA—*Select and perform tests and measures of patient’s need for assistance (e.g. during transfers, in the application of devices)*. On the 2018 NPTE content outline, the WA was consolidated into another competency as an example of that competency. However, the task force believes this WA is unique to dry needling and preferred to retain the WA as a distinct competency.

During the discussion, the task force members highlighted several issues that impact the practice of dry needling and the way the competencies are presented. First, the task force noted that competencies related to insurance and billing for services present unique challenges for dry needling. Although they believe the competencies to be relevant, they pointed out that, currently, dry needling is not always covered by patients/clients’ insurance policies and can be difficult to bill even when it is a covered expense. The task force members agreed that a physical therapist’s ability to understand this complexity is important for (a) creating feasible plans of care and (b) having thoughtful conversations with patients/clients about their options for receiving dry needling.

Second, the task force identified several instances where they believe the examples included with certain competencies are not applicable to dry needling, or are not the “best” examples to use, even though the competencies themselves are relevant. For instance, the task force felt the examples added to the KSR—*Factors influencing safety and injury prevention (e.g., safe patient handling, fall prevention, equipment maintenance, environmental safety)*—weakened the relevance of the competency for dry needling. The task force noted that safe patient handling for dry needling has unique features such as patient positioning and disposing of needles. However, the task force also noted that safety, as related to dry needling, is not currently included as a standard instructional component of most physical therapy degree programs.

Third, the task force discussed several topics they believe are only applicable in specialized situations, such as performing screens of a patient’s reproductive system. They acknowledged that the competency might not be applicable for every patient-practitioner interaction but, when it is, a physical therapist must be able to recognize the implications and take appropriate actions. Ultimately, the task force decided that frequency of use should be considered in conjunction with other criteria, such as importance for patient/client safety, when deciding the relevance of the competencies. They also agreed that practitioners must use discretion in preparing plans of care that are appropriate based on each patient/client’s needs.

Updates to the Dry Needling Competencies

As noted earlier, the scope of the proposed changes varies from minor editorial revisions to additions or removals of entire WAs or KSRs. Because of this variation, it is necessary to consider the impact the changes might have on (a) the content validity of the dry needling competencies and (b) the use of the competencies by practitioners and policy makers. Changes that alter the substantive content and/or conceptual meaning of the competencies have the

² Note. Three members of the FSBPT Board of Directors attended the meeting in an observation-only capacity. They did not participate in discussion and did not provide information or guidance to the task force members.

potential to impact decisions and policies that have already been made based on the original publication of the competencies. Such changes, if warranted, should be supported by a robust body of evidence drawn from multiple sources.

Given the variation in the proposed changes and the need for careful consideration of their potential impact, FSBPT and HumRRO staff developed a rubric to help guide decisions regarding the implementation of edits based on the changes to the NPTE content outline (see Table 1). The rubric is presented as a list of questions that focus on characteristics of the proposed changes, such as (a) their nature and quality (e.g., editorial versus substantive; updating information versus introducing new information) and (b) the importance of maintaining parity between the competency sets versus preserving the unique facets of each. The recommendations made by the task force are incorporated into the final step of the rubric.

Table 1. Competency Update Decision-Making Rubric

Rubric Step	Implications	If “Yes”	If “No”
1. Is the proposed change primarily editorial in nature (e.g., punctuation, minor semantic edits)?	Editorial changes do not alter the underlying meaning of the competencies and do not require further examination.	Accept the proposed change.	Proceed to next step.
2. Does the proposed change introduce a completely new topic or concept?	Wholly new topics and concepts that are not consistent with an existing theme or category of WAs or KSRs require additional research and validation to provide robust evidence of their relevance needing.	Hold for next analysis of competencies study.	Proceed to next step.
3. Does the proposed change alter the fundamental meaning of the WA or KSR?	Changes that alter the way the competencies are interpreted or understood should be supported by additional evidence of their relevance to dry needing.	Hold for next analysis of competencies study.	Proceed to next step.
4. Do the task force members agree the change is appropriate?	If the proposed changes pass the previous three steps and there is a sufficient number of task force members in favor of making the change, the change should be accepted.	Accept the proposed change.	Hold for next analysis of competencies study.

Table 2 displays summative information on the decisions made about the proposed changes based on the application of the rubric. Of the changes proposed for 74 dry needling WAs, nearly two-thirds (66%) will be implemented. These changes can be implemented now because they (a) represent minor editorial revisions, (b) do not alter the underlying meaning of the WAs, or (c) are consistent with an existing theme or category of WAs (i.e., they are not introducing wholly new information). The changes proposed for the remaining 23 WAs will be held for review during the next analysis of competencies. Of these, 20 were identified as involving the introduction of new topics or concepts to the competencies.

Of the 64 KSRs reviewed, changes will be implemented for 46 (72%). Many of the accepted changes involve single word replacements or adjustments to the examples provided in

parentheses at the end of the KSRs. These types of edits do not impact the underlying meaning of the KSRs. Changes proposed for the remaining 18 KSRs represent the introduction of novel information to the competencies and will be held for review during the next analysis of competencies. The complete lists of dry needling WAs and KSRs, with proposed changes and final decision, are presented in Appendices B and C, respectively.

Table 2. Summary of Competency Update Decisions

	WA		KSR	
	n	%	n	%
Total Reviewed	74	--	64	--
Acceptable for Dry Needling Competencies	49	66.2	46	71.9
<i>Editorial changes only</i>	6	8.1	9	14.1
<i>Changes do not affect underlying meaning</i>	38	51.4	33	51.6
<i>Changes are consistent with existing theme/category</i>	5	6.8	4	6.3
Hold for Next Analysis of Competencies Study	23	31.1	18	28.1
<i>Introduces new topic/concept</i>	20	27.0	18	28.1
<i>Changes alter underlying meaning</i>	2	2.7	0	0.0
<i>Changes do not apply to dry needling</i>	1	1.4	0	0.0

Conclusions and Next Steps

The focus of this work was on exploring whether changes made to the NPTE content outline between 2016 and 2020 apply to the dry needling competencies (developed in 2015). Based on the collective review by 11 subject matter experts who are familiar with dry needling through practice and/or instruction, many of the changes appear to be applicable and can be implemented immediately. Although many of the changes are considered minor adjustments that do not affect the substantive content or conceptual meaning of the competencies, they help to preserve the empirical link between the NPTE content outline and the dry needling competencies.

The updated set of dry needling competencies includes 134 work activities, 119 knowledge requirements, and 16 skills/abilities. Of the 119 knowledge requirements identified as critical for competence in dry needling, 87% ($n = 103$) represent knowledge that physical therapists acquire/develop during entry-level physical therapist education. This includes knowledge related to examination, evaluation, interventions, system interactions, safety and protection, and professional responsibilities. The remaining knowledge requirements ($n = 16$) are specific to dry needling and are acquired/developed through advanced or specialized training (e.g., dry needling course, residency program). As noted in the 2015 dry needling report, the dry needling-specific knowledge is predominantly related to the needling technique (e.g., needle selection and placement, identification of contraindications, emergency preparedness and response).

Roughly one-third of the changes made to the NPTE content outline represent substantive alterations that might be applicable to the dry needling competencies but will require additional

research and validation. This will entail a more extensive examination of these competencies with future groups of subject matter experts to determine if they should be added into the dry needling competencies. The comments and suggestions from the task force can serve as a starting place for the subsequent group's analysis. Future groups of subject matter experts will also be able to determine if there are additional competencies that can be developed to address the unique requirements for dry needling noted by this task force.

References

- Ayre, C. & Scally, A. J. (2014). Critical values for Lawshe's content validity ratio: Revisiting the original methods of calculation. *Measurement and Evaluation in Counseling and Development*, 47 (1), 79-86.
- Caramagno, J. P. (2018). *Analysis of Practice for the Physical Therapy Profession: Report Memo 2018* (No. 051). Alexandria, VA: Human Resources Research Organization.
- Caramagno, J.P., Adrian, L., Mueller, L., & Purl, J. (2015). *Analysis of Competencies for Dry Needling by Physical Therapists* (No. 033). Alexandria, VA: Human Resources Research Organization.
- Caramagno, J. P., Cogswell, S., & Waugh, G. (2016a). *Analysis of practice for the physical therapy profession: Entry-level physical therapists* (FR16-83). Alexandria, VA: Human Resources Research Organization.
- Lawshe, C. H. (1975). A quantitative approach to content validity. *Personnel psychology*, 28 (4), 563–575.
- Rogers, A. R., & Caramagno, J. P. (2019). *Analysis of Practice for the Physical Therapy Profession: Report Memo 2019* (No. 090). Alexandria, VA: Human Resources Research Organization.

Appendix A. Task Force Members

- David Bertone
- Michelle Finnegan
- Sean Flannagan
- David Griswold
- Oday Lavergne
- Bobby Lee
- Cameron MacDonald
- Ruth Maher
- Ron Pavkovich
- Gary Schindler
- JJ Thomas

Appendix B. Dry Needling Work Activities

ID	Work Activity	Status	Decision	Rationale
PATIENT/CLIENT ASSESSMENT				
Information Gathering & Synthesis				
1	Interview patients/clients, caregivers, and family to obtain patient/client history and current information (e.g., medical, surgical, medications, social, cultural, language preference , economic) to...	Edited	Accept	Changes do not alter the underlying meaning of the WA.
1a	...establish prior and current level of function/ activity	Edited	Accept	Editorial only.
1b	...establish general health status (e.g., fatigue, fever, malaise, unexplained weight change)	Edited	Accept	Changes do not alter the underlying meaning of the WA.
1c	...identify red flags (e.g., fever, malaise, unexplained weight change) and contraindications	Added	Accept	WA is consistent with common theme of screening patients and was extracted from an existing WA.
1d	...identify risk factors and needs for preventative measures			
1e	...identify patient/client's, family/caregiver's goals, values, and preferences	Edited	Accept	Changes do not alter the underlying meaning of the WA.
1f	...determine if patient/client is appropriate for PT			
1g	...determine insurance and financial resources and issues (e.g., co-pays, deductibles, insurance limitations)	Added	Hold	New topic/concept.
1h	...determine impact of medications on plan of care (e.g., medication reconciliation, timing of intervention delivery, adherence)	Added	Hold	New topic/concept.
1i	...identify prior experience with and tolerance for dry needling (e.g., needle phobia, response to treatment, ability to comply with treatment requirements)			
1j	...identify contraindications and precautions related to dry needling (e.g., age, allergies/sensitivities, diseases/conditions, implants, areas of acute inflammation, acute systemic infections, medications)			
2	Administer standardized questionnaires (e.g., pain inventory, fall risk assessment)	Added	Hold	New topic/concept.

ID	Work Activity	Status	Decision	Rationale
3	Review medical records (e.g., lab values, diagnostic tests, specialty reports, narrative, consults)			
4	Gather information/discuss client/patient's current health status with interprofessional/interdisciplinary team members (e.g., teacher, physician, rehabilitation member)	Edited	Accept	WA is consistent with common theme of screening patients and is part of standard PT practice.
5	Identify signs/symptoms of change in patient/client's health status that require intervention by interprofessional/interdisciplinary team members	Added	Accept	WA is consistent with common theme of screening patients and is part of standard PT practice.
Systems Review				
6	Perform screen of the...			
6a	...patient/client's current affect, cognition, communication, and learning preferences style (e.g., ability to convey needs make needs known , consciousness, orientation, expected emotional/behavioral responses, learning preferences)	Edited	Accept	Changes do not alter the underlying meaning of the WA.
6b	...patient/client's quality of speech, hearing, vision (e.g., dysarthria, pitch/tone, use corrective lenses, use of hearing aids)			
6c	...vestibular system (e.g., dizziness, vertigo)			
6d	...gastrointestinal system (e.g., difficulty swallowing, nausea heartburn, indigestion , change in appetite/diet, change in bowel function)	Edited	Accept	Changes do not alter the underlying meaning of the WA.
6e	...genitourinary system (e.g., changes in bladder function, catheter complications frequency, volume, urgency, incontinent episodes)	Edited	Accept	Changes do not alter the underlying meaning of the WA.
6f	... genital reproductive system (e.g., sexual and/or menstrual dysfunction, menopause status)	Edited	Accept	Changes do not alter the underlying meaning of the WA.
6g	...cardiovascular/pulmonary system (e.g., blood pressure, heart rate, respiration rate)	Edited	Accept	Changes do not alter the underlying meaning of the WA.
6h	...lymphatic system (e.g., primary and/or secondary edema)	Added	Accept	WA is consistent with common theme of diagnostic information related to body systems.
6i	...integumentary system (e.g., presence of scar formation, skin integrity, discoloration edema)	Edited	Accept	Changes do not alter the underlying meaning of the WA.

ID	Work Activity	Status	Decision	Rationale
6j	...musculoskeletal system (e.g., gross symmetry, strength, weight , height , range of motion)	Edited	Accept	Changes do not alter the underlying meaning of the WA.
6k	...neuromuscular system (e.g., gross coordination- ed-movements , motor function, balance , locomotion, gross sensory function)	Edited	Accept	Changes do not alter the underlying meaning of the WA.
Tests & Measures				
Cardiovascular and Pulmonary				
7	Select and perform tests and measures of...			
7a	...cardiovascular function (e.g., blood pressure, heart rate, heart sounds)			
7b	...pulmonary function (e.g., respiratory rate, oxygen-saturation , breathing patterns, breath sounds, chest excursion)	Edited	Accept	Changes do not alter the underlying meaning of the WA.
7c	...peripheral circulation (e.g., peripheral-pulses , capillary refill, blood pressure in upper versus lower extremities)	Edited	Accept	Changes do not alter the underlying meaning of the WA.
7d	...physiological responses to position change (e.g., orthostatic hypotension, skin color, blood pressure, heart rate)			
Anthropometric				
8	Quantify and qualify edema (e.g., palpation, volume test, circumference)	Edited	Accept	Changes do not alter the underlying meaning of the WA.
Arousal, Attention, & Cognition				
9	Select and perform tests and measures of...			
9a	...attention and cognition (e.g., ability to process commands, delirium , confusion)	Edited	Accept	Changes do not alter the underlying meaning of the WA.
9b	... communication patient's/client's ability to communicate (e.g., expressive and receptive skills, following instructions)	Edited	Accept	Changes do not alter the underlying meaning of the WA.
9c	...arousal and orientation (e.g., level of consciousness, time, person, place, situation)			
9d	...recall (including memory and retention)			
Nerve Integrity				
10	Select and perform tests and measures of...			

ID	Work Activity	Status	Decision	Rationale
10a	...neural provocation (e.g., tapping, tension, stretch)			
10b	...cranial nerve integrity (e.g., facial asymmetry, oculomotor function, hearing)			
10c	...peripheral nerve integrity (e.g. sensation, strength)			
10d	...spinal nerve integrity (e.g., dermatome, myotome)			
Environmental & Community Integration/Reintegration (Home, Work, Job, School, Play, & Leisure)				
11	Assess safety in home, community, work, or school environments			
Ergonomics and Body Mechanics				
12	Select and perform tests and measures of...			
12a	...ergonomic and body mechanic during functional activities self-care, home, management, work, community, or leisure actions, tasks, or activities (e.g., how patient moves, whether patient aggravates the injury)	Edited	Accept	Changes do not alter the underlying meaning of the WA.
12b	...postural alignment and position (static and dynamic)			
Functional Mobility, Balance, & Vestibular				
13	Select and perform tests and measures of...			
13a	...balance (dynamic and static) with or without the use of specialized equipment			
13b	...gait and locomotion (e.g., ambulation, wheelchair mobility) with or without the use of specialized equipment			
13c	...mobility during functional activities and transitional movements (e.g., transfers, bed mobility)			
Integumentary Integrity				
14	Assess skin characteristics (e.g., blistering , continuity of skin color, dermatitis, hair growth, mobility, nail growth , sensation, temperature, texture, turgor)	Edited	Accept	Changes do not alter the underlying meaning of the WA.
15	Assess scar tissue characteristics (e.g., banding, pliability, sensation, and texture)			

ID	Work Activity	Status	Decision	Rationale
Joint Integrity & Range of Motion				
16	Select and perform tests and measures of...			
16a	...spinal and peripheral joint stability (e.g., ligamentous integrity, joint structure)			
16b	...spinal and peripheral joint mobility (e.g., glide, end feel)			
16c	...range of motion (e.g., passive, active , functional and physiological)	Edited	Accept	Changes do not alter the underlying meaning of the WA.
16d	...active and passive joint range of motion (e.g., goniometry)	Deleted	Accept	Combined into WA 16c to reduce redundancy. Change does not represent a loss of information.
16e	...flexibility (e.g., muscle length, soft tissue extensibility)			
Motor Function				
17	Select and perform tests and measures of...			
17a	...muscle tone (e.g., hypertonicity, hypotonicity, dystonia)			
17b	...movement quality (e.g., purpose, precision, efficiency, biomechanics, kinematics)	Added	Hold	New topic/concept.
17c	...patient's need for assistance (e.g. during transfers, in the application of devices)	Deleted	Hold	Changes are not appropriate for dry needling. This is unique to dry needling.
Muscle Performance				
18	Select and perform tests and measures of...			
18a	...muscle strength, power, and endurance without specialized equipment (e.g., manual muscle test, functional strength testing isokinetic testing, dynamic testing)	Edited	Accept	Changes do not alter the underlying meaning of the WA.
18b	...muscle strength, power, and endurance with specialized equipment (e.g., isokinetic testing, dynamometry)	Added	Accept	WA was extracted from an existing WA to clarify two different conditions. Does not alter the underlying meaning of the WA.

ID	Work Activity	Status	Decision	Rationale
18c	...electrophysiological function using surface electrodes (e.g., surface EMG)	Added	Hold	New topic/concept.
18d	...electrophysiological function using needle insertion (e.g., nerve conduction)	Added	Hold	New topic/concept.
18e	...muscle integrity (e.g., ultrasound imaging)	Added	Hold	New topic/concept.
Neuromotor Development & Sensory Integration				
19	Select and perform tests and measures of...			
19a	...oral motor function, phonation, and speech production			
Reflex Integrity				
20	Select and perform tests and measures of...			
20a	...deep tendon/muscle stretch reflexes (e.g., quadriceps, biceps)			
20b	...superficial reflexes and reactions (e.g., cremasteric reflex, abdominal reflexes)			
20c	...upper motor neuron integrity (e.g., Babinski reflex, Hoffman sign)			
Pain & Sensory Integrity				
21	Select and perform tests and measures of...			
21a	...pain (e.g., location, intensity, characteristics , frequency, central, peripheral, psychogenic)	Edited	Accept	Changes do not alter the underlying meaning of the WA.
21b	...deep sensation (e.g., proprioception, kinesthesia, pressure)			
21c	...superficial sensation (e.g., touch, temperature discrimination)			
21d	...visceral organ sensitivity and integrity (e.g., palpation, auscultation)	Added	Hold	New topic/concept.
Evaluation & Diagnosis				
22	Interpret each of the following types of data to determine the need for intervention or the response to intervention:			
22a	Cardiovascular/pulmonary system			
22b	Lymphatic system			

ID	Work Activity	Status	Decision	Rationale
22c	Arousal, attention, cognition, and communication	Added	Accept	WA is consistent with common theme of assessing patients' cognitive abilities.
22d	Neuromuscular system			
22e	Functional mobility, balance, and vestibular system	Edited	Accept	Changes are consistent with common theme of vestibular system information.
22f	Musculoskeletal system			
22g	Integumentary system			
22h	Anthropometric orphie	Edited	Accept	Editorial only.
22i	Genitourinary system			
22j	Ergonomics and body mechanics			
22k	Pain and sensory integrity	Edited	Hold	Change alters the underlying meaning of the WA.
22l	Imaging, lab values, and medications	Edited	Accept	Editorial only.
23	Develop physical therapy diagnosis by integrating system and non-system data			
Development of Prognosis, Plan of Care, & Goals				
24	Establish PT prognosis based on information gathered during the examination process			
25	Develop plan of care based on data gathered during the examination process, incorporating information from the patient/client, caregiver, payers , family members, and other professionals	Edited	Accept	Changes do not alter the underlying meaning of the WA.
26	Revise treatment intervention plan based on treatment outcomes, change in patient/client's health status, and ongoing evaluation			
27	Develop objective and measurable goals based on information gathered during the examination process, incorporating information from in collaboration with the patient/client, caregiver, payers , family members, and/or other professionals	Edited	Accept	Changes do not alter the underlying meaning of the WA.

ID	Work Activity	Status	Decision	Rationale
28	Select interventions based on information gathered during the examination process, incorporating information from the patient/client, caregiver, payers , family members, and other professionals	Edited	Accept	Changes do not alter the underlying meaning of the WA.
29	Modify plan of care based on patient/client's resources (e.g., financial, transportation, time, insurance benefits, available technologies)	Added	Hold	New topic/concept.
30	Sequence dry needling with other procedural interventions and techniques (e.g., therapeutic exercises, neuromuscular reeducation, manual therapy, physical modalities) to augment therapeutic effects and minimize risk due to adverse outcomes and/or contraindications.			
INTERVENTIONS				
Procedural Interventions				
Therapeutic Exercise/Therapeutic Activities				
31	Perform and/or train patient/client/caregiver in postural drainage	Added	Hold	New topic/concept.
Functional Training				
32	Perform and/or train patient/client/caregiver in gross motor developmental progression	Added	Hold	New topic/concept.
Manual Therapy Techniques				
33	Perform instrument-assisted soft tissue mobilization	Added	Hold	New topic/concept.
34	Perform peripheral joint range of motion	Added	Hold	New topic/concept.
35	Perform spinal mobilization/manipulation (thrust)	Added	Hold	New topic/concept.
36	Apply taping for...			
36a	...neuromuscular reeducation	Added	Hold	New topic/concept.
36b	...lymphatic drainage	Added	Hold	New topic/concept.
36c	...pain management	Added	Hold	New topic/concept.
37	Position the patient/client to...			
37a	...expose the area(s) to be needed			

ID	Work Activity	Status	Decision	Rationale
37b	...reduce the risk of harm to the patient/client and/or therapist			
38	Educate the patient/client on the impact of movement during treatment			
39	Perform palpation techniques to identify the area(s) to be needed			
40	Apply needle handling techniques that ensure compliance with relevant and current professional standards (e.g., wash hands, wear gloves, minimize needle contamination)			
41	Apply draping materials (e.g., linens, towels) to minimize unnecessary exposure and respect patient privacy			
42	Perform dry needling techniques consistent with treatment plan (e.g., place, manipulate, and remove needles)			
43	Manage needle removal complications (e.g., stuck needle, bent needle)			
44	Monitor patient/client's emotional and physiological response to dry needling			
45	Facilitate hemostasis as necessary			
46	Dispose of medical waste (e.g., needles, gloves, swabs) in accordance with regulatory standards and local jurisdictional policies and procedures (e.g., sharps container)			
47	Discuss post-treatment expectations with the patient/client or family/caregiver			
Equipment & Devices				
48	Apply and/or adjust prescribed oxygen during interventions	Added	Hold	Change alters the underlying meaning of the WA.
Therapeutic Modalities				
49	Perform and/or train patient/client/caregiver in...			
49a	...hydrotherapy (e.g., aquatic exercise, underwater treadmill)			

ID	Work Activity	Status	Decision	Rationale
Non-procedural Interventions				
Communication				
50	Discuss physical therapy evaluation findings, interventions, goals, prognosis, discharge planning, and plan of care with...	Edited	Accept	Editorial only.
50a	...physical therapists, physical therapist assistants, and/or support staff	Added	Accept	Changes do not alter the underlying meaning of the WA.
50b	...interprofessional/interdisciplinary team members (e.g., teacher, physician, rehabilitation member)	Edited	Accept	Changes do not alter the underlying meaning of the WA.
50c	...patient/client/caregivers			
51	Provide written, oral, and electronic information to the patient/client and/or caregiver	Edited	Accept	Editorial only.
Documentation				
52	Document...			
52a	...examination results			
52b	...evaluation to include diagnosis, goals, and prognosis			
52c	...intervention(s) and patient/client response(s) to intervention			
52d	...patient/client/caregiver education			
52e	...outcomes (e.g., discharge summary, reassessments)			
52f	...communication with the interdisciplinary/interprofessional team related to the patient/client's care (e.g. with the doctor, teacher, case manager)	Edited	Accept	Changes do not alter the underlying meaning of the WA.
52g	...rationale for billing and reimbursement	Added	Hold	New topic/concept.
52h	...disclosure and consent (e.g., disclosure of medical information, consent for treatment)			
52i	...letter of medical necessity (e.g., wheelchair, assistive equipment, disability parking placard continued therapy)	Edited	Accept	Changes do not alter the underlying meaning of the WA.
53	Assign billing codes for physical therapy diagnosis and treatment provided			

ID	Work Activity	Status	Decision	Rationale
Education				
54	Educate patient/client and/or caregiver about...			
54a	...the patient/client's current condition and health status (e.g., nature of the condition, prognosis, potential benefits of physical therapy interventions, potential treatment outcomes) Educate patient/client about current condition and health status (e.g., treatment outcomes, plan of care, risk and benefit factors)	Edited	Accept	Changes do not alter the underlying meaning of the WA.
54b	...the role of the physical therapist and/or physical therapist assistant in patient/client management	Edited	Accept	Changes do not alter the underlying meaning of the WA.
54c	...lifestyle and behavioral changes to promote wellness (e.g., nutrition interventions , physical activity, tobacco cessation)	Edited	Accept	Changes do not alter the underlying meaning of the WA.
55	Educate healthcare team about...			
55a	...the role of the physical therapist and/or physical therapist assistant in patient/client management	Edited	Accept	Changes do not alter the underlying meaning of the WA.
55b	...safe patient handling (e.g., injury prevention, ergonomics, use of equipment)	Added	Hold	New topic/concept.
56	Educate patient/client or family/caregiver about dry needling (e.g., purpose, technique, methods of action, benefits, tools and equipment)			
57	Educate patient/client or family/caregiver about potential adverse effects associated with dry needling (e.g., fainting, bruising, soreness, fatigue)			
58	Educate patient/client or family/caregiver about precautions and contraindications for dry needling (e.g., age, allergies/sensitivities, diseases/conditions, implants, areas of acute inflammation, acute systemic infections, medications)			
Patient/client & Staff Safety				
Emergency Procedures				
59	Implement emergency life support procedures (e.g., CPR AED, calling a code)	Edited	Accept	Changes do not alter the underlying meaning of the WA.
60	Perform first aid			

ID	Work Activity	Status	Decision	Rationale
61	Prepare and maintain a safe working environment for performing interventions (e.g., unobstructed walkways, equipment availability)			
62	Implement emergency response procedures to treat patient/client injuries sustained during dry needling (e.g., perforation of hollow organs, heavy bleeding, broken needles)			
63	Implement emergency response procedures to treat practitioner injuries sustained during dry needling (e.g., needle stick)			
Environmental Safety				
64	Perform regular equipment inspections (e.g., modalities, assistive devices)			
65	Prepare and maintain a safe and comfortable environment for performing dry needling (e.g., unobstructed walkways, areas for patient/client privacy)			
66	Perform regular equipment inspections and/or maintenance (e.g., modalities, needle expiration, sharps containers)	Edited	Accept	Changes do not alter the underlying meaning of the WA.
67	Stock dry needling supplies and equipment in safe proximity during treatment			
Infection Control				
68	Perform and/or train patient/client and/or caregiver on activities using appropriate infection control practices (e.g., universal precautions, hand hygiene, isolation, airborne precautions, equipment cleaning)	Edited	Accept	Changes do not alter the underlying meaning of the WA.
69	Create and maintain an aseptic environment for patient/client interaction			
70	Implement infection control procedures to mitigate the effects of needle stick injuries			
71	Clean and disinfect blood and bodily fluids spills in accordance with regulatory standards and local jurisdictional policies and procedures			
72	Replace surfaces that cannot be cleaned			
Research & Evidence-Based Practice				
73	Integrate current best evidence, clinical experience, and patient values in clinical practice (e.g., clinical prediction rules, patient preference)			

ID	Work Activity	Status	Decision	Rationale
Professional Responsibilities				
74	Discuss ongoing patient care with the interprofessional/interdisciplinary team members			
75	Refer patient/client to specialists or other healthcare providers when necessary			
76	Disclose financial interest in recommended products or services to patient/client			
77	Provide notice and information about alternative care when the physical therapist terminates provider relationship with the patient/client			
78	Document transfer of patient/client care to another physical therapist (therapist of record)			
79	Determine own need for professional development (<i>i.e., continued competence</i>)	Edited	Accept	Editorial only.
80	Participate in learning and/or development activities (<i>e.g., journal clubs, self-directed reading, continuing competence activities</i>) to maintain the currency of knowledge, skills, and abilities	Edited	Accept	Changes do not alter the underlying meaning of the WA.
81	Practice within the federal and jurisdiction regulations and professional standards	Edited	Accept	Changes do not alter the underlying meaning of the WA.
82	Determine own ability to perform dry needling safely and effectively			
83	<i>Participate in performance improvement and quality reporting activities (e.g., Physician Quality Reporting System, standardized outcomes measurement, application of health informatics)</i>	Added	Hold	New topic/concept.

Appendix C. Dry Needling Knowledge and Skill Requirements

ID	Knowledge and Skill Requirement	Status	Decision	Rationale
CARDIOVASULAR/PULMONARY SYSTEM				
Physical Therapy Examination				
1	Cardiovascular/pulmonary systems tests/measures, including outcome measures, and their applications according to current best evidence			
2	Anatomy and physiology of the cardiovascular/pulmonary systems as related to tests/measures			
3	Movement analysis as related to the cardiovascular/pulmonary systems (e.g., rib cage excursion)			
Foundations for Evaluation, Differential Diagnosis, & Prognosis				
4	Cardiovascular/pulmonary systems diseases/conditions and their pathophysiology to establish and carry out a plan of care, including prognosis			
5	Non-pharmacological medical management of the cardiovascular/pulmonary systems (e.g., diagnostic imaging, laboratory test values, other medical tests, surgical procedures)			
6	The impact of pharmacology used to treat the cardiovascular/pulmonary system on physical therapy management Pharmacological management of the cardiovascular/pulmonary systems	Edited	Accept	Changes do not alter the underlying meaning of the KSR.
7	Differential diagnoses related to diseases/conditions of the cardiovascular/pulmonary systems			
Interventions				
8	Anatomy and physiology of the cardiovascular/pulmonary system as related to physical therapy interventions, daily activities, and environmental factors			
9	Secondary Adverse effects or complications from physical therapy and medical interventions on the cardiovascular/pulmonary systems	Edited	Accept	Changes do not alter the underlying meaning of the KSR.

ID	Knowledge and Skill Requirement	Status	Decision	Rationale
10	Secondary Adverse effects or complications on the cardiovascular/pulmonary systems from physical therapy and medical interventions used on other systems	Edited	Accept	Changes do not alter the underlying meaning of the KSR.
LYMPHATIC SYSTEM				
Physical Therapy Examination				
11	Lymphatic system tests/measures, including outcome measures, and their applications according to current evidence	Added	Accept	Changes are consistent with common theme of body system knowledge.
12	Anatomy and physiology of the lymphatic system as related to tests/measures	Added	Accept	Changes are consistent with common theme of body system knowledge.
13	Movement analysis as related to the lymphatic system (e.g., compensatory movement, extremity range of motion)	Added	Accept	Changes are consistent with common theme of body system knowledge.
Foundations for Evaluation, Differential Diagnosis, & Prognosis				
14	Lymphatic system diseases/conditions and their pathophysiology to establish and carry out a plan of care, including prognosis			
15	Non-pharmacological medical management of the lymphatic system (e.g., diagnostic imaging, laboratory test values, other medical tests, surgical procedures)			
16	Differential diagnoses related to diseases/conditions of the lymphatic system			
Interventions				
17	Anatomy and physiology of the lymphatic system as related to physical therapy interventions, daily activities, and environmental factors			
18	Secondary Adverse effects or complications from physical therapy and medical interventions on the lymphatic system	Edited	Accept	Changes do not alter the underlying meaning of the KSR.
19	Secondary-Adverse effects or complications on the lymphatic system from physical therapy and medical interventions used on other systems	Edited	Accept	Changes do not alter the underlying meaning of the KSR.

ID	Knowledge and Skill Requirement	Status	Decision	Rationale
MUSCULOSKELETAL SYSTEM				
Physical Therapy Examination				
20	Musculoskeletal system tests/measures, including outcome measures, and their applications according to current best evidence			
21	Anatomy and physiology of the musculoskeletal system as related to tests/measures			
22	Movement analysis as related to the musculoskeletal system			
23	Joint biomechanics and their applications			
Foundations for Evaluation, Differential Diagnosis, & Prognosis				
24	Muscular and skeletal diseases/conditions and their pathophysiology to establish and carry out a plan of care, including prognosis			
25	Non-pharmacological medical management of the musculoskeletal system (e.g., diagnostic imaging, laboratory test values, other medical tests, surgical procedures)			
26	The impact of pharmacology used to treat the musculoskeletal system on physical therapy management Pharmacological management of the musculoskeletal system	Edited	Accept	Changes do not alter the underlying meaning of the KSR.
27	Differential diagnoses related to diseases/conditions of the musculoskeletal muscular and skeletal system	Edited	Accept	Editorial only.
28	Connective tissue diseases/conditions and their pathophysiology to establish and carry out a plan of care, including prognosis			
29	Differential diagnoses related to diseases/conditions of the connective tissue			
Interventions				
30	Musculoskeletal system physical therapy interventions and their applications for rehabilitation, health promotion, and performance according to current best evidence			
31	Anatomy and physiology of the musculoskeletal system as related to physical therapy interventions, daily activities, and environmental factors			

ID	Knowledge and Skill Requirement	Status	Decision	Rationale
32	Secondary Adverse effects or complications on the musculoskeletal system from physical therapy and medical interventions	Edited	Accept	Changes do not alter the underlying meaning of the KSR.
33	Secondary Adverse effects or complications on the musculoskeletal system from physical therapy and medical interventions used on other systems	Edited	Accept	Changes do not alter the underlying meaning of the KSR.
NEUROMUSCULAR & NERVOUS SYSTEMS				
Physical Therapy Examination				
34	Neuromuscular and nervous systems tests/measures, including outcome measures, and their applications according to current best evidence	Edited	Accept	Editorial only.
35	Anatomy and physiology of the neuromuscular and nervous systems as related to tests/measures	Edited	Accept	Editorial only.
36	Movement analysis as related to the neuromuscular and nervous systems	Edited	Accept	Editorial only.
Foundations for Evaluation, Differential Diagnosis, & Prognosis				
37	Neuromuscular/ Nervous system (CNS, PNS, ANS) diseases/conditions and their pathophysiology to establish and carry out a plan of care, including prognosis	Edited	Accept	Changes do not alter the underlying meaning of the KSR.
38	Non-pharmacological medical management of the neuromuscular and nervous systems (e.g., diagnostic imaging, laboratory test values, other medical tests, surgical procedures)	Edited	Accept	Editorial only.
39	The impact of pharmacology used to treat the neuromuscular and nervous systems on physical therapy management Pharmacological management of the neuromuscular and nervous systems	Edited	Accept	Changes do not alter the underlying meaning of the KSR.
40	Differential diagnoses related to diseases/conditions of the neuromuscular/ nervous system (CNS, PNS, ANS)	Edited	Accept	Changes do not alter the underlying meaning of the KSR.
41	The impact of regenerative medicine (e.g., platelet rich plasma, stem cells) on physical therapy prognosis and interventions related to the neuromuscular and nervous systems	Added	Hold	New topic/concept.

ID	Knowledge and Skill Requirement	Status	Decision	Rationale
Interventions				
42	Neuromuscular / and nervous systems physical therapy interventions and their applications for rehabilitation, health promotion, and performance according to current best evidence	Edited	Accept	Editorial only.
43	Anatomy and physiology of the neuromuscular / and nervous systems as related to physical therapy interventions, daily activities, and environmental factors	Edited	Accept	Editorial only.
44	Secondary Adverse effects or complications from physical therapy and medical interventions on the neuromuscular / and nervous systems	Edited	Accept	Changes do not alter the underlying meaning of the KSR.
45	Secondary Adverse effects or complications on the neuromuscular / and nervous systems from physical therapy and medical interventions used on other systems	Edited	Accept	Changes do not alter the underlying meaning of the KSR.
46	Motor control as related to neuromuscular / and nervous systems physical therapy interventions	Edited	Accept	Editorial only.
47	Motor learning as related to neuromuscular / and nervous systems physical therapy interventions	Edited	Accept	Editorial only.
INTEGUMENTARY SYSTEM				
Physical Therapy Examination				
48	Integumentary system tests/measures, including outcome measures, and their applications according to current best evidence			
49	Anatomy and physiology of the integumentary system as related to tests/measures			
50	Movement analysis as related to the integumentary system (e.g., friction, shear, pressure, and scar mobility)			
Foundations for Evaluation, Differential Diagnosis, & Prognosis				
51	Integumentary system diseases/conditions and their pathophysiology to establish and carry out a plan of care, including prognosis			
52	Non-pharmacological medical management of the integumentary system (e.g., diagnostic imaging, laboratory test values, other medical tests, surgical procedures)			

ID	Knowledge and Skill Requirement	Status	Decision	Rationale
53	The impact of pharmacology used to treat the integumentary system on physical therapy management Pharmacological management of the integumentary system	Edited	Accept	Changes do not alter the underlying meaning of the KSR.
54	Differential diagnoses related to diseases/conditions of the integumentary system			
Interventions				
55	Anatomy and physiology of the integumentary system as related to physical therapy interventions, daily activities, and environmental factors			
56	Secondary Adverse effects or complications from physical therapy and medical/surgical interventions on the integumentary system	Edited	Accept	Changes do not alter the underlying meaning of the KSR.
57	Secondary Adverse effects or complications on the integumentary system from physical therapy and medical interventions used on other systems	Edited	Accept	Changes do not alter the underlying meaning of the KSR.
METABOLIC & ENDOCRINE SYSTEMS				
Foundations for Evaluation, Differential Diagnosis, & Prognosis				
58	Metabolic and endocrine systems diseases/conditions and their pathophysiology to establish and carry out a plan of care, including prognosis			
59	Non-pharmacological medical management of the metabolic and endocrine systems (e.g., diagnostic imaging, laboratory test values, other medical tests, surgical procedures)			
60	The impact of pharmacology used to treat the metabolic and endocrine systems on physical therapy management Pharmacological management of the metabolic and endocrine systems	Edited	Accept	Changes do not alter the underlying meaning of the KSR.
61	Differential diagnoses related to diseases/conditions of the metabolic and endocrine systems			

ID	Knowledge and Skill Requirement	Status	Decision	Rationale
Interventions				
62	Anatomy and physiology of the metabolic and endocrine systems as related to physical therapy interventions, daily activities, and environmental factors			
63	Secondary Adverse effects or complications from physical therapy and medical interventions on the metabolic and endocrine systems	Edited	Accept	Changes do not alter the underlying meaning of the KSR.
64	Secondary Adverse effects or complications on the metabolic and endocrine systems from physical therapy and medical interventions used on other systems	Edited	Accept	Changes do not alter the underlying meaning of the KSR.
GASTROINTESTINAL SYSTEM				
Physical Therapy Examination				
65	Gastrointestinal system tests/measures, including outcomes measures, and their applications according to current best evidence (e.g., bowel dysfunction impact questionnaires, Murphy test, Rovsing test, McBurney point sign)	Added	Hold	New topic/concept.
66	Anatomy and physiology of the gastrointestinal system as related to tests/measures	Added	Hold	New topic/concept.
67	Movement analysis as related to the gastrointestinal system (e.g., effects of muscular tension or trigger points, positioning for bowel movement)	Added	Hold	New topic/concept.
Foundations for Evaluation, Differential Diagnosis, & Prognosis				
68	Gastrointestinal system diseases/conditions and their pathophysiology to establish and carry out a plan of care, including prognosis			
69	Non-pharmacological medical management of the gastrointestinal system (e.g., diagnostic imaging, laboratory test values, other medical tests, surgical procedures)			
70	Differential diagnoses related to diseases/conditions of the gastrointestinal system			

ID	Knowledge and Skill Requirement	Status	Decision	Rationale
Interventions				
71	Anatomy and physiology of the gastrointestinal system as related to physical therapy interventions, daily activities, and environmental factors			
72	Secondary Adverse effects or complications from physical therapy and medical interventions on the gastrointestinal system	Edited	Accept	Changes do not alter the underlying meaning of the KSR.
73	Secondary Adverse effects or complications on the gastrointestinal system from physical therapy and medical interventions used on other systems	Edited	Accept	Changes do not alter the underlying meaning of the KSR.
GENITOURINARY SYSTEM				
Physical Therapy Examination				
74	Genitourinary system tests/measures, including outcome measures, and their applications according to current best evidence			
75	Anatomy and physiology of the genitourinary system as related to tests/measures			
76	Physiological response of the genitourinary system to various types of tests/measures			
Foundations for Evaluation, Differential Diagnosis, & Prognosis				
77	Genitourinary system diseases/conditions and their pathophysiology to establish and carry out a plan of care, including prognosis			
78	Non-pharmacological medical management of the genitourinary system (e.g., diagnostic imaging, laboratory test values, other medical tests, surgical procedures)			
79	The impact of pharmacology used to treat the genitourinary system on physical therapy management Pharmacological management of the genitourinary system	Edited	Accept	Changes do not alter the underlying meaning of the KSR.
80	Differential diagnoses related to diseases/conditions of the genitourinary system			

ID	Knowledge and Skill Requirement	Status	Decision	Rationale
Interventions				
81	Genitourinary system physical therapy interventions and their applications for rehabilitation, and health promotion, and performance according to current best evidence (e.g., bladder programs, biofeedback, pelvic floor retraining)	Edited	Accept	Changes do not alter the underlying meaning of the KSR.
82	Anatomy and physiology of the genitourinary system as related to physical therapy interventions, daily activities, and environmental factors			
83	Secondary Adverse effects or complications from physical therapy and medical interventions on the genitourinary system	Edited	Accept	Changes do not alter the underlying meaning of the KSR.
84	Secondary Adverse effects or complications on the genitourinary system from physical therapy and medical interventions used on other systems	Edited	Accept	Changes do not alter the underlying meaning of the KSR.
SYSTEM INTERACTIONS				
Foundations for Evaluation, Differential Diagnosis, & Prognosis				
85	Diseases/conditions where the primary impact is on more than one system (e.g., cancer, multi-trauma, sarcoidosis, autoimmune disorders, pregnancy) to establish and carry out a plan of care, including prognosis	Edited	Accept	Changes do not alter the underlying meaning of the KSR.
86	Non-pharmacological medical management of multiple systems (e.g., diagnostic imaging and other medical tests, surgical procedures)			
87	The impact of pharmacology used to treat multiple systems, including polypharmacy, on physical therapy management Pharmacological management of multiple systems, including polypharmacy	Edited	Accept	Changes do not alter the underlying meaning of the KSR.
88	Differential diagnoses related to diseases/conditions where the primary impact is on more than one system			
89	The impact of co-morbidities/co-existing conditions on patient/client management (e.g., diabetes and hypertension; obesity and arthritis; dementia and hip fracture)			
90	Psychological and psychiatric conditions that impact patient/client management (e.g., grief , depression, schizophrenia)	Edited	Accept	Changes do not alter the underlying meaning of the KSR.

ID	Knowledge and Skill Requirement	Status	Decision	Rationale
91	Dimensions of pain that impact patient/client management (e.g., psychological, social, physiological, neurological, mechanical)	Added	Hold	New topic/concept.
THERAPUTIC MODALITIES				
92	Applications, indications, contraindications, and precautions of thermal modalities			
93	Applications, indications, contraindications, and precautions of electrotherapy modalities, excluding iontophoresis (e.g., neuromuscular electrical stimulation (NMES), transcutaneous electrical nerve stimulation (TENS), functional electrical stimulation (FES), interferential therapy, high-voltage pulsed current)	Edited	Accept	Changes do not alter the underlying meaning of the KSR.
94	Applications, indications, contraindications, and precautions of intermittent compression Pneumatic-compression modalities	Edited	Accept	Changes do not alter the underlying meaning of the KSR.
SAFETY & PROTECTION				
95	Factors influencing safety and injury prevention (e.g., safe patient handling, fall prevention, equipment maintenance, environmental safety)	Edited	Accept	Changes do not alter the underlying meaning of the KSR.
96	Patient positioning techniques (e.g., side-lying, prone, supine) and their effect on anatomy and physiology			
97	Draping techniques			
98	Infection control procedures (e.g., standard/universal precautions, isolation techniques, sterile technique)			
99	Environment cleaning and sanitization procedures			
100	Equipment cleaning and sanitization procedures (not including needles)			
101	Local laws and regulations regarding the disposal of needles and medical waste			
102	Regulations and standards regarding infection prevention (e.g., Occupational Safety and Health Administration Standards)			
103	Medical waste disposal equipment			
104	Signs/symptoms of physical, sexual, and psychological abuse and neglect			

ID	Knowledge and Skill Requirement	Status	Decision	Rationale
PROFESSIONAL RESPONSIBILITIES				
105	Standards of documentation			
106	Standards of professional ethics	Added	Hold	New topic/concept.
107	Standards of billing, coding, and reimbursement	Added	Hold	New topic/concept.
108	Patient/client rights (e.g., ADA, IDEA, HIPAA, patient bill of rights)	Edited	Accept	Changes do not alter the underlying meaning of the KSR.
109	Obligations for reporting illegal, unethical, or unprofessional behaviors (e.g., fraud, abuse, neglect)	Added	Hold	New topic/concept.
110	State and federal laws, rules, regulations, and industry standards set by state and accrediting bodies (e.g., state licensing entities, Joint Commission, CARF, CMS)	Added	Hold	New topic/concept.
111	Risk management and quality assurance (e.g., policies and procedures, incident reports, peer chart review)	Added	Hold	New topic/concept.
112	Human resource legal issues (e.g., OSHA, sexual harassment)			
113	The roles and responsibilities of physical therapist assistants in relation to physical therapists and other health-care professionals	Merged with an existing KSR	Accept	Changes are consistent with common theme of body system knowledge.
114	The roles and responsibilities of the PT, PTA, other healthcare professionals, and support staff	Edited	Accept	Changes do not alter the underlying meaning of the KSR.
115	Cultural factors and/or characteristics that affect patient/client management (e.g., language differences, disability, ethnicity, customs, demographics, religion)	Added	Hold	New topic/concept.
116	Socioeconomic factors that affect patient/client management	Added	Hold	New topic/concept.
117	Health information technology (e.g., electronic medical records, telemedicine)	Added	Hold	New topic/concept.
RESEARCH & EVIDENCE-BASED PRACTICE				
118	Techniques for accessing evidence (e.g., peer-reviewed publications, scientific proceedings, guidelines, clinical prediction rules)	Added	Hold	New topic/concept.

ID	Knowledge and Skill Requirement	Status	Decision	Rationale
DRY NEEDLING-SPECIFIC KNOWLEDGE				
Anatomy and Physiology				
119	Surface anatomy as it relates to underlying tissues, organs, and other structures, including variations in form, proportion, and anatomical landmarks			
Emergency Preparedness and Response				
120	Emergency preparedness (e.g., CPR, first aid, disaster response)			
121	Emergency preparedness and/or response procedures related to secondary physiological effects or complications associated with dry needling (e.g., shock, vasovagal)			
122	Emergency preparedness and/or response procedures related to secondary emotional effects or complications associated with dry needling (e.g., claustrophobia, anxiety, agitation)			
123	Standards for needle handling (e.g., hand hygiene, application of single-use needles)			
Safety & Protection				
124	Personal protection procedures and techniques as related to dry needling (e.g., positioning self to access treatment area, use of personal protective equipment)			
125	Theoretical basis for dry needling (e.g., applications for rehabilitation, health promotion, fitness and wellness, performance)			
126	Theoretical basis for combining dry needling with other interventions			
127	Secondary effects or complications associated with dry needling on other systems (e.g., gastrointestinal, cardiovascular/pulmonary, musculoskeletal)			
128	Theoretical basis of pain sciences, including anatomy, physiology, pathophysiology, and relation to body structures and function			
129	Contraindications and precautions related to dry needling (e.g., age, allergies, diseases/conditions)			
130	Palpation techniques as related to dry needling			

ID	Knowledge and Skill Requirement	Status	Decision	Rationale
131	Needle insertion techniques			
132	Needle manipulation techniques			
133	Physiological responses to dry needling			
134	Solid filament needles (e.g., physical characteristics)			
SKILLS				
135	Active listening - Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times			
136	Reading comprehension - Understanding written sentences and paragraphs in work related documents			
137	Writing - Communicating effectively in writing as appropriate for the needs of the audience			
138	Speaking - Talking to others to convey information effectively			
139	Active learning - Understanding the implications of new information for both current and future problem solving and decision-making			
140	Critical thinking - Using logic and clinical reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems			
141	Coordination - Adjusting actions in relation to others' actions			
142	Social perceptiveness - Being aware of others' reactions and understanding why they react as they do			
143	Judgment and decision-making - Considering the relative costs and benefits of potential actions to choose the most appropriate one			
144	Time management - Managing one's own time and the time of others	Added	Hold	New topic/concept.
145	Persuasion - Persuading others to change their minds or behavior	Added	Hold	New topic/concept.
146	Negotiation - Bringing others together and trying to reconcile differences	Added	Hold	New topic/concept.
147	Service orientation - Actively looking for ways to help people	Added	Hold	New topic/concept.

ID	Knowledge and Skill Requirement	Status	Decision	Rationale
148	Arm-Hand Steadiness - The ability to keep your hand and arm steady while moving your arm or while holding your arm and hand in one position			
149	Finger Dexterity - The ability to make precisely coordinated movements of the fingers of one or both hands to grasp, manipulate, or assemble very small objects			
150	Gross Body Coordination - The ability to coordinate the movement of your arms, legs, and torso together when the whole body is in motion			
151	Gross Body Equilibrium - The ability to keep or regain your body balance or stay upright when in an unstable position			
152	Manual Dexterity - The ability to quickly move your hand, your hand together with your arm, or your two hands to grasp, manipulate, or assemble objects			
153	Speed of Limb Movement - The ability to quickly move the arms and legs			
154	Wrist-Finger Speed - The ability to make fast, simple, repeated movements of the fingers, hands, and wrists			

Appendix D. Physical Therapy Work Activities Required for the Competent Performance of Dry Needling

Dry Needling Work Activities	
PATIENT/CLIENT ASSESSMENT	
Information Gathering & Synthesis	
	Interview patients/clients, caregivers, and family to obtain patient/client history and current information (e.g., medical, surgical, medications, social, cultural, language preference, economic) to...
1	...establish prior and current level of function/activity
2	...establish general health status
3	...identify red flags (e.g., fever, malaise, unexplained weight change) and contraindications
4	...identify risk factors and needs for preventative measures
5	...identify patient/client's, family/caregiver's goals, values, and preferences
6	...determine if patient/client is appropriate for PT
7	...identify prior experience with and tolerance for dry needling (e.g., needle phobia, response to treatment, ability to comply with treatment requirements)
8	...identify contraindications and precautions related to dry needling (e.g., age, allergies/sensitivities, diseases/conditions, implants, areas of acute inflammation, acute systemic infections, medications)
9	Review medical records (e.g., lab values, diagnostic tests, specialty reports, narrative, consults)
10	Gather information/discuss client/patient's current health status with interprofessional/interdisciplinary team members
11	Identify signs/symptoms of change in patient/client's health status that require intervention by interprofessional/interdisciplinary team members
Systems Review	
	Perform screen of the...
12	...patient/client's current affect, cognition, communication, and learning preferences (e.g., ability to convey needs, consciousness, orientation, expected emotional/behavioral responses)
13	...patient/client's quality of speech, hearing, vision (e.g., dysarthria, pitch/tone, use corrective lenses, use of hearing aids)
14	...vestibular system (e.g., dizziness, vertigo)
15	...gastrointestinal system (e.g., difficulty swallowing, nausea, change in appetite/diet, change in bowel function)
16	...genitourinary system (e.g., changes in bladder function, catheter complications)
17	...reproductive system (e.g., sexual and/or menstrual dysfunction, menopause status)
18	...cardiovascular/pulmonary system (e.g., blood pressure, heart rate, respiration rate)
19	...lymphatic system (e.g., primary and/or secondary edema)
20	...integumentary system (e.g., presence of scar formation, skin integrity, discoloration)

Dry Needling Work Activities	
21	...musculoskeletal system (e.g., gross symmetry, strength, range of motion)
22	...neuromuscular system (e.g., gross coordination, motor function, balance, locomotion, gross sensory function)
Tests & Measures	
Cardiovascular and Pulmonary	
	Select and perform tests and measures of...
23	...cardiovascular function (e.g., blood pressure, heart rate, heart sounds)
24	...pulmonary function (e.g., respiratory rate, breathing patterns, breath sounds, chest excursion)
25	...peripheral circulation (e.g., capillary refill, blood pressure in upper versus lower extremities)
26	...physiological responses to position change (e.g., orthostatic hypotension, skin color, blood pressure, heart rate)
Anthropometric	
27	Quantify and qualify edema (e.g., palpation, volume test, circumference)
Arousal, Attention, & Cognition	
	Select and perform tests and measures of...
28	...attention and cognition (e.g., ability to process commands, delirium, confusion)
29	...communication (e.g., expressive and receptive skills, following instructions)
30	...arousal and orientation (e.g., level of consciousness, time, person, place, situation)
31	...recall (including memory and retention)
Nerve Integrity	
	Select and perform tests and measures of...
32	...neural provocation (e.g., tapping, tension, stretch)
33	...cranial nerve integrity (e.g., facial asymmetry, oculomotor function, hearing)
34	...peripheral nerve integrity (e.g. sensation, strength)
35	...spinal nerve integrity (e.g., dermatome, myotome)
Environmental & Community Integration/Reintegration (Home, Work, Job, School, Play, & Leisure)	
36	Assess safety in home, community, work, or school environments
Ergonomics and Body Mechanics	
	Select and perform tests and measures of...
37	...ergonomic and body mechanic during functional activities
38	...postural alignment and position (static and dynamic)

Dry Needling Work Activities	
Functional Mobility, Balance, & Vestibular	
	Select and perform tests and measures of...
39	...balance (dynamic and static) with or without the use of specialized equipment
40	...gait and locomotion (e.g., ambulation, wheelchair mobility) with or without the use of specialized equipment
41	...mobility during functional activities and transitional movements (e.g., transfers, bed mobility)
Integumentary Integrity	
42	Assess skin characteristics (e.g., continuity of skin color, sensation, temperature, texture, turgor)
43	Assess scar tissue characteristics (e.g., banding, pliability, sensation, and texture)
Joint Integrity & Range of Motion	
	Select and perform tests and measures of...
44	...spinal and peripheral joint stability (e.g., ligamentous integrity, joint structure)
45	...spinal and peripheral joint mobility (e.g., glide, end feel)
46	...range of motion (e.g., passive, active, functional)
47	...flexibility (e.g., muscle length, soft tissue extensibility)
Motor Function	
	Select and perform tests and measures of...
48	...muscle tone (e.g., hypertonicity, hypotonicity, dystonia)
49	...patient's need for assistance (e.g. during transfers, in the application of devices)
Muscle Performance	
	Select and perform tests and measures of...
50	...muscle strength, power, and endurance without specialized equipment (e.g., manual muscle test, functional strength testing)
51	...muscle strength, power, and endurance with specialized equipment (e.g., isokinetic testing, dynamometry)
Neuromotor Development & Sensory Integration	
	Select and perform tests and measures of...
52	...oral motor function, phonation, and speech production
Reflex Integrity	
	Select and perform tests and measures of...
53	...deep tendon/muscle stretch reflexes (e.g., quadriceps, biceps)
54	...superficial reflexes and reactions (e.g., cremasteric reflex, abdominal reflexes)
55	...upper motor neuron integrity (e.g., Babinski reflex, Hoffman sign)

Dry Needling Work Activities	
Pain & Sensory Integrity	
	Select and perform tests and measures of...
56	...pain (e.g., location, intensity, frequency, central, peripheral, psychogenic)
57	...deep sensation (e.g., proprioception, kinesthesia, pressure)
58	...superficial sensation (e.g., touch, temperature discrimination)
Evaluation & Diagnosis	
	Interpret each of the following types of data to determine the need for intervention or the response to intervention:
59	Cardiovascular/pulmonary system
60	Lymphatic system
61	Arousal, attention, cognition, and communication
62	Neuromuscular system
63	Functional mobility, balance, and vestibular
64	Musculoskeletal system
65	Integumentary system
66	Anthropometric
67	Genitourinary system
68	Ergonomics and body mechanics
69	Pain
70	Imaging, lab values, and medications
71	Develop physical therapy diagnosis by integrating system and non-system data
Development of Prognosis, Plan of Care, & Goals	
72	Establish PT prognosis based on information gathered during the examination process
73	Develop plan of care based on data gathered during the examination process, incorporating information from the patient/client, caregiver, family members, and other professionals
74	Revise treatment intervention plan based on treatment outcomes, change in patient/client's health status, and ongoing evaluation
75	Develop objective and measurable goals based on information gathered during the examination process, in collaboration with the patient/client, caregiver, family members, and/or other professionals
76	Select interventions based on information gathered during the examination process, incorporating information from the patient/client, caregiver, family members, and other professionals
77	Sequence dry needling with other procedural interventions and techniques (e.g., therapeutic exercises, neuromuscular reeducation, manual therapy, physical modalities) to augment therapeutic effects and minimize risk due to adverse outcomes and/or contraindications.

Dry Needling Work Activities	
INTERVENTIONS	
Manual Therapy Techniques	
	Position the patient/client to...
78	...expose the area(s) to be needled
79	...reduce the risk of harm to the patient/client and/or therapist
80	Educate the patient/client on the impact of movement during treatment
81	Perform palpation techniques to identify the area(s) to be needled
82	Apply needle handling techniques that ensure compliance with relevant and current professional standards (e.g., wash hands, wear gloves, minimize needle contamination)
83	Apply draping materials (e.g., linens, towels) to minimize unnecessary exposure and respect patient privacy
84	Perform dry needling techniques consistent with treatment plan (e.g., place, manipulate, and remove needles)
85	Manage needle removal complications (e.g., stuck needle, bent needle)
86	Monitor patient/client's emotional and physiological response to dry needling
87	Facilitate hemostasis as necessary
88	Dispose of medical waste (e.g., needles, gloves, swabs) in accordance with regulatory standards and local jurisdictional policies and procedures (e.g., sharps container)
89	Discuss post-treatment expectations with the patient/client or family/caregiver
Therapeutic Modalities	
	Perform and/or train patient/client/caregiver in...
90	...hydrotherapy (e.g., aquatic exercise, underwater treadmill)
Non-procedural Interventions	
Communication	
	Discuss physical therapy evaluation findings, interventions, goals, prognosis, discharge planning, and plan of care with...
91	...physical therapists, physical therapist assistants, and/or support staff
92	...interprofessional/interdisciplinary team members
93	...patient/client/caregivers
94	Provide written, oral, and electronic information to the patient/client and/or caregiver
Documentation	
	Document...
95	...examination results
96	...evaluation to include diagnosis, goals, and prognosis

Dry Needling Work Activities	
97	...intervention(s) and patient/client response(s) to intervention
98	...patient/client/caregiver education
99	...outcomes (e.g., discharge summary, reassessments)
100	...communication with the interdisciplinary/interprofessional team related to the patient/client's care
101	...disclosure and consent (e.g., disclosure of medical information, consent for treatment)
102	...letter of medical necessity (e.g., wheelchair, assistive equipment, disability parking placard)
103	Assign billing codes for physical therapy diagnosis and treatment provided
Education	
	Educate patient/client and/or caregiver about...
104	...the patient/client's current condition and health status (e.g., nature of the condition, prognosis, potential benefits of physical therapy interventions, potential treatment outcomes)
105	...the role of the physical therapist and/or physical therapist assistant in patient/client management
106	...lifestyle and behavioral changes to promote wellness (e.g., nutrition, physical activity, tobacco cessation)
	Educate healthcare team about...
107	...the role of the physical therapist and/or physical therapist assistant in patient/client management
108	Educate patient/client or family/caregiver about dry needling (e.g., purpose, technique, methods of action, benefits, tools and equipment)
109	Educate patient/client or family/caregiver about potential adverse effects associated with dry needling (e.g., fainting, bruising, soreness, fatigue)
110	Educate patient/client or family/caregiver about precautions and contraindications for dry needling (e.g., age, allergies/sensitivities, diseases/conditions, implants, areas of acute inflammation, acute systemic infections, medications)
Patient/client & Staff Safety	
Emergency Procedures	
111	Implement emergency procedures (e.g., CPR AED, calling a code)
112	Perform first aid
113	Prepare and maintain a safe working environment for performing interventions (e.g., unobstructed walkways, equipment availability)
114	Implement emergency response procedures to treat patient/client injuries sustained during dry needling (e.g., perforation of hollow organs, heavy bleeding, broken needles)
115	Implement emergency response procedures to treat practitioner injuries sustained during dry needling (e.g., needle stick)
Environmental Safety	
116	Perform regular equipment inspections (e.g., modalities, assistive devices)

Dry Needling Work Activities	
117	Prepare and maintain a safe and comfortable environment for performing dry needling (e.g., unobstructed walkways, areas for patient/client privacy)
118	Perform regular equipment inspections and/or maintenance (e.g., modalities, needle expiration, sharps containers)
119	Stock dry needling supplies and equipment in safe proximity during treatment
Infection Control	
120	Perform and/or train patient/client and/or caregiver on appropriate infection control practices (e.g., universal precautions, hand hygiene, isolation, airborne precautions, equipment cleaning)
121	Create and maintain an aseptic environment for patient/client interaction
122	Implement infection control procedures to mitigate the effects of needle stick injuries
123	Clean and disinfect blood and bodily fluids spills in accordance with regulatory standards and local jurisdictional policies and procedures
124	Replace surfaces that cannot be cleaned
Research & Evidence-Based Practice	
125	Integrate current best evidence, clinical experience, and patient values in clinical practice (e.g., clinical prediction rules, patient preference)
Professional Responsibilities	
126	Discuss ongoing patient care with the interprofessional/interdisciplinary team members
127	Refer patient/client to specialists or other healthcare providers when necessary
128	Disclose financial interest in recommended products or services to patient/client
129	Provide notice and information about alternative care when the physical therapist terminates provider relationship with the patient/client
130	Document transfer of patient/client care to another physical therapist (therapist of record)
131	Determine own need for professional development
132	Participate in learning and/or development activities (e.g., journal clubs, self-directed reading, continuing competence activities) to maintain the currency of knowledge, skills, and abilities
133	Practice within the federal and jurisdiction regulations and professional standards
134	Determine own ability to perform dry needling safely and effectively

Appendix E. Knowledge Requirements Related to Competency in Dry Needling

Dry Needling Knowledge Requirements	
CARDIOVASULAR/PULMONARY SYSTEM	
Physical Therapy Examination	
1	Cardiovascular/pulmonary systems tests/measures, including outcome measures, and their applications according to current best evidence
2	Anatomy and physiology of the cardiovascular/pulmonary systems as related to tests/measures
3	Movement analysis as related to the cardiovascular/pulmonary systems (e.g., rib cage excursion)
Foundations for Evaluation, Differential Diagnosis, & Prognosis	
4	Cardiovascular/pulmonary systems diseases/conditions and their pathophysiology to establish and carry out a plan of care, including prognosis
5	Non-pharmacological medical management of the cardiovascular/pulmonary systems (e.g., diagnostic imaging, laboratory test values, other medical tests, surgical procedures)
6	The impact of pharmacology used to treat the cardiovascular/pulmonary system on physical therapy management
7	Differential diagnoses related to diseases/conditions of the cardiovascular/pulmonary systems
Interventions	
8	Anatomy and physiology of the cardiovascular/pulmonary system as related to physical therapy interventions, daily activities, and environmental factors
9	Adverse effects or complications from physical therapy interventions on the cardiovascular/pulmonary systems
10	Adverse effects or complications on the cardiovascular/pulmonary systems from physical therapy interventions used on other systems
LYMPHATIC SYSTEM	
Physical Therapy Examination	
11	Lymphatic system tests/measures, including outcome measures, and their applications according to current evidence
12	Anatomy and physiology of the lymphatic system as related to tests/measures
13	Movement analysis as related to the lymphatic system (e.g., compensatory movement, extremity range of motion)
Foundations for Evaluation, Differential Diagnosis, & Prognosis	
14	Lymphatic system diseases/conditions and their pathophysiology to establish and carry out a plan of care, including prognosis
15	Non-pharmacological medical management of the lymphatic system (e.g., diagnostic imaging, laboratory test values, other medical tests, surgical procedures)
16	Differential diagnoses related to diseases/conditions of the lymphatic system
Interventions	
17	Anatomy and physiology of the lymphatic system as related to physical therapy interventions, daily activities, and environmental factors

Dry Needling Knowledge Requirements	
18	Adverse effects or complications from physical therapy interventions on the lymphatic system
19	Adverse effects or complications on the lymphatic system from physical therapy interventions used on other systems
MUSCULOSKELETAL SYSTEM	
Physical Therapy Examination	
20	Musculoskeletal system tests/measures, including outcome measures, and their applications according to current best evidence
21	Anatomy and physiology of the musculoskeletal system as related to tests/measures
22	Movement analysis as related to the musculoskeletal system
23	Joint biomechanics and their applications
Foundations for Evaluation, Differential Diagnosis, & Prognosis	
24	Muscular and skeletal diseases/conditions and their pathophysiology to establish and carry out a plan of care, including prognosis
25	Non-pharmacological medical management of the musculoskeletal system (e.g., diagnostic imaging, laboratory test values, other medical tests, surgical procedures)
26	The impact of pharmacology used to treat the musculoskeletal system on physical therapy management
27	Differential diagnoses related to diseases/conditions of the musculoskeletal system
28	Connective tissue diseases/conditions and their pathophysiology to establish and carry out a plan of care, including prognosis
29	Differential diagnoses related to diseases/conditions of the connective tissue
Interventions	
30	Musculoskeletal system physical therapy interventions and their applications for rehabilitation, health promotion, and performance according to current best evidence
31	Anatomy and physiology of the musculoskeletal system as related to physical therapy interventions, daily activities, and environmental factors
32	Adverse effects or complications on the musculoskeletal system from physical therapy interventions
33	Adverse effects or complications on the musculoskeletal system from physical therapy interventions used on other systems
NEUROMUSCULAR & NERVOUS SYSTEMS	
Physical Therapy Examination	
34	Neuromuscular and nervous systems tests/measures, including outcome measures, and their applications according to current best evidence
35	Anatomy and physiology of the neuromuscular and nervous systems as related to tests/measures
36	Movement analysis as related to the neuromuscular and nervous systems
Foundations for Evaluation, Differential Diagnosis, & Prognosis	
37	Nervous system (CNS, PNS, ANS) diseases/conditions and their pathophysiology to establish and carry out a plan of care, including prognosis

Dry Needling Knowledge Requirements	
38	Non-pharmacological medical management of the neuromuscular and nervous systems (e.g., diagnostic imaging, laboratory test values, other medical tests, surgical procedures)
39	The impact of pharmacology used to treat the neuromuscular and nervous systems on physical therapy management
40	Differential diagnoses related to diseases/conditions of the nervous system (CNS, PNS, ANS)
Interventions	
41	Neuromuscular and nervous systems physical therapy interventions and their applications for rehabilitation, health promotion, and performance according to current best evidence
42	Anatomy and physiology of the neuromuscular and nervous systems as related to physical therapy interventions, daily activities, and environmental factors
43	Adverse effects or complications from physical therapy interventions on the neuromuscular and nervous systems
44	Adverse effects or complications on the neuromuscular and nervous systems from physical therapy interventions used on other systems
45	Motor control as related to neuromuscular and nervous systems physical therapy interventions
46	Motor learning as related to neuromuscular and nervous systems physical therapy interventions
INTEGUMENTARY SYSTEM	
Physical Therapy Examination	
47	Integumentary system tests/measures, including outcome measures, and their applications according to current best evidence
48	Anatomy and physiology of the integumentary system as related to tests/measures
49	Movement analysis as related to the integumentary system (e.g., friction, shear, pressure, and scar mobility)
Foundations for Evaluation, Differential Diagnosis, & Prognosis	
50	Integumentary system diseases/conditions and their pathophysiology to establish and carry out a plan of care, including prognosis
51	Non-pharmacological medical management of the integumentary system (e.g., diagnostic imaging, laboratory test values, other medical tests, surgical procedures)
52	The impact of pharmacology used to treat the integumentary system on physical therapy management
53	Differential diagnoses related to diseases/conditions of the integumentary system
Interventions	
54	Anatomy and physiology of the integumentary system as related to physical therapy interventions, daily activities, and environmental factors
55	Adverse effects or complications from physical therapy and medical/surgical interventions on the integumentary system
56	Adverse effects or complications on the integumentary system from physical therapy interventions used on other systems

Dry Needling Knowledge Requirements	
METOBOLIC & ENDOCRINE SYSTEMS	
Foundations for Evaluation, Differential Diagnosis, & Prognosis	
57	Metabolic and endocrine systems diseases/conditions and their pathophysiology to establish and carry out a plan of care, including prognosis
58	Non-pharmacological medical management of the metabolic and endocrine systems (e.g., diagnostic imaging, laboratory test values, other medical tests, surgical procedures)
59	The impact of pharmacology used to treat the metabolic and endocrine systems on physical therapy management
60	Differential diagnoses related to diseases/conditions of the metabolic and endocrine systems
Interventions	
61	Anatomy and physiology of the metabolic and endocrine systems as related to physical therapy interventions, daily activities, and environmental factors
62	Adverse effects or complications from physical therapy interventions on the metabolic and endocrine systems
63	Adverse effects or complications on the metabolic and endocrine systems from physical therapy interventions used on other systems
GASTROINTESTINAL SYSTEM	
Foundations for Evaluation, Differential Diagnosis, & Prognosis	
64	Gastrointestinal system diseases/conditions and their pathophysiology to establish and carry out a plan of care, including prognosis
65	Non-pharmacological medical management of the gastrointestinal system (e.g., diagnostic imaging, laboratory test values, other medical tests, surgical procedures)
66	Differential diagnoses related to diseases/conditions of the gastrointestinal system
Interventions	
67	Anatomy and physiology of the gastrointestinal system as related to physical therapy interventions, daily activities, and environmental factors
68	Adverse effects or complications from physical therapy interventions on the gastrointestinal system
69	Adverse effects or complications on the gastrointestinal system from physical therapy interventions used on other systems
GENITOURINARY SYSTEM	
Physical Therapy Examination	
70	Genitourinary system tests/measures, including outcome measures, and their applications according to current best evidence
71	Anatomy and physiology of the genitourinary system as related to tests/measures
72	Physiological response of the genitourinary system to various types of tests/measures
Foundations for Evaluation, Differential Diagnosis, & Prognosis	
73	Genitourinary system diseases/conditions and their pathophysiology to establish and carry out a plan of care, including prognosis

Dry Needling Knowledge Requirements	
74	Non-pharmacological medical management of the genitourinary system (e.g., diagnostic imaging, laboratory test values, other medical tests, surgical procedures)
75	The impact of pharmacology used to treat the genitourinary system on physical therapy management
76	Differential diagnoses related to diseases/conditions of the genitourinary system
Interventions	
77	Genitourinary system physical therapy interventions and their applications for rehabilitation, health promotion, and performance according to current best evidence (e.g., bladder programs, biofeedback, pelvic floor retraining)
78	Anatomy and physiology of the genitourinary system as related to physical therapy interventions, daily activities, and environmental factors
79	Adverse effects or complications from physical therapy interventions on the genitourinary system
80	Adverse effects or complications on the genitourinary system from physical therapy interventions used on other systems
SYSTEM INTERACTIONS	
Foundations for Evaluation, Differential Diagnosis, & Prognosis	
81	Diseases/conditions where the primary impact is on more than one system (e.g., cancer, multi-trauma, sarcoidosis, autoimmune disorders, pregnancy) to establish and carry out a plan of care, including prognosis
82	Non-pharmacological medical management of multiple systems (e.g., diagnostic imaging and other medical tests, surgical procedures)
83	The impact of pharmacology used to treat multiple systems, including polypharmacy, on physical therapy management
84	Differential diagnoses related to diseases/conditions where the primary impact is on more than one system
85	The impact of co-morbidities/co-existing conditions on patient/client management (e.g., diabetes and hypertension; obesity and arthritis; dementia and hip fracture)
86	Psychological and psychiatric conditions that impact patient/client management (e.g., grief, depression, schizophrenia)
THERAPUTIC MODALITIES	
87	Applications, indications, contraindications, and precautions of thermal modalities
88	Applications, indications, contraindications, and precautions of electrotherapy modalities, excluding iontophoresis (e.g., neuromuscular electrical stimulation (NMES), transcutaneous electrical nerve stimulation (TENS), functional electrical stimulation (FES), interferential therapy, high-voltage pulsed current)
89	Applications, indications, contraindications, and precautions of intermittent compression
SAFETY & PROTECTION	
90	Factors influencing safety and injury prevention (e.g., safe patient handling, fall prevention, equipment maintenance, environmental safety)
91	Patient positioning techniques (e.g., side-lying, prone, supine) and their effect on anatomy and physiology
92	Draping techniques
93	Infection control procedures (e.g., standard/universal precautions, isolation techniques, sterile technique)

Dry Needling Knowledge Requirements	
94	Environment cleaning and sanitization procedures
95	Equipment cleaning and sanitization procedures (not including needles)
96	Local laws and regulations regarding the disposal of needles and medical waste
97	Regulations and standards regarding infection prevention (e.g., Occupational Safety and Health Administration Standards)
98	Medical waste disposal equipment
99	Signs/symptoms of physical, sexual, and psychological abuse and neglect
PROFESSIONAL RESPONSIBILITIES	
100	Standards of documentation
101	Patient/client rights (e.g., ADA, IDEA, HIPAA, patient bill of rights)
102	Human resource legal issues (e.g., OSHA, sexual harassment)
103	The roles and responsibilities of the PT, PTA, other healthcare professionals, and support staff
DRY NEEDLING-SPECIFIC KNOWLEDGE	
Anatomy and Physiology	
104	Surface anatomy as it relates to underlying tissues, organs, and other structures, including variations in form, proportion, and anatomical landmarks
Emergency Preparedness and Response	
105	Emergency preparedness (e.g., CPR, first aid, disaster response)
106	Emergency preparedness and/or response procedures related to physiological effects or complications associated with dry needling (e.g., shock, vasovagal)
107	Emergency preparedness and/or response procedures related to emotional effects or complications associated with dry needling (e.g., claustrophobia, anxiety, agitation)
108	Standards for needle handling (e.g., hand hygiene, application of single-use needles)
Safety & Protection	
109	Personal protection procedures and techniques as related to dry needling (e.g., positioning self to access treatment area, use of personal protective equipment)
110	Theoretical basis for dry needling (e.g., applications for rehabilitation, health promotion, fitness and wellness, performance)
111	Theoretical basis for combining dry needling with other interventions
112	Secondary effects or complications associated with dry needling on other systems (e.g., gastrointestinal, cardiovascular/pulmonary, musculoskeletal)
113	Theoretical basis of pain sciences, including anatomy, physiology, pathophysiology, and relation to body structures and function
114	Contraindications and precautions related to dry needling (e.g., age, allergies, diseases/conditions)
115	Palpation techniques as related to dry needling

Dry Needling Knowledge Requirements	
116	Needle insertion techniques
117	Needle manipulation techniques
118	Physiological responses to dry needling
119	Solid filament needles (e.g., physical characteristics)

Appendix F. Skills and Abilities Needed for the Competent Performance of Dry Needling

Skill/Ability		O*NET Definition [†]
Communicating with patients		
1	Active listening	Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times
2	Reading comprehension	Understanding written sentences and paragraphs in work related documents
3	Writing	Communicating effectively in writing as appropriate for the needs of the audience
4	Speaking	Talking to others to convey information effectively
5	Active learning	Understanding the implications of new information for both current and future problem solving and decision-making
6	Critical thinking	Using logic and clinical reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems
Adapting behavior or treatment to accommodate patient's needs/preferences		
7	Coordination	Adjusting actions in relation to others' actions
8	Social perceptiveness	Being aware of others' reactions and understanding why they react as they do
Reflecting on and evaluating own competence to perform dry needling		
9	Judgment and decision-making	Considering the relative costs and benefits of potential actions to choose the most appropriate one
Abiding by professional and ethical standards		
10	Judgment and decision-making	Considering the relative costs and benefits of potential actions to choose the most appropriate one
Handling and controlling needles and palpating tissues		
11	Arm-Hand Steadiness	The ability to keep your hand and arm steady while moving your arm or while holding your arm and hand in one position
12	Finger Dexterity	The ability to make precisely coordinated movements of the fingers of one or both hands to grasp, manipulate, or assemble very small objects
13	Gross Body Coordination	The ability to coordinate the movement of your arms, legs, and torso together when the whole body is in motion
14	Gross Body Equilibrium	The ability to keep or regain your body balance or stay upright when in an unstable position
15	Manual Dexterity	The ability to quickly move your hand, your hand together with your arm, or your two hands to grasp, manipulate, or assemble objects
16	Speed of Limb Movement	The ability to quickly move the arms and legs
17	Wrist-Finger Speed	The ability to make fast, simple, repeated movements of the fingers, hands, and wrists

[†] The U.S. Department of Labor developed a database called the Occupational Information Network (O*NET) that contains information on skills and abilities related to job performance in different industries, including physical therapy.