



Applicant Report: Dry Needling in Physical Therapist Scope of Practice

- Legislative proposal being reviewed under the sunrise process (include bill number if available): Allowing physical therapists to perform dry needling SB 6374
- Name and title of profession for which the applicant seeks to change scope of practice: Physical therapist
- Approximate number of individuals practicing in Washington: 6,400 licensed physical therapists (there are also 2,100 licensed physical therapist assistants who would not be affected by this law).
- Information about applicant's organization:
 - Organization name: Physical Therapy Association of Washington
 - Contact person: Emilie Jones, PT, DPT, GCS
 - Address: 208 Rogers St NW, Olympia, WA 98502
 - Telephone number: (360) 352-7290 x10
 - Email address: ejones8@aol.com
 - Number of members in the organization: 2,676 (2,047 physical therapists, 203 physical therapist assistants, 426 students)
- Name(s) and address(es) of national organization(s) with which the state organization is affiliated and number of members in the organization:
 - American Physical Therapy Association, 1111 North Fairfax St, Alexandria, VA 22314
 - Number of members in national organization: 93,000
- Name(s) of other state or national organizations representing the profession: None
- List states where this profession includes this expanded scope of practice:
 - Dry needling is allowed via regulatory board opinion, Attorney General, AG, opinion, PT statute, or PT Board regulation in 19 states, with no additional education/training specific to dry needling required: Alaska, Georgia (in statute), Iowa, Kansas, Kentucky (AG opinion), Massachusetts, Nebraska, Nevada, New Hampshire, New Mexico, North Carolina, North Dakota, Ohio, Rhode Island, South

Carolina, Texas (AG opinion), Vermont, West Virginia, and Wisconsin.

- Dry needling is allowed via regulatory board opinion, AG opinion, PT statute, or PT Board regulation in 13 states, with additional education and training required: Arizona, Colorado, Delaware, District of Columbia, Illinois, Louisiana, Maryland (rules in process), Mississippi, Montana, Tennessee (rules in process), Utah, Virginia, and Wyoming.
- There are nine states that are silent on the issue of physical therapists performing dry needling: Arkansas, Connecticut, Florida, Indiana, Maine, Missouri, Minnesota, Oklahoma, and Pennsylvania.
- Dry needling is also performed by physical therapists in all branches of the United States military.

Dry Needling in Physical Therapist Scope of Practice

Executive Summary

Definition of the problem and why the change in regulation is necessary

The Physical Therapy Association of Washington (PTWA) seeks the inclusion of dry needling in the physical therapy scope of practice, as outlined in SB 6374, an act relating to allowing physical therapists to perform dry needling. The issue of physical therapists performing dry needling has been debated in Washington state for several years: by the Washington State Board of Physical Therapy, the King County Superior Court, the legislature, and most recently the Washington State Attorney General. In 2016, HB 2606 and its companion bill, SB 6374, were introduced. These bills would allow physical therapists who receive a dry needling endorsement from the Secretary of Health to perform dry needling. In an effort to examine and analyze this issue away from the legislative process, PTWA requested a sunrise review on SB 6374. It is our intent to demonstrate that dry needling is a safe, effective and appropriate tool for physical therapists to use in treating patients with musculoskeletal impairments. In addition, we feel that the endorsement approach in SB 6374 will ensure safe practice by defining the educational requirements for physical therapists to perform this technique.

Definition of the problem and benefits to the public

According to physiatrist Steven R. Goodman, M.D., "Chronic pain is a national epidemic that not only created immeasurable suffering, impairment, disability and addiction but is also a major contributor to health care expenditures." Myofascial pain, including "trigger points," are common sources of pain that are underdiagnosed and undertreated. Studies have shown that myofascial trigger points are the primary source of pain in 30-85% of patients in primary care and pain clinic settings.

Dry needling is used to treat dysfunctions in skeletal muscle, fascia, and connective tissue, diminish persistent peripheral nociceptive (pain) inputs, and reduce or restore impairments of body structure and function leading to improved movement and function (APTA Resource Paper 2013). Many patients with musculoskeletal pain are already receiving physical therapy, at a fraction of the cost of other interventions. Physical therapists' practice of dry needling has the potential to reduce the cost of more expensive medical procedures such as imaging, surgery, opioid pain medication and long-term disability. To quote Dr. Goodman again: "Physical therapists have the proper education in the biomedical sciences, are already treating neuro-musculoskeletal injuries and conditions associated with trigger point myofascial pain, and significantly, can provide these patients with the proper exercise and functional rehabilitation programs they also require. Indeed physical therapists are the ideal practitioners to provide dry needling to the truly enormous numbers of people who could benefit from it."

It is acknowledged that some physical therapists in Washington state were performing dry needling prior to the 2015 statement by PTWA urging physical therapists to cease performing this technique and the 2016 Attorney General opinion. It is in the best interest of the public to define clear legislative scope of practice language clarifying the conditions under which physical therapists may safely and legally perform dry needling. More information on efficacy and cost-effectiveness can be found in sections 3 and 4 of this report.

Minimum level of education and training necessary to perform dry needling

In 2015, the Federation of State Boards of Physical Therapy (FSBPT), commissioned the nonprofit organization Human Resources Research Organization (HumRRO) to organize a practice analysis on dry needling in physical therapy. A task force formed by HumRRO to analyze the data concluded that 86% of the knowledge requirements needed to be competent in dry needling is acquired during the course of physical therapy entry-level education, including knowledge related to evaluation, assessment, diagnosis and plan of care development, documentation, safety and professional responsibilities.

This analysis shows that the overwhelming majority of education necessary for physical therapists to perform dry needling is taught in the entry-level physical therapy doctorate education. Fourteen percent of the knowledge requirements related to competency in dry needling must be acquired through post-graduate education or specialized training in dry needling. The only skill that was determined not to be included in entry-level education was the actual handling of the needle.

The language of the proposed legislation (SB 6374) is based on this practice analysis. Fifty-four hours of post-licensure continuing education is the average length of the advanced, postgraduate training for dry needling in order to satisfy the HumRRO task force's recommendations. Dry needling postgraduate education is readily available across the United States and Canada. Dry needling is taught by physicians and physical therapists at many medical institutions and clinics, including Regis University in Colorado, Mercer University in Georgia and the University of British Columbia. Details of entry level and post-doctoral education can be found in Section 5 of this report.

Ensuring public safety for dry needling

Studies have shown that dry needling is safe when performed by physical therapists. In a study published in the Journal of Manual and Manipulative Therapy (Brady 2013), researchers reported that the risk of adverse effects of dry needling performed by physical therapists is less than 0.04 percent - lower than for common over-the-counter pain medication such as ibuprofen (.137 percent). All reported adverse events were considered "mild" (bleeding, bruising, pain while being needled) and no significant adverse events were reported.

The Washington State Legislature has determined that the physical therapist scope of practice includes other tissue penetrating procedures such as sharps debridement and needle electromyography. Recognizing that dry needling is not an entry-level skill, nor are the skills needed to perform this technique solely related to needle handling, the proposed legislation requires physical therapists to have at least one year of clinical practice prior to receiving an endorsement to perform dry needling. Only those physical therapists who meet the minimum of one-year full-time practice experience and the 54 hours of additional education and training will qualify for the endorsement. Furthermore, while physical therapists are able to supervise both licensed physical therapist assistants and physical therapy aides, this legislation would prohibit physical therapists from delegating dry needling. Details of safety considerations can be found in section 6 on Public Safety. More details on safety can be found in Section 6 of this report.

Current education and training adequately prepares practitioners to perform dry needling.

Graduation from any accredited program in the United States, including the three programs in the state of Washington (University of Washington, Eastern Washington University and University of Puget Sound), confers a Doctorate of Physical Therapy (DPT). At the University of Washington, School of Rehabilitation Medicine, Doctor of Physical Therapy Program, students obtain their doctorate after successfully completing 162 credits, which amounts to 4,860 hours of class and lab time, not counting outside practice and study time. This includes 1,500 hours of supervised clinical education.

The doctoral education of physical therapists includes anatomy, histology, physiology, biomechanics, kinesiology, neuroscience, pharmacology, pathology, clinical sciences, clinical interventions, clinical applications, differential diagnosis and screening. Much of the basic anatomical, physiological, and biomechanical knowledge that dry needling uses is taught as part of the core physical therapist education; the specific dry needling skills are supplemental to that knowledge.

According to a study by Childs et al. in 2005, physical therapists rank ahead of family medicine practitioners, internists, general surgeons and other non-orthopedic physicians in their knowledge of musculoskeletal conditions management. Only orthopedic surgeons rank ahead of physical therapists in their knowledge of musculoskeletal conditions management. This again was supported by research from Moore, et al 2005, which shows that clinical diagnostic accuracy by physical therapists and orthopedic surgeons on patients with musculoskeletal injuries was significantly greater than non-orthopedic surgeons, with no statistical difference between orthopedic surgeons and physical therapists. These research studies suggest that physical therapists have the knowledge, training and skills necessary to clinically diagnose and manage musculoskeletal injuries beyond most non-orthopedic physicians.

Continuing education courses on dry needling for physical therapists are ubiquitous throughout the United States, Canada and internationally. Dry needling course outlines and more information are found in Section 5 “Dry Needling Post-Doctoral Continuing Education” and in the appendix of this report. A list of common dry needling educational courses for physical therapists can be found at the end of this report. According to their class descriptions, these courses require pre-study to review anatomy, individual testing at the end of each course and advanced techniques that are not introduced until the students have a basic grasp on the technique. Courses require the student to pass a practical examination at the end of each course before being allowed to practice on patients. Any safety concerns result in an automatic failure and inability to progress further.

Physical therapist academic preparation for dry needling

The FSBPT competency analysis found that 86% of the knowledge requirements needed to be competent in dry needling is acquired during the course of physical therapy clinical education, including knowledge related to evaluation, assessment, diagnosis and plan of care development, documentation, safety and professional responsibilities. The remaining 14% of the knowledge requirements related to competency in dry needling must be acquired through post-graduate education or specialized training in dry needling. Dry needling is not an entry-level skill for physical therapists and such, no changes should be made to the academic education for physical therapists. Furthermore, doctoral education programs as they currently exist adequately prepare students in the foundational sciences of anatomy, histology, physiology, biomechanics, kinesiology, neuroscience, pharmacology, pathology, clinical sciences, clinical interventions, clinical applications, differential diagnosis and screening. Specific dry needling skills are supplemental to that knowledge and require additional training outside of the professional degree. Details can be found in Section 5 “Dry Needling Post-Doctoral Continuing Education” and in the appendix of this report.

Ensuring that only qualified practitioners are authorized to perform dry needling

The proposed legislation expands the physical therapy scope of practice to include dry needling as an endorsement on the physical therapist license. Standard physical therapist licensure includes the ability to perform therapeutic techniques and manual therapy. The Washington State Legislature has determined that the physical therapist scope of practice includes other tissue penetrating procedures such as sharps debridement and needle electromyography. The proposed legislation requires physical therapists to have at least one year of clinical practice prior to receiving an endorsement to perform dry needling. Only those physical therapists who meet the minimum of one year full-time practice experience and the 54 hours of additional education and training will qualify for the endorsement. Furthermore, while physical therapists are able to supervise both licensed physical therapist assistants and physical therapy aides, this legislation would prohibit physical therapists from delegating dry needling.

Dry Needling in Physical Therapist Scope of Practice

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1. INTRODUCTION

The Physical Therapy Association of Washington (PTWA) seeks the inclusion of dry needling in the physical therapy scope of practice, as outlined in SB 6374, an act relating to physical therapists to perform dry needling.

The issue of physical therapists performing dry needling has been debated in Washington for several years. The Washington State Board of Physical Therapy (Board of PT) solicited comments from interested stakeholders over the past four years on this issue. In December of 2014, they passed a motion stating that the Board would not address the dry needling issue until the Legislature provided further direction. In 2015, Rep. Eileen Cody introduced HB 1042, a bill specifically prohibiting physical therapists from performing dry needling. That bill did not pass the Legislature.

Following the 2015 legislative session, PTWA advised and requested that all PTs who had been previously performing dry needling cease the practice until legislation was passed defining qualifications.

In 2016, HB 2606 and its companion bill, SB 6374, were introduced. These bills would allow physical therapists who have a dry needling endorsement from the Secretary of Health to perform dry needling. The proposed legislation expands the physical therapy scope of practice to include dry needling as an endorsement on the physical therapist license. Standard physical therapist licensure includes the ability to perform therapeutic techniques and manual therapy. The Washington State Legislature has determined that the physical therapist scope of practice includes other tissue penetrating procedures such as sharps debridement and needle electromyography. The basis for this determination was that physical therapists possess the knowledge, skills and competency to safely and capably provide these techniques.

Recognizing that dry needling is not an entry-level skill, nor are the skills needed to perform this technique solely related to needle handling, the proposed legislation requires physical therapists to have at least one year of clinical practice prior to receiving an endorsement to perform dry needling. Furthermore, while physical therapists are able to supervise both licensed physical therapist assistants and physical therapy aides, this legislation would prohibit physical therapists from delegating dry needling.

Adding an endorsement for dry needling would have no additional costs to the state or the Department of Health as the cost of the endorsement would be borne by the licensee.

Neither HB 2602 nor SB 6374 passed the Legislature in 2016. In an effort to examine and analyze this issue away from the legislative process, PTWA requested a sunrise review on SB 6374. It is our intent to demonstrate that dry needling is a safe, effective, and appropriate tool for physical therapists to use in treating patients with musculoskeletal impairments. In addition, we feel that the endorsement approach in SB 6374 will ensure safe practice. Only those physical therapists who meet the minimum of one-year full-time practice experience and the 54 hours of additional education and training will qualify for the endorsement.

2. BACKGROUND: The history and definition of dry needling in physical therapy

Dry needling is a technique that originates in Western medicine. Dry needling uses a thin filiform needle to penetrate the skin and stimulate underlying myofascial trigger points, muscular, and connective tissues for the management of neuromusculoskeletal pain and movement impairments. (APTA Resource Paper 2013). Dry needling is used to treat dysfunctions in skeletal muscle, fascia, and connective tissue, diminish persistent peripheral nociceptive (pain) inputs, and reduce or restore impairments of body structure and function leading to improved movement and function (APTA Resource Paper 2013).

Physical therapists treat myofascial pain and trigger points using a variety of physical therapy techniques: stretching, manual therapy/massage, ultrasound, transcutaneous electrical nerve stimulation, biofeedback, etc. (Kalichman 2010). Though physical therapists use dry needling to treat myofascial pain, they also use dry needling to treat restrictions in range of motion due to contractures in muscle fibers, fascial adhesions or scar tissue.

The theoretical origin of dry needling is attributed to the pioneering work of Janet Travell, M.D. and David Simons, M.D., whose original research mapped all the myofascial trigger points in the body in the 1950s and 1960s. They used .22-gauge hypodermic needles to treat myofascial pain with trigger point therapy (i.e., needling of taut bands of muscle fibers). They originally injected these taut bands of muscle with a medication or saline, but later studies showed that it was the needle piercing the skin that caused the change in the muscle, not what was being injected (Karl Lewit, 1989). Hence, the term dry needling came about, as the needle was dry and was not injecting anything into the body.

Dry needling is a procedural intervention used by physical therapists to treat pain, functional impairments, and disabilities. Myofascial pain is a common form of pain that is caused by muscles or fascia. Myofascial trigger points are small, tight areas of muscle fiber that are highly irritable. Studies have shown that myofascial trigger points are the primary source of pain in 30-85% of patients in primary care and pain clinic settings. (Skootsky 1989, Han 1989).

Trigger points are very common and have been described in numerous diagnoses: radiculopathies, joint dysfunction, disc pathology, tendonitis, craniomandibular dysfunction, migraines, tension headaches, carpal tunnel syndrome, whiplash associated disorders, spinal dysfunction, pelvic pain and urologic syndromes, post-herpetic neuralgia, complex regional pain syndrome, phantom pain, among others (APTA Dry Needling in Clinical Practice Resource Paper).

The dry needling technique involves the insertion of solid filament needles into the skin and underlying tissue to disrupt pain sensory pathways and relax contracted fibers (Dommerholt & Fernandez-de-las-Penas, 2014). Clinical research suggests that dry needling helps reduce local and peripheral pain and sensitization, thereby speeding up the restoration of muscle function and range of motion (Lewit, 1979; Dommerholt, 2011; Clewley, Flynn, & Koppenhaver, 2014). Dry needling (alone or with other physical therapy interventions) has been shown to be an effective treatment for neuro-musculoskeletal diseases or conditions, including arthritis, tendonitis, carpal tunnel syndromes and chronic pain (Gerwin 2004; Kalichman, & Vulfsons, 2010).

Over the past several decades, practitioners have adopted variations on the original approach including superficial and deep needling techniques (Gunn, 1997; Baldry, 2002). Modern dry needling has largely abandoned hypodermic needles in favor of round tip, solid filament needles ranging from .22 to .30 millimeters in diameter, as the beveled tip of hypodermic needles causes greater tissue damage than necessary. In addition, modern dry needling is used to treat a variety of conditions and dysfunction that impact the musculoskeletal and nervous systems of the body.

The technique of dry needling can be visualized by this video from the Netherlands: <https://www.youtube.com/watch?v=l75OAZzr6V4&index=49&list=FLJZHGN5-n5P2nJEP2TeVcow>

3. EFFICACY OF DRY NEEDLING

a. Pain reduction

Dry needling has been shown to reduce pain and improve outcomes in patients with myofascial pain. Research in the medical community on the benefits of dry needling date back to the 1970s and 80s.

A study by Chan Gunn in 1980 randomized 56 patients with chronic low back pain that had not improved with 8 weeks of standard care that included physical therapy, occupational therapy and exercise. The dry needling group underwent dry needling once or twice a week for an average of 7.9 treatments. They were assessed at the end of their treatment, at 12 weeks and at 6 months. The group that had been treated with dry needling was clearly and significantly better than the control group at all points. Eighteen of the 29 patients who had undergone dry

needling had returned to their original employment and 10 had returned to lighter employment, compared with the control group where only 4 had returned to full employment and 14 to lighter employment. The reduced burden of the cost of ongoing treatment for chronic pain, as well as the societal costs of being unable to work, are significant.

The efficacy of dry needling in patients with neck and shoulder pain was evaluated in an article by Gerber et al. The patients had myofascial pain for longer than 3 months and underwent 9 sessions of dry needling over 3 weeks. Dry needling changed the trigger point status from active (spontaneously painful) to latent or resolved. Importantly, pain reduction was significantly correlated with improvement in range of motion including cervical spine side bending and rotation. Patient self-reports revealed a reduction in disability as well as improved physical and emotional well-being and mood (Gerber 2015).

Dry needling has also been shown to be effective in costly chronic conditions such as fibromyalgia. A study in the journal "Rheumatology International" evaluated the short-term efficacy of dry needling therapy in patients severely affected by fibromyalgia. One hundred and twenty fibromyalgia patients were randomly divided into two groups. The control group (56 women and 4 men) and the dry needling group (54 women and 6 men) who, in addition to continuing their medical treatment, also underwent weekly one-hour sessions of dry needling for six weeks. At the end of treatment, the experimental group showed significant improvements in most tests, including pain, fatigue, and global subjective improvement. Six weeks after the end of the treatment, the dry needling group still showed significant improvements in most tests (Casanueva 2014).

Dry needling can have additional benefits in reducing spasticity in patients with neurologic impairments. A study in the "Journal of Manipulative Physiologic Therapy" found that patients who had had a stroke and who underwent one session of dry needling in their calf and shin muscle had reduced spasticity and decreased pressure sensitivity after the intervention (Salom-Moreno 2014). This type of benefit can then be immediately translated to therapeutic exercise and gait training during a physical therapy session.

b. Patient benefits of dry needling treatment

Many patients with myofascial pain and trigger points are already receiving physical therapy or are referred to physical therapy for treatment of their muscle imbalance and pain. In states that allow physical therapists to perform dry needling, patients who receive dry needling during their treatment have received it as part of their overall physical therapy plan of care, not as an individual therapy. Thus, dry needling enhances the success of their overall physical therapy treatment.

According to Washington physiatrist Steven Goodman, M.D., physical therapist practice of dry needling has the potential to reduce the cost of more expensive medical procedures such as imaging, surgery, opioid pain medication and long-term disability.

In addition, patients with neuromuscular pain need access to this targeted technique in order to prevent chronic pain, opioid dependence, work restrictions and disability. The recently published Centers for Disease Control Guidelines for prescribing opioids attempted to quantify the cost of chronic pain in the United States. They cited an article by Stagnitti which stated that in 2012, total expenses for outpatient prescription opioids were estimated at \$9.0 billion, an increase of 120% from 2002. Physical therapy was specifically mentioned as a more effective and lower cost treatment for chronic pain (CDC Guideline 2016).

4. COST EFFECTIVENESS OF PHYSICAL THERAPISTS PERFORMING DRY NEEDLING

Musculoskeletal conditions are among the costliest to manage. Low back pain (LBP) (acute, subacute and chronic) is a common condition and the leading cause of disability in the United States as of 2010. At least 80% of adults will have LBP at some point in their life and approximately 20-30% of the adult population has LBP at any given time. Expensive, non-conservative modalities (e.g., imaging, opioids and spinal injections) are often used for acute LBP in the absence of a clear indication for those services, further driving up LBP costs.

According to the Bree Collaborative, the total direct health care costs attributable to low back pain in the United States were estimated to be \$26.3 billion in 1998. In 2010, King County government's self-insured health plan (KingCare) spent more than \$31 million for surgical and non-surgical interventions specifically for low back pain. Similarly, Costco Wholesale spent approximately \$124 million (107,951 claimants) in 2011 on musculoskeletal and connective tissue conditions. Indirect costs related to days lost from work are also substantial; one study found that mechanical low back pain was the fourth costliest physical health condition for businesses and 41% of those costs were attributable to absence or disability. It is estimated that only 15% of all LBP has an identifiable anatomic or physiologic cause (e.g., herniated disc, lumbar spinal stenosis). The remaining 85% of low back pain diagnoses are for acute or non-specific low back pain. Yet in 2010, Washington had the 14th highest back surgery rate of all states. Furthermore, LBP has a high risk to become a chronic, costly condition. In long-term follow-up (one year or more), about one in three patients report intermittent or persistent pain of at least moderate intensity, one in seven continue to report back pain of severe intensity, and one in five report substantial activity limitations (Bree Collaborative 2013).

The high cost of LBP and related musculoskeletal conditions make them a major source of concern to all health care stakeholders, especially employers and other purchasers such as the Washington State Department of Labor and Industries. The total direct health care costs attributable to LBP in the United States were estimated to be \$26.3 billion in 1998.

The Bree Collaborative recommends, "Patients with complex low back pain (defined as having significant functional deficits) may require referral to a physical medicine and rehabilitation physician and/or to a physical therapist or mental health specialist for further evaluation and rehabilitative services directed at helping patients resume life activities."

Many patients with musculoskeletal pain are already receiving physical therapy, at a fraction of the cost of other interventions like opioids, imaging, or surgery. As described in the earlier section on efficacy, allowing physical therapists to perform dry needling would lead to improved participation in rehabilitation and improved outcomes.

Access to dry needling treatment improves outcomes and facilitates patient participation with other physical therapy techniques like manual therapy and active exercise. Many patients are *already receiving physical therapy care* and prefer to get treatment within the western medical model. If physical therapists are not able to utilize this technique, patients will require many more sessions of physical therapy to treat their condition or the patient may need additional treatment from another healthcare practitioner.

Other practitioners who perform dry needling include physiatrists, orthopedic doctors, and naturopaths, whose visits are usually more expensive. Many physicians do not have the availability or desire to provide this technique at the frequency that it may be required to achieve results. There are approximately 6,400 physical therapists in Washington state and they practice in most geographic areas. Physical therapists have the capacity to provide this treatment and are already treating patients with myofascial pain. Limiting this technique to physician providers will limit the patient's choice of providers as well as being potentially cost prohibitive to patients. Allowing patients who are already receiving physical therapy to receive dry needling as part of their treatment will accelerate their care and thus reduce the cost to insurers and patients.

5. DRY NEEDLING POST-DOCTORAL CONTINUING EDUCATION

In 2015, the Federation of State Boards of Physical Therapy (FSBPT), commissioned the nonprofit organization Human Resources Research Organization (HumRRO) to organize a practice analysis on dry needling in physical therapy. This months-long process included a literature review of dry needling tasks and knowledge requirements by and a practitioner survey of over 350 physical therapists. Then a task force of dry needling experts processed the information from the literature

review and the practitioner survey to determine a final set of dry needling competencies. (See Appendices.)

a. Competencies

The task force analyzed what competencies, including knowledge, skills and abilities, are necessary for a physical therapist to perform dry needling competently. The task force also analyzed physical therapy entry-level education (education necessary for licensure) to determine what competencies are already taught in physical therapy school. The practice analysis results showed two important segments of physical therapy education and dry needling.

b. Entry level physical therapy education competencies

Eighty-six percent of the knowledge requirements needed to be competent in dry needling is acquired during the course of physical therapy entry-level education, including knowledge related to evaluation, assessment, diagnosis and plan of care development, documentation, safety, and professional responsibilities.

This analysis shows that the overwhelming majority of education necessary for physical therapists to perform dry needling is taught in the entry-level physical therapy doctorate education.

c. Dry needling post-doctoral continuing education

Fourteen percent of the knowledge requirements related to competency in dry needling must be acquired through post-graduate education or specialized training in dry needling. The only skill that was determined not to be included in entry-level education was the actual handling of the needle.

The language of the proposed legislation (SB 6374) is based on this practice analysis. Fifty-four hours of post-licensure continuing education is the average length of the advanced, postgraduate training for dry needling in order to satisfy the task force's recommendations. Dry needling postgraduate education is readily available across the United States and Canada. It is taught by physicians and physical therapists at many medical institutions and clinics, including Regis University in Colorado, Mercer University in Georgia and the University of British Columbia.

Continuing education courses on dry needling for physical therapists are ubiquitous throughout the United States, Canada, and internationally. Most continuing education courses on dry needling for physical therapists are divided into two levels of courses. One cannot move to the second course level without successfully passing the first level. Most of these courses require at least one year of practice as a licensed physical therapist before taking the first level class (SB 6374 requires this as well).

The first level objectives focus on understanding the theory and practice of dry needling; what trigger points are and how they relate to dry needling; neuromuscular dysfunction; a review of anatomy, function, and safety concerns; and indications and contraindications for using dry needling. Here is an example of one course's first level objectives:

Level 1: Objectives

- Define and understand what trigger points and motor banding are and how they relate to treatment with dry needling.
- Present and review both the common and uncommon presentations of neuromuscular dysfunction as well as utilize other common evaluation procedures.
- Review and become familiar with current literature regarding efficacy and treatment rationale for dry needling.
- Instruct safe and efficient application of dry needling for orthopedic and neuromuscular conditions.
- Review anatomy, function and safety concerns of regions.
- Instruct and apply dry needling technique that considers safety, indications and contraindications for treatment and proper integration into the clinical or sports setting.

The second level courses that, again, can only be taken after successfully completing level one, focus on similar objectives in level one, but more in-depth:

Level 2: Objectives:

- Define trigger points, motor banding, and neurological presentations of neuromuscular dysfunction.
- Review literature supporting efficacy and treatment rationale of dry needling.
- Instruct application of dry needling for more advanced orthopedic and neuromuscular conditions.
- Review anatomy of regions to be taught in Level 2 course.
- Review and discuss safety concerns.
- Discuss indications and contraindications for treatment.
- Discuss specific treatment rationale for various diagnoses.
- Integration of dry needling into a physical therapy treatment program.

A recent survey by PTWA found that of 232 responses from Washington physical therapists, 52 had taken dry needling continuing education in some capacity. Thirty of those 52 were former members of the military or had moved to Washington from another state where they were able to perform dry needling.

A list of common dry needling educational courses for physical therapists can be found in the Appendices. According to their class descriptions, these courses require pre-study to review anatomy, individual testing at the end of each course and advanced techniques that are not introduced until the students have a basic grasp on the technique. Courses require the student to pass a practical examination at the end of each course before being allowed to practice on patients. Any safety concerns result in an automatic failure and inability to progress further.

d. Doctoral education

As of January 1, 2016, the Commission on the Accreditation of Physical Therapy Education (CAPTE) made the doctor of physical therapy degree (DPT) the required degree for all entry-level physical therapist education programs in the United States. In fact, as of 2014, all physical therapy programs were at the doctoral level.

Graduation from any accredited program in the United States, including the three programs in the state of Washington (University of Washington, Eastern Washington University and University of Puget Sound), confers a DPT. Training in differential diagnosis is a distinguishing aspect of becoming doctors. This allows graduates to discern who is appropriate to treat and who is outside their skill set and should be referred to a different practitioner. Physical therapists are licensed medical practitioners. At the University of Washington, School of Rehabilitation Medicine, Doctor of Physical Therapy Program, students obtain their doctorate after successfully completing 162 credits, which amounts to 4,860 hours of class and lab time, not counting outside practice and study time. This includes 1,500 hours of supervised clinical education.

For the University of Washington’s School of Rehabilitation Medicine’s Doctor of Physical Therapy (DPT) program, which is a CAPTE (Commission on the Accreditation in Physical Therapy Education) accredited program, students complete the following hours to become a DPT: (December 2015 CAPTE report):

The institutional academic calendar is based on: **Quarter**

Number of terms (semesters, quarters, trimesters) required for completion of the professional/technical phase of the program	11
Total length of the professional/technical program in weeks	118
Number of CREDITS required for completion of the program:	
Pre-professional phase	180
Professional phase - Classroom/Laboratory courses (including independent study courses, distance learning courses, etc.)	12
Professional phase - Clinical Education courses	34
Total number of CONTACT HOURS during professional education	
Classroom, laboratory, distance learning or independent study	2660
Part-time clinical education	60
Full-time clinical education (35 hours or more per week)	1440 (36 wks)

To calculate total hours a student puts into becoming a DPT, for every contact hour in the classroom, lab, distance learning or independent study, add 2 more hours. Therefore, to become a DPT at the UW it takes approximately **9480** hours ($2660 + 5320 + 60 + 1440 = 9480$). This number is an underestimate, since many students continue to study while they are involved in their clinical rotations, preparing for the next day's patients and to provide in-service trainings to colleagues. A more accurate number would be to add 2 hours on to every 8 hours of clinical time, which would add 375 more hours, totaling **9855 hours in order to attain a doctorate in physical therapy.**

The doctoral education of physical therapists includes anatomy, histology, physiology, biomechanics, kinesiology, neuroscience, pharmacology, pathology, clinical sciences, clinical interventions, clinical applications, differential diagnosis and screening. Much of the basic anatomical, physiological, and biomechanical knowledge that dry needling uses is taught as part of the core physical therapist education; the specific dry needling skills are supplemental to that knowledge.

According to a study by Childs et al. in 2005, physical therapists rank ahead of family medicine practitioners, internists, general surgeons and other non-orthopedic physicians in their knowledge of musculoskeletal conditions management. Only orthopedic surgeons rank ahead of physical therapists in their knowledge of musculoskeletal conditions management. This again was supported by research from Moore, et al 2005, which shows that clinical diagnostic accuracy by physical therapists and orthopedic surgeons on patients with musculoskeletal injuries was significantly greater than non-orthopedic surgeons, with no statistical difference between orthopedic surgeons and physical therapists. These research studies suggest that physical therapists have the knowledge, training, and skills necessary to clinically diagnose and manage musculoskeletal injuries beyond most non-orthopedic physicians.

Physical therapists maintain a code of ethics that includes making judgments within their scope of practice and level of expertise. They are required to report colleagues that are unable to perform their professional responsibilities with adequate skill and safety. Physical therapists take responsibility for their professional development based on critical self-assessment and reflection on changes in physical therapist practice, education, and health care delivery, and being good stewards of healthcare resources (APTA Code of Ethics for the Physical Therapist).

Dry needling was listed in the most recent revision of the American Physical Therapy Association's (APTA) "Guide to Physical Therapist Practice 3.0" (2014) under the list of manual therapy techniques that a physical therapist may employ along with massage, traction, and mobilization of tissues and joints.

The APTA Board of Directors further acknowledged dry needling to be within the scope of practice of physical therapy when they approved “Guidelines: Physical Therapist Scope of Practice” in 2014. The FSBPT and the Academy of Orthopaedic Manual Physical Therapists (AAOMPT) also recognize dry needling as within the physical therapy scope of practice.

The 2014 version of the “Guide to Physical Therapist Practice” reflects updates to physical therapist practice that have occurred in the last 10 years. While physical therapists have been performing dry needling since 1984, research regarding its efficacy and subsequent adoption of the technique have become more common in the last ten years. APTA, AAOMPT and FSBPT published positions that dry needling is within the physical therapist’s scope of practice as challenges were being posed to physical therapists practice of the dry needling technique in 2009 throughout the United States.

In October 2009, AAOMPT issued the following statement in support of the use of dry needling in physical therapy practice: “Dry needling is a neurophysiological evidence-based treatment technique that requires effective manual assessment of the neuromuscular system. Physical therapists are well trained to utilize dry needling in conjunction with manual physical therapy interventions. Research supports that dry needling improves pain control, reduces muscle tension, normalizes biochemical and electrical dysfunction of motor endplates, and facilitates an accelerated return to active rehabilitation.”

Physical therapists are regulated by the Board of PT and are required to perform 40 hours of continuing education during each 2-year licensing cycle. Washington state law mandates that physical therapists shall recognize the need for continuing education and shall be open to new procedures and changes (WAC 246-915-180). Therefore, it is a physical therapist’s professional duty to pursue novel approaches, especially when the literature and clinical practice substantiate the effectiveness of that approach, such as dry needling. Much has changed in our understanding and practice as physical therapists in the 10 years that have passed since needle EMG and sharps debridement language was explicitly written into our scope of practice.

6. PATIENT SAFETY

Studies have shown that dry needling is safe when performed by physical therapists. In a study published in the “Journal of Manual and Manipulative Therapy” (Brady 2013), researchers reported that the risk of adverse effects of dry needling performed by physical therapists is less than 0.04 percent - lower than for common over-the-counter pain medication such as ibuprofen (.137 percent). The physical therapists in this study had received 64 hours of dry needling education and performed 7,629 total dry needling treatments. All reported adverse events were considered “mild” (bleeding, bruising, pain while being needled) and no significant adverse events were reported.

a. Risk of pneumothorax

Pneumothorax (puncture of the lung leading to collapse) is a very rare but serious complication associated with needling around the thoracic region. A study by Brady et al. surveyed physical therapists over 7,629 dry needling treatments. There were no reports of pneumothorax.

Searches of Pubmed in May 2016 did not return any studies investigating pneumothorax beyond the level of a case study. Evidence on safety of needling techniques comes primarily from prospective studies investigating adverse events following acupuncture. Results from acupuncture studies cannot be applied to dry needling as it differs in both location and depth of needle from acupuncture.

b. Risks during pregnancy

Unintended miscarriage is considered to be a potential consequence of needling what the acupuncture literature terms “forbidden points” in pregnant women. A 2015 study in the journal “Acupuncture Medicine” reviewed 15 clinical trials where 823 women were needled at forbidden points during all stages of pregnancy. The data showed that rates of preterm birth and stillbirth are equivalent to those in untreated control groups and consistent with background rates of these complications in the general population (Carr 2015).

Another study Carr reviewed was a large observational study of 5,885 women needled at “forbidden points” in all stages of pregnancy. The rates of miscarriage, preterm birth, preterm pre-labor rupture of membranes and preterm contractions were comparable with untreated controls and/or consistent with their anticipated incidence. They concluded that there is no reliable evidence that acupuncture can induce miscarriage/labor.

Nonetheless, the APTA document “Description of Dry Needling in Clinical Practice” counsels caution when dry needling pregnant women in their first trimester of pregnancy. Notwithstanding the study’s findings, physical therapists are accountable for vigilant decision-making where risks may explicitly and implicitly be present.

c. Adverse events statistics specific to physical therapists in the United States.

In 2012 APTA requested CNA, the largest healthcare malpractice insurer of physical therapists, to provide information about claims against physical therapists related to dry needling. CNA reported that, “After reviewing 5,800 closed physical therapist claims, there were no trends relative to dry needling identified that would indicate this procedure presents a significant risk factor.” Data showed six claims arising from the practice of dry needling with a total indemnity paid for all claims of \$79,000. “CNA does not foresee the practice of dry needling by a licensed physical therapist as having any immediate claim or rate impact.”

Another example is Maryland. According to the Maryland Department of Health and Mental Hygiene, Maryland has permitted physical therapists to perform dry needling since the 1980s. Maryland has 6,178 licensed physical therapists. To date, there has been one complaint related to dry needling that resulted in a public order. This case was related to a physical therapist who performed dry needling on a patient without any formal training, education, or experience in dry needling at the time of the treatment. There was no reported patient injury, however the physical therapist's license was reprimanded and he was fined \$1,000.

The FSBPT's Disciplinary Database, the database showing all disciplinary actions taken by physical therapy regulators across the country, has no reports of serious harm or injury from dry needling performed by a physical therapist, as of May 25, 2016. In 2015, there was one instance of disciplinary action taken against a physical therapist regarding dry needling. In 2014, there were two instances of discipline, but neither case described any harm to the patient. In 2013, there was one disciplinary action taken against a physical therapist for inappropriate training and failure to properly document. There were no instances of any disciplinary action against a physical therapist for dry needling prior to 2013. Altogether, .2% of the total disciplinary actions against physical therapists between 2010 and 2015 were related to dry needling.

Additionally, physical therapists in Washington have a history of safe and appropriate practice. According to Department of Health disciplinary records, only three physical therapists have had disciplinary action taken against them related to standards of care in the last five years. In one case, the allegations stated that an elderly patient fell down and suffered a broken hip when being trained to use a walker. In another, the allegations stated that the PT allowed aides to perform beyond their scope of practice. Allegations in the third case stated that the physical therapist repeatedly did not submit Physical Capacity Evaluation paperwork.

d. Summary of risk

Acupuncture itself is not without risk of adverse events, and any comparison of risk with dry needling by physical therapists must be taken in light of the inherent risk in inserting a needle into muscle tissue. Witt et al. carried out the largest prospective acupuncture study to date. Of the 229,233 patients who received 2.2 million acupuncture treatments, 8.6% of patients (n=519,726) experienced at least one adverse event. In this study, 24,377 adverse events were reported, amounting to approximately one event per 90 treatments (0.9%).

It would be inappropriate to deny the risk, however small, of serious injury with the practice of dry needling. In fact, a Canadian Olympic athlete suffered a double pneumothorax after undergoing acupuncture performed by a massage therapist. However, the baseline education of physical therapists is much more thorough and intensive than that of a massage therapist. In fact, most dry needling courses offered in the United States are not open to massage therapists.

7. DRY NEEDLING IN CONTRAST TO OTHER THERAPIES

a. Dry needling in contrast to acupuncture

Health care education and practice have developed in such a way that most professions today share some procedures, tools, or interventions with other regulated professions. It is unreasonable to expect a profession to have exclusive domain over an intervention, tool or modality. The theoretical understanding of how and why a specific tool is used and the context in which it is used is what separates dry needling from acupuncture.

Dry needling is not the practice of acupuncture. The practice of acupuncture by acupuncturists and the performance of dry needling by physical therapists differ in terms of historical, philosophical, indicative and practical context. The performance of modern dry needling by physical therapists is based on western neuroanatomy and modern scientific study of the musculoskeletal and nervous systems and does not rely on traditional Eastern medicine theories. In East Asian medicine, acupuncture is used to stimulate acupuncture points and meridians and restore energy flow within the body. A summary of educational differences can be seen in the appendix.

i. Purpose of treatment

Physical therapists that perform dry needling do not use traditional acupuncture theories or acupuncture terminology. Acupuncture has a long and reputable history, based on a system of 'energy flow' along meridians throughout the body. Dry needling is a much more recent approach, introduced about 40 years ago, and based on modern scientific study of the neuromusculoskeletal system including anatomy, physiology, histology, biomechanics, neuroscience, kinesiology, pharmacology and pathology. Proper practice of dry needling requires a neuro-musculoskeletal physical examination which forms the basis for treatment." ("Why Trigger Point Dry Needling is Not Acupuncture" Dr. Steven Goodman; see Appendices).

Carol Kari, L.Ac, RN (President of the Maryland Acupuncture Society from 1992 to 1997) testified to the Maryland Secretary of Health in a letter dated September 13, 2012: "Yes, both professions hold the same tool, a needle, but the physical therapists are not working from a perspective of acupuncture meridians or chi flow in the body." The difference between dry needling and acupuncture technique is apparent when viewing this video that demonstrates the technique of dry needling: <https://www.youtube.com/watch?v=l75OAZzr6V4&index=49&list=FLJZHGN5-n5P2nJEP2TeVcow>

According to the World Health Organization, acupuncture has been proven to be an effective treatment for allergic rhinitis, depression, dysentery, dysmenorrhea, epigastralia, hypertension, colic, in addition to musculoskeletal conditions. Acupuncture diagnoses are significantly different from physical therapy diagnoses,

and physical therapists do not and should not treat acupuncture diagnosis. Physical therapists do not consider energy flow or meridians to treat systemic issues.

ii. Trigger points v. ashi points

The statement that trigger points and acupuncture points are the same has not been born out in the literature (Birsch, 2008; see Appendices). Acupuncture points are predetermined points mapped out on the body based on thousands of years of empirical study in Chinese medicine. A different type of point used by acupuncturists that is not based on these predetermined acupuncture points and that more closely correlate with trigger points is called an Ashi point. In East Asian practice, these discrete Ashi points are specifically tender points, also known as the “ah yes” points. According to Andrew Nugent Head, the way these are treated in traditional acupuncture is in the context of the whole treatment, not just a stand-alone treatment (see article “Ashi Points in Clinical Practice,” Andrew Nugent-Head, *Journal of Chinese Medicine*, February, 2013). Nugent’s article underscores their importance in treating musculoskeletal issues. He refers to these same points as trigger points in Western literature. He concludes that working on these points has a positive effect on musculoskeletal dysfunction.

Physical therapists are known musculoskeletal experts, so whether or not Ashi and trigger points are the same, this acknowledgment that working on these tender points is beneficial to the musculoskeletal system underscores the importance of addressing these painful points in improving a patient’s function. In sum, physical therapist are not using acupuncture points in their treatment, but it is possible that both acupuncturists and physical therapists are addressing tender points in the body, found via assessment and not a predetermined spot.

iii. Tools for treatment

Concerns have been raised by the National Center for Acupuncture Safety and Integrity (NCASI) regarding the use of acupuncture needles in the practice of dry needling. To comply with the prescription device regulation special control generally, according to 21 C.F.R. § 801.109(b)(1), prescription devices must bear the following statement: “Caution: Federal law restricts this device to sale by or on the order of a _____”, the blank to be filled with the word “physician”, “dentist”, “veterinarian”, or with the description designation of *any other practitioner licensed by the law of the State in which he practices to use or order the use of the device.*” (Emphasis added.) Many boxes of acupuncture needles contain the warning: “Caution: Federal law restricts this device to sale by or on the order of an Acupuncturist.” However, it should be noted that there are several commercially available needles for dry needling that do not contain this warning.

NCASI alleged that dry needling by physical therapists is inconsistent with the requirements for acupuncture needles under federal law. In response, the APTA commissioned a legal analysis from the law firm of Hogan Lovells US LLP to investigate whether NCASI’s allegation against physical therapists and the physical

therapy licensing boards has merit. Based on the legal analysis, APTA concluded that the allegations were without merit and provided the following rationale: “FDA regulates acupuncture needles as class II medical devices. When the FDA down-classified acupuncture needles and promulgated 21 C.F.R. § 880.5580, the FDA stated that acupuncture needles are for use by qualified practitioners as determined by the states. We believe that the FDA, in doing this, was clearly signaling that it would not involve itself in determining who is a qualified practitioner to use acupuncture needles, leaving it to the states to decide. The regulations require that acupuncture needles comply with the following special controls: (1) “labeling for single use only and conformance to the requirements for prescription devices set out in 21 C.F.R. § 801.109” (“prescription device regulation”), (2) “material biocompatibility,” and (3) “sterility.” Id. § 880.5580(b). This regulation does not designate acupuncture needles as restricted devices but rather categorizes them as prescription devices requiring compliance with 21 C.F.R. § 801.109.

This approach is consistent with the principle behind § 1006 of the FDC Act, 21 U.S.C. § 396, which says that nothing in the FDC Act limits the authority of a health care practitioner to administer a legally marketed device for any condition within a legitimate practitioner-patient relationship. The legislative history for this provision indicates that Congress intended to emphasize that the FDA should not interfere in the practice of medicine.” (See Appendices.)

b. Dry needling in contrast to medical acupuncture

It has been suggested that for physical therapists to be qualified to perform dry needling, they should have similar training as physicians who do medical acupuncture. However, medical acupuncture is different from dry needling. Medical acupuncture is a form of acupuncture and is based on eastern medicine philosophy (see the American Academy of Medical Acupuncture). Physicians need 220 hours of training to become certified in medical acupuncture (<http://www.medicalacupuncture.org/For-Physicians/Membership/Membership-Categories-Join>). Medical acupuncture courses list their objectives as including the foundation of acupuncture science and theory, channel and point location, needling techniques, approaches to diagnosis and therapy, patient management, and practice set up, building, and billing. See appendix for details on medical acupuncture training.

However, to become certified in dry needling, physicians can take classes alongside physical therapists. Anatomy and technique are taught based on western medicine, and this does not include any eastern medicine training. (Why TDN is not Acupuncture, Goodman). These dry needling continuing education courses in dry needling assume a strong foundation in western medicine, in anatomy, physiology, kinesiology, pathology. These entry and advanced level continuing education courses, which usually amount to about 50 hours, focus on handling skills, contraindications, and patient selection for this specific technique.

8. CURRENT PHYSICAL THERAPY DRY NEEDLING LAWS

a. Overlap in scopes of practice

It is not uncommon for health care providers' scope of practice to overlap. In Washington, for example, physical therapists, chiropractors, osteopaths, medical doctors and naturopaths all have joint manipulation in their respective scopes of practice. Physical therapists and occupational therapists both have exercise and wound care management in their respective scopes of practice. Massage therapists, East Asian medicine practitioners, physical therapists and many other practitioners may all perform manual treatments or "massage" techniques to muscles. Overlap is to be expected between disciplines in order for access to high quality care.

In fact, the publication "Changes in Healthcare Professions Scope of Practice: Legislative Considerations" asserts that no one health care profession owns a skill or modality. They can be shared if the profession has the education and training and appropriate legal authority. Further, a profession is not defined by one modality. Physical therapy is defined as "the care and services provided by or under the direction and supervision of a physical therapist licensed by the state." The physical therapy practice act goes on to define the practice of physical therapy using terms such as "examining," "evaluating," "testing," "functional limitations in movement," not as a laundry list of treatment techniques. In fact, PTWA pursued an overhaul of the practice act in 1999 to modernize the statute to reflect the body of knowledge of a physical therapist, not a list of modalities.

Similarly, East Asian medicine in Washington is defined as "a health care service utilizing East Asian medicine diagnosis and treatment to promote health and treat organic or functional disorders..." The East Asian medicine statute does go on to list modalities (dry needling is not among them). However, it is clear that the philosophy of East Asian medicine is the overarching description.

Many professions' practice acts have language allowing the practice by another health care provider practicing under his or her authorized scope of practice. This is found in RCW 18.74.150 in the physical therapy statute and in RCW 18.06.045 in the East Asian medicine statute.

The recent Washington Attorney General's Opinion (AGO 2016 No. 3) also supports this idea of overlapping scopes of practice. It states that, "It is undisputed that dry needling uses the same type of needles used in acupuncture, which is separately regulated under RCW 18.06. However, nothing in the statutes governing East Asian medicine show legislative intent to make it the only health care practice that uses inserted solid needles."

b. The United States military

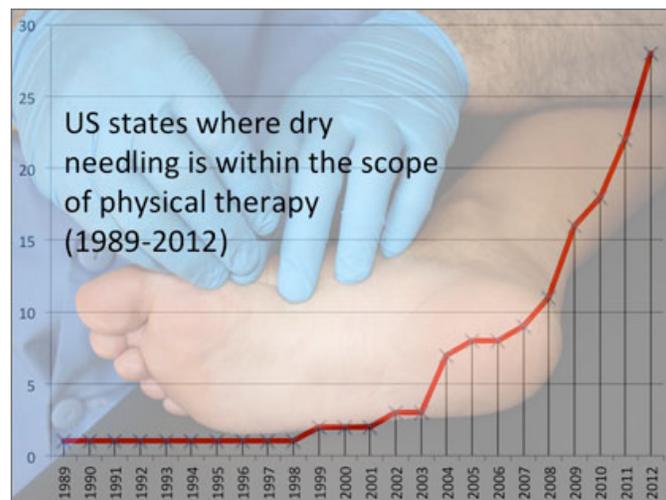
All branches of the United States military allow physical therapists to perform dry needling. The United States Army Medical Department allows physical therapists to

perform dry needling. United States Army Medical Command Regulation 40-60 “allows the performance of dry needling by qualified health care providers, *particularly physical therapists*” (emphasis added). Military-based physical therapists practicing on patients are allowed to use dry needling as a treatment technique if they show appropriate dry needling education in either entry-level or postgraduate education. They are required to have supervision for the first 25 cases and then may be deemed to practice independently.

The requirement is similar for the United States Air Force. The United States Navy allows non-physician privileged providers to perform dry needling by providing written documentation of successful completion of certification courses or training in residency programs. The Department of Veterans Affairs released a toolkit in 2013 that provides guidance for individual facilities in setting up an approach to enable physical therapists to perform dry needling upon completion of a publicly available continuing education course.

c. Comparative scope of practice within the states

Dry needling has been practiced by physicians and physical therapists nationally and internationally for over 40 years. As early as 1984, physical therapy state boards began petitioning for dry needling to fall under their respective state practice acts. More and more states are deeming dry needling to be within scope of practice in their states. In fact, many states have reversed their decision to ban dry needling and now recognize dry needling is within their physical therapy scopes of practice (Dommerholt 2014).



Dry needling is allowed via regulatory board opinion, Attorney General, AG, opinion, PT statute, or PT Board regulation in 19 states, with no additional education/training specific to dry needling required: Alaska, Georgia (in statute), Iowa, Kansas, Kentucky (AG opinion), Massachusetts, Nebraska, Nevada, New Hampshire, New Mexico, North Carolina, North Dakota, Ohio, Rhode Island, South Carolina, Texas (AG opinion), Vermont, West Virginia, and Wisconsin.

Dry needling is allowed via regulatory board opinion, AG opinion, PT statute, or PT Board regulation in 13 states, with additional education and training required: Arizona, Colorado, Delaware, District of Columbia, Illinois, Louisiana, Maryland (rules in process), Mississippi, Montana, Tennessee (rules in process), Utah, Virginia, and Wyoming.

There are nine states that are silent on the issue of physical therapists performing dry needling: Arkansas, Connecticut, Florida, Indiana, Maine, Missouri, Minnesota, Oklahoma, and Pennsylvania.

There are several states where dry needling by physical therapists is prohibited or likely prohibited. Idaho, New York and South Dakota prohibit the practice through state regulatory board opinion. Florida's and Michigan's respective Assistant Attorneys General have advised the regulatory boards that dry needling by physical therapists is prohibited in those states. There is no official opinion yet from California, but there is language in the California PT practice act that restricts tissue penetration for anything other than EMG testing. In Hawaii, the practice act prohibits physical therapists from puncturing the skin.

Dry needling is being challenged in several states through active litigation, Attorney General opinion, or challenges to regulatory board opinions. These states include Nebraska, North Carolina and Oregon.

In Washington, Attorney General Ferguson issued an opinion on April 15, 2016 (AGO 2016 No. 3) stating that dry needling is not within the current physical therapy scope of practice.

9. CONCLUSION

Through this report, we have shown that this proposal to allow physical therapists to perform dry needling benefits the patients in our state. We have outlined the history of dry needling in physical therapy, the patient health benefits of dry needling treatment by physical therapists, and how dry needling within physical therapy treatment lowers health care costs.

We have summarized the extensive education and training at the doctoral level that physical therapy students receive, including many of the competencies necessary for safe dry needling treatment. In addition, we have outlined the dry needling post-doctoral continuing education that is required in SB 6374 that will ensure that only physical therapists with adequate education, training, and practice experience will be performing dry needling.

We have demonstrated that physical therapists are safe practitioners of dry needling. In addition, we have shown the difference between dry needling by physical therapists and other types of therapies. Finally, we have shown that the majority of

states and the branches of the United States military allow physical therapists to perform dry needling.

We thank you for the opportunity to present this applicant report to the Department of Health. We look forward to answering any further questions you may have on the subject of physical therapists performing dry needling.

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11. APPENDICES

A. Outline of Dry Needling Continuing Education Courses for Physical Therapists

Institution	Number of CEUs	Levels	Description of class
KinetaCore	Level 1: 27 contact hrs; Level 2: 27 contact hrs Functional Therapeutics: 27 contact hours	Level 1: 3 day onsite training. All participants must have 1 year practicing as a physical therapist before registering for class. Level 2: 3 day course. Must have completed level 1 and logged 200 dry needling and logged 100 dry needling treatments. Functional Therapeutics: Must have completed level 1 DN can be used to meet state requirements prior to doing level 2. Each level requires passing theoretical and practical exam to gain certificate and move onto next level.	<p>Level 1: Objectives</p> <ul style="list-style-type: none"> - Define and understand what trigger points and motor banding are and how they relate to treatment with Dry Needling. - Present and review both the common and uncommon presentations of neuromuscular dysfunction as well as utilize other common evaluation procedures. - Review and become familiar with current literature regarding efficacy and treatment rationale for Dry Needling. - Review anatomy, function and safety concerns of regions which are covered in the Functional Dry Needling Level 1 course. - Instruct and apply Dry Needling technique which considers safety, indications and contraindications for treatment and proper integration into the clinical or sports setting. - Muscles that will be taught include: Hip, Lumbar Spine, Thigh, Cervical Spine, Shoulder, Upper and lower extremity. <p>Level 2: Objectives:</p> <ul style="list-style-type: none"> - Define trigger points, motor banding, and neurological presentations of neuromuscular dysfunction. - Review literature supporting efficacy and treatment rationale for FDN. - Instruct application of FDN for more advanced orthopedic and neuromuscular conditions. - Review anatomy of regions to be taught in Level 2 course. - Review and Discuss safety concerns. - Discuss indications and contraindications for treatment. - Discuss contraindications and considerations for various diagnoses. - Muscles will be needling U/LE, L/LE, advanced lumbar spine, TMJ/face, advanced cervical spine, thoracic spine, advanced U/LE, tendons/ligaments. <p>Functional Therapeutics: Objectives:</p> <ul style="list-style-type: none"> - Take material learned in Level 1 FDN and apply it clinically from start to finish (Evaluation => treatment approach => assessment => follow-up care => end of episode). - Further reasoning for evaluation, assessment and application for dry needling - Improve understanding of how dysfunction and pain may affect movement patterns - Provide a more systematic approach to dry needling treatment - When to incorporate other manual techniques and modalities with dry needling - Proper follow-up care to enhance and sustain results from dry needling <p>DN-1: objectives include</p> <ul style="list-style-type: none"> - Understand the basic principles of applied pain sciences - Identify select muscles of the body by surface anatomy and by function - Identify the features of the trigger point by physical examination and apply this knowledge to individual muscles in different regions of the body - Understand common precipitating and perpetuating factors of trigger points. - Perform muscle and region-specific manual therapy treatments to inactivate myofascial trigger points and restore movement patterns and posture, integrating various treatment techniques including dry needling and manual trigger point therapy. - Understand basic principles of dry needling and trigger point injections - Understand the basic principles of myofascial release (myofascial release, myofascial release, myofascial release) - Muscles include: pectoralis major, trapezius, deltoid, supraspinatus, biceps, triceps, brachialis, levator scapulae (partially), the latissimus dorsi (partially), the subscapularis (partially), brachioradialis, the wrist extensors, the supinator and pronator (partially), the quadratus lumbos (major lumbar iliocostalis, the iliacal muscles (minimus, medius, and maximus), the hip adductor muscles, the quadriceps and hamstrings, and gastrocnemius and soleus muscles. <p>DN-2</p> <ul style="list-style-type: none"> - Identify select muscles of the body by surface anatomy and by function - Identify the features of the trigger point by physical examination and apply this knowledge to individual muscles in different regions of the body - Understand common precipitating and perpetuating factors of trigger points. - Perform muscle and region-specific manual therapy treatments to inactivate myofascial trigger points and restore movement patterns and posture, integrating various treatment techniques including dry needling and manual trigger point therapy. - Understand the basic principles of dry needling - Many muscles commonly addressed in clinical practice are included, such as the posterior cervical muscles, the oblique capitis inferior, the cervical and thoracic and lumbar multifid, levator scapulae (partially), the latissimus dorsi (partially), supraspinatus, teres major and minor, pectoralis major (partially), pectoralis minor, the coracobrachialis, pronator teres, wrist flexors, oblique abdominal muscles and rectus abdominus, the lumbar paraspinals, the deep hip rotators, the lower trapezius, the serratus anterior, rhomboids, and the pelvic floor muscles. <p>DN-3</p> <ul style="list-style-type: none"> - Identify select muscles of the body by surface anatomy and by function - Identify the features of the trigger point by physical examination and apply this knowledge to individual muscles in different regions of the body - Perform muscle and region-specific manual therapy treatments to inactivate myofascial trigger points and restore movement patterns and posture, integrating various treatment techniques including dry needling and manual trigger point therapy. - Perform dry needling for scar tissue, fascial adhesions, enthesopathies, and tendinopathies.
Myopain Seminars	DN-1: 27 contact hrs DN-2: 27 contact hrs DN-3: advanced course, 27 contact hrs	DN-1: 3 day face to face. DN-2 3 day face to face. DN-3 unsure of hours. (each course requires passing practical and theoretical exam to gain certificate	<p>DN-1: objectives include</p> <ul style="list-style-type: none"> - Understand the basic principles of applied pain sciences - Identify select muscles of the body by surface anatomy and by function - Identify the features of the trigger point by physical examination and apply this knowledge to individual muscles in different regions of the body - Understand common precipitating and perpetuating factors of trigger points. - Perform muscle and region-specific manual therapy treatments to inactivate myofascial trigger points and restore movement patterns and posture, integrating various treatment techniques including dry needling and manual trigger point therapy. - Understand basic principles of dry needling and trigger point injections - Understand the basic principles of myofascial release (myofascial release, myofascial release, myofascial release) - Muscles include: pectoralis major, trapezius, deltoid, supraspinatus, biceps, triceps, brachialis, levator scapulae (partially), the latissimus dorsi (partially), the subscapularis (partially), brachioradialis, the wrist extensors, the supinator and pronator (partially), the quadratus lumbos (major lumbar iliocostalis, the iliacal muscles (minimus, medius, and maximus), the hip adductor muscles, the quadriceps and hamstrings, and gastrocnemius and soleus muscles. <p>DN-2</p> <ul style="list-style-type: none"> - Identify select muscles of the body by surface anatomy and by function - Identify the features of the trigger point by physical examination and apply this knowledge to individual muscles in different regions of the body - Understand common precipitating and perpetuating factors of trigger points. - Perform muscle and region-specific manual therapy treatments to inactivate myofascial trigger points and restore movement patterns and posture, integrating various treatment techniques including dry needling and manual trigger point therapy. - Understand the basic principles of dry needling - Many muscles commonly addressed in clinical practice are included, such as the posterior cervical muscles, the oblique capitis inferior, the cervical and thoracic and lumbar multifid, levator scapulae (partially), the latissimus dorsi (partially), supraspinatus, teres major and minor, pectoralis major (partially), pectoralis minor, the coracobrachialis, pronator teres, wrist flexors, oblique abdominal muscles and rectus abdominus, the lumbar paraspinals, the deep hip rotators, the lower trapezius, the serratus anterior, rhomboids, and the pelvic floor muscles. <p>DN-3</p> <ul style="list-style-type: none"> - Identify select muscles of the body by surface anatomy and by function - Identify the features of the trigger point by physical examination and apply this knowledge to individual muscles in different regions of the body - Perform muscle and region-specific manual therapy treatments to inactivate myofascial trigger points and restore movement patterns and posture, integrating various treatment techniques including dry needling and manual trigger point therapy. - Perform dry needling for scar tissue, fascial adhesions, enthesopathies, and tendinopathies.

<p>Integrative Dry Needling (IDN)</p>	<p>Foundation course: 27 contact hrs Advanced Course: 27 contact hrs</p>	<p>Foundation course: 3 day face to face (no pre req) Advanced course: 3 days face to face (need to have taken foundation course)</p>	<p>Foundation course: Based on Dr. Yun-tao Ma's systemic concept of IDN allows the practitioner to view and treat the human body as an inter-related organism, essentially the gestalt theory, yet allowing the clinical freedom to adapt the treatment for each patient. As a result, IDN provides the framework upon which to address all types of physical dysfunction. The IDN system is designed to be a comprehensive approach to create an effective treatment system and address the underlying mechanism while providing a clinical effect. As a result, the clinical effect of IDN is not limited to the time spent in the clinic while involving participants will develop a clinical protocol to allow immediate integration of dry needling into their clinical practice.</p> <p>Advanced course: The examination and management of peripheral nerve inflammation/sensitization, neuromuscular dysfunction and biomechanical imbalance of the musculoskeletal system will be presented. We will discuss the negative effects that peripheral nerve inflammation has on muscle function and how integrative dry needling can assist in maximizing human (athlete) performance. Integration of Manual Therapy and other treatment options will be included that will complement the efficacy of dry needling treatment. A considerable amount of lab time is focused on assuring safe and effective advanced dry needling skills with an emphasis on clinical decision-making.</p> <p>Objectives:</p> <ul style="list-style-type: none"> - Discuss the ability and appropriateness of physical therapists in providing trigger point dry needling to patients with musculoskeletal disorders. - Review and define the concept of trigger points and their contribution to musculoskeletal syndromes. - Compare and contrast the differences in acupuncture and dry needling in terms of eastern vs. western treatment philosophies, needling techniques, and goals of intervention. - Discuss the evidence surrounding the proposed mechanisms of action, treatment effectiveness, and relative safety for TDN. - Perform and develop proficiency/competency in using safe and appropriate application of TDN on muscles of the lower quarter. - Demonstrate the appropriate integration of TDN into a comprehensive treatment plan for patients with lower extremity dysfunction that may include joint mobilization/manipulation, manual and tool assisted soft tissue mobilization, manual stretching, and therapeutic exercise. - Identify appropriate safety precautions and articulate legal issues regarding TDN. - Level 1: lower quarter muscles and level 2 upper quarter muscles. <p>DN- 1: Dry Needling for Cervicofacial, Cervicohoracic & Upper Extremity Conditions (Part 1 of Certification in Dry Needling). "Participants will learn superficial and deep dry needling techniques for the purpose of improving microcirculation and disrupting fibrosis in chronic neurogenic conditions." This course does include, but is not limited to, needling of that bands of muscle (i.e. trigger points) as originally introduced by Travell & Simons. That is, peri-neural needling and needle puncture of tendons, ligaments, musculoskeletal junctions, teno-osseous junctions, and bone (i.e. "periosteal pecking") will also be taught as essential components of musculoskeletal needling practice. More specifically, peri-neural and peri-vascular needling will be instructed for the purpose of improving microcirculation and disrupting fibrosis in chronic neurogenic pain conditions (e.g. an impacted median nerve in carpal tunnel syndrome)."</p> <p>DN-2: Dry Needling for Lumbopelvic & Lower Extremity Conditions: an Evidence-Based Approach (Part 2 of the Certification in Dry Needling). "Participants will learn superficial and deep dry needling techniques for the treatment of lumbopelvic and lower extremity musculoskeletal conditions. This course does include, but is not limited to, needling of that bands of muscle (i.e. trigger points) as originally introduced by Travell & Simons. That is, peri-neural needling and needle puncture of tendons, ligaments, musculoskeletal junctions, teno-osseous junctions, and bone (i.e. "periosteal pecking") will also be taught as essential components of musculoskeletal needling practice. More specifically, peri-neural and peri-vascular needling will be instructed for the purpose of improving microcirculation and disrupting fibrosis in chronic neurogenic pain syndromes."</p>
<p>Evidence in Motion (EIM)</p>	<p>Level 1: two different options depending on what state practicing in and requirements of that state: 26 contact hrs or 35 CEU. Level 2: same</p>	<p>Level 1: lower quarter anatomy, 2 day intensive or 3 day intensive depending on state requirements for CEUs Level 2: upper quarter anatomy, 2 day intensive or 3 day intensive depending on state requirements to take the courses.</p>	<p>DN-1: 3 days, 24 hours (no pre req) DN-2: 3 days, 24 hrs (no pre req)</p>
<p>Spinal Manipulative Institute</p>	<p>Total 54 hours of hands-on dry needling education</p>	<p>DN-1: 3 days, 24 hours (no pre req) DN-2: 3 days, 24 hrs (no pre req)</p>	<p>DN- 1: Dry Needling for Cervicofacial, Cervicohoracic & Upper Extremity Conditions (Part 1 of Certification in Dry Needling). "Participants will learn superficial and deep dry needling techniques for the purpose of improving microcirculation and disrupting fibrosis in chronic neurogenic conditions." This course does include, but is not limited to, needling of that bands of muscle (i.e. trigger points) as originally introduced by Travell & Simons. That is, peri-neural needling and needle puncture of tendons, ligaments, musculoskeletal junctions, teno-osseous junctions, and bone (i.e. "periosteal pecking") will also be taught as essential components of musculoskeletal needling practice. More specifically, peri-neural and peri-vascular needling will be instructed for the purpose of improving microcirculation and disrupting fibrosis in chronic neurogenic pain conditions (e.g. an impacted median nerve in carpal tunnel syndrome)."</p> <p>DN-2: Dry Needling for Lumbopelvic & Lower Extremity Conditions: an Evidence-Based Approach (Part 2 of the Certification in Dry Needling). "Participants will learn superficial and deep dry needling techniques for the treatment of lumbopelvic and lower extremity musculoskeletal conditions. This course does include, but is not limited to, needling of that bands of muscle (i.e. trigger points) as originally introduced by Travell & Simons. That is, peri-neural needling and needle puncture of tendons, ligaments, musculoskeletal junctions, teno-osseous junctions, and bone (i.e. "periosteal pecking") will also be taught as essential components of musculoskeletal needling practice. More specifically, peri-neural and peri-vascular needling will be instructed for the purpose of improving microcirculation and disrupting fibrosis in chronic neurogenic pain syndromes."</p>
<p>International Academy of Orthopedic Medicine (IAOM)</p>	<p>Level 1 - Pending 35.5 CEU Level 2 - Pending 35.5 CEU Anatomy - pending 8 CEU</p>	<p>Dry Needling Level 1 3 days Level II Dry Needling Anatomy</p>	<p>Dry Needling Level 1 is a basic level course which teaches the theory and practice of dry needling of finger, thumb, wrist, elbow, cervical, superficial and deep dry needling techniques of the lumbar, cervical, shoulder, hip, thigh and calf areas in the body, including the face and anterior neck, forearm and hand, lower leg and foot, thorax and abdominal wall. It is a competency-based course, which will introduce more of the recent research, teach the use of eslim with needles, and ends with a competency exam.</p> <p>Dry Needling Anatomy: Objectives: Using prosected cadavers, To review the relationship of deep and superficial musculature and relevant nerve and blood vessel and organs. To highlight areas where safety is concerned when dry needling. To consider myofascial patterns and common muscle movement in common conditions. To discuss needling approaches in the different body regions to enable the therapists using Dry Needling techniques to be safe and effective with their techniques. By the end of this one day course participants will have an appreciation of the deeper anatomical structures in the areas they will need to practice.</p> <p>Objectives for both courses are the same:</p> <ul style="list-style-type: none"> - Understand the various theories and models that underlie dry needling technique - Apply dry needling technique to various case scenarios presented by the instructor to demonstrate integration of the three previous elements - Learn and deeply integrate all dry needling protocols in all body areas to the instructor <p>Course descriptions don't really differentiate between the two courses.</p>
<p>Dry Needling Institute</p>	<p>12 hour (2 day) course or 54 hour (two 3-day non-consecutive weekends) course</p>	<p>No levels, just two different course options, abbreviated or full</p>	<p>Objectives for both courses are the same:</p> <ul style="list-style-type: none"> - Understand the various theories and models that underlie dry needling technique - Apply dry needling technique to various case scenarios presented by the instructor to demonstrate integration of the three previous elements - Learn and deeply integrate all dry needling protocols in all body areas to the instructor <p>Course descriptions don't really differentiate between the two courses.</p>

Institution	Number of CEUs	Levels	Description of class
Institute of Advanced Musculoskeletal Treatments (IAMT)	20 contact hrs per course	<ul style="list-style-type: none"> - Level I: 20 contact hrs: 2, 8hr days - Level II: 20 contact hrs: 2, 8hr days - Level III: no information currently available - Understanding is PT must understand own state's laws before practicing*** 	<ul style="list-style-type: none"> - Level I: Website description: "...designed to teach introductory level techniques for trigger point dry needling throughout the entire body. The course also presents the clinical reasoning and scientific rationale behind the application of dry needling and teaches the local and global proposed mechanisms that occur with its application. This lab intensive course consists of a vast number of needling techniques in conjunction with soft tissue mobilization, tapping and functional case based treatments." - Level II: Website description: "... addition of more challenging techniques. The course covers techniques surrounding the thoracic region, face, head and neck as well as the deep muscles in the lower extremities. The lab intensive course consists of a vast number of needling techniques in conjunction with soft tissue mobilization and functional case based treatments." - Level III: Website description: "...utilizes a case study approach to enhance clinical reasoning skills for the physical therapist and to formulate an integrative plan of care utilizing dry needling, manual therapy techniques and exercise to treat common conditions. This course combines manual therapy interventions with dry needling techniques and functional retraining to restore biomechanics and normalize function in their patients."
Therapy Concepts Inc	Level I: 23777 (not stated) Level II: 23 contact hrs	<p>Level I: 3 day course. Introduces Trigger Point Dry Needling as an intervention for treating a variety of diagnoses. Participants are introduced to the theory and physiology of myofascial trigger points, and the history of dry needling. Anatomy of each muscle will be reviewed, including the trigger points and their corresponding referral patterns.</p> <ul style="list-style-type: none"> - Muscle groups included: cervical and lumbar spine, hip, lower extremity, shoulder and forearm. <p>Level II: 3 day course: consists of a combination of lecture, testing, demonstration and a large amount of hands-on laboratory sessions. In the advanced Trigger Point Dry Needling Training course, participants will use the skills they have learned and practiced in the first course to treat musculature that was deemed more difficult due to various safety concerns. Additionally participants will be given an assessment tool to enhance evaluation of chronic myofascial pain patients and help with the clinical decision making process for the use of dry needling.</p> <ul style="list-style-type: none"> - Will benefit physical therapists, medical doctors, and doctors of osteopathy who work with patients suffering from chronic myofascial pain. - Limited to people who have taken the Level I Trigger Point Dry Needling Training course and have completed their treatment logs consisting of 250 or more treatment sessions over a 5 – 6 month period. <p>Level I: 3 day, 28-hour course delivered via on-site lectures and extensive hands-on/lab/practical instruction using a regional approach in order to facilitate participant learning.</p> <ul style="list-style-type: none"> - Prior to the course participants should review C. Chan Gunn's book Treatment of Chronic Pain and Travel and Simons two volumes of Myofascial Pain and Dysfunction: The Trigger Point Manual. - Participants should also be prepared to share their experiences since integrating Trigger Point Dry Needling into their practice. 	<ul style="list-style-type: none"> - Level I: Objectives: <ul style="list-style-type: none"> - Define trigger points, motor haphing, and neurological presentations of neuromuscular dysfunction. - Review the history of Trigger Point Dry Needling and its application of Trigger Point Dry Needling for more advanced orthopedic and neuromuscular conditions. – Review anatomy of regions to be taught in Level II course. - Discuss with participants their own experiences regarding legal and billing issues integrating Trigger Point Dry Needling into their practice setting. - Discuss indications and contraindications for treatment. - Discuss safety. - Discuss specific treatment rationale for various diagnoses. - Level II: Objectives: <ul style="list-style-type: none"> - Define trigger points, motor haphing, and neurological presentations of neuromuscular dysfunction. - Review the history of Trigger Point Dry Needling and its application of Trigger Point Dry Needling for more advanced orthopedic and neuromuscular conditions. – Review anatomy of regions to be taught in Level II course. - Discuss with participants their own experiences regarding legal and billing issues integrating Trigger Point Dry Needling into their practice setting. - Discuss indications and contraindications for treatment. - Discuss safety. - Discuss specific treatment rationale for various diagnoses.
Double E PT Education	Level I and II: 28 in NC only - Designed for licensed physical therapists who are allowed to use dry needling in their practice and jurisdiction.	<p>Level I: 3 day, 28-hour course delivered via on-site lectures and extensive hands-on/lab/practical instruction using a regional approach in order to facilitate participant learning.</p> <ul style="list-style-type: none"> - Learn about trigger points and the different interventions used to treat them, focusing heavily on the intervention of dry needling. While dry needling is emphasized in this course, it is presented as one intervention or tool that the clinician can integrate into his or her treatment program. Participants will learn palpation skills for the identification of trigger points, and then practice using dry needling on their hands. To include evidence for soft tissue manual therapy, to resolve trigger points and restore function in the spine, lower, and upper quarter musculoskeletal disorders. This course will also investigate the emerging evidence/research regarding the treatment effectiveness, proposed mechanisms of action, and safety considerations for trigger point dry needling. Participants take a didactic test and a hands-on practical test that investigate the participant's palpation skills to accurately identify trigger points, correct hand placement for dry needling, knowledge of landmarks, safety considerations for various muscles, and correct and safe handling/disposal of needles. A heavy focus is placed on the integration of these techniques in clinical practice using clinical reasoning. 	<ul style="list-style-type: none"> - Level I: Objectives: <ul style="list-style-type: none"> - Discuss the history of myofascial pain. - Review and define the concept of trigger points and supporting literature around this concept. - Define trigger point, taut band, and neurological presentations of neuromuscular dysfunction. - Define and understand the concept of trigger points, their pathogenesis, and hypothetical constructs of Chad Gunn and Janet Travell. - Discuss and define attributes/features of trigger points and discuss the various interventions used in the treatment of trigger points that are appropriate. - Explain understanding of appropriate use of trigger point dry needling within a clinical reasoning framework. - Practice understanding of dry needling and develop moderate proficiency using trigger point needling on select muscles of the spine, lower, and upper quadrant. - Level II: Objectives: <ul style="list-style-type: none"> - Discuss the effect of dry needling in treatment of costochondritis, plantar fasciitis, Achilles tendinitis, neck pain, headaches, TMJ, upper back pain and a variety of regional myofascial pain complaints. - Employ trigger point dry needling in muscles over the lung fields with full safety and confidence. - Understand the mechanisms, attributes, and hypothetical constructs of myofascial trigger points and dry needling and become familiar with the most recent publications of research in this field. - Utilize as many as five different varieties of style safety to tailor dry needling to the individual case and patient. - Discuss appropriate use of trigger point dry needling and integration into a treatment program, and perform and develop proficiency using trigger point needling on select muscles of the thoracic spine, hand, foot, and face.

B. Summary of Educational Differences between Traditional Chinese Medicine (TCM) Acupuncture Training and Physical Therapist Dry Needling Training (State of Arizona)

Summary of Educational Differences

	TCM ACUPUNCTURE	DRY NEEDLING
Minimum requirements by law A.R.S. § 32	Certified or licensed with at least 1850 hours of training (of that, 800 hours of clinical training) A.R.S. § 32-3924 ***Only 1050 hours of in class hours needed to practice	Graduate of an accredited Physical Therapy Program* Successfully passed national board exam Successfully passed Arizona State Jurisprudence Exam (*All current entry level physical therapy programs are at the professional doctorate level) A.R.S. § 32-2022)
Bachelors Degree Requires	NO, ***NO GED REQUIRED	YES
Average National Training	1950 hours of Traditional Chinese Medicine/ Acupuncture Training (Average according to Council of Colleges of Acupuncture and Oriental Medicine)	Current entry level degree: Doctor of Physical Therapy 2676 hours (Avg. in 2004)

C. Comparison of training needed for dry needling based on medical acupuncture training from two specific model courses.

Highlighted in Yellow	These sections that do not relate the acupuncture or eastern medicine specifically, and are part of regular PT school curriculum
Highlighted in Green	These sections that do not relate to acupuncture or eastern medicine specifically, but would need to be a part of training for dry needling
Combination Yellow/Green	Sections that are covered in PT school curriculum and parts that need to be further addressed in DN training
Not highlighted	Relates only to acupuncture or eastern medicine/ not at all related to dry needling.

Five Element <http://www.5elements.com/training/program/>
210 hours; one weekend a month for 9 months

As the only program of its kind offered in Southern California, the Classical Five-Element Acupuncture Program offers Acupuncturists and other licensed medical professionals the opportunity to become certified as Classical Five-Element practitioners. The program is taught by Neil R. Gumenick, M.Ac. (UK), C.T. (Adv.), L.Ac., Dipl.Ac. (NCCAOM), and a team of [faculty and guest faculty](#) approved by the Director.

The program includes extensive training in:

- **Five-Element Theory:**
The Five Elements; Organ/Meridian Theory; Levels of Energy: Body, Mind, and Spirit; Laws and Cycles of the Five Elements; **Significance of Symptoms**; Balancing of Energy; Specialized Treatment Patterns and Groupings of Points, including Windows of the Sky, Possession and Use of Internal and External Dragons, Aggressive Energy, Husband/Wife Imbalances, Seas and Oceans, Akabani, Entry-Exit Blocks; Energy Transfers; **Causes of Disease**; Pulse Reading and Diagnosis within the Five-Element System
- **Point Location and Uses:**
Twelve Meridians, Conception and Governor Vessels; Source, Junction, Horary, Tonification and Sedation Points, Element Points, Entry and Exit Points, Associated Effect Points, Alarm Points, First Aid Points; Unique Physical, Emotional, and Spiritual Actions of Points and Combination.
- **Traditional Diagnosis:**
Awakening the Natural Ability to See, to Hear, to Ask, and to Feel, Using the Diagnostic Indicators of Color, Sound, Emotion, and Odor; **Taking Case Histories**; Assessing the Causative Factor and Level of Disease; **Physical Examination**; Practitioner/Patient Rapport Skills
- **Clinical Work Discussion:**
Presentation and Analysis of **Class Patients, Diagnosis, and Treatment**
- **Treatment Planning:**
Principles and Priorities; Translation of Traditional Diagnosis into Treatment Plan; Addressing the Needs of the Mind and Spirit; **Methods of Treatment**; **Evaluation of Treatment**; **Determining Future Treatments**
- **Public Speaking:**
How to Give Effective and Informative Practice Building Presentations
- **Treatment Techniques:**
Needling; Tonification and Sedation, Uses of Moxabustion
- **Practice/Patient Management and Ethics:**
Communication Skills; Trust; Confidentiality; Listening and Counseling, Patient Homework, Appropriate Referrals, Finances, Advertising; Public Service.
- **Clinical Observation:**
100 hours outside of Class (may be arranged with approved practitioners in students' local areas)

Acupuncture Course: http://www.acupuncturecourse.org/a_outline.php
330 hours in 3 phases:

PHASE 1: Essentials of Acupuncture

- **Basics of Acupuncture:** Anatomy and physiology of acupuncture points, the basics of running an acupuncture practice, and useful information for patients.
- **Acupuncture Theories:** Knowledge of Traditional Chinese Medicine (TCM), the very foundation of successful practice of acupuncture, encompasses many seemingly abstruse concepts such as Yin and Yang, Qi, Five Elements, Meridians, Convergence Points, Remote Actions of Acupuncture Points, Tonification vs. Sedation, Eight Categories, Six Excesses, Organ Phenomena, etc. These concepts will be presented in easy- to-understand modern scientific terms.
- **Acupuncture Diagnostics:** Instruction on diagnostic methodology in accordance with TCM principles to enhance successful therapeutic outcomes, such as pulse diagnosis, tongue diagnosis, diagnosis by palpation, diagnosis by patient history and observation, and meridian diagnosis.
- **Demonstration of Acupuncture Techniques on Actual Patients.**

PHASE 2: Practical Clinical and Hands-On Training

- **Acupuncture Techniques:** Painful and non-painful medical conditions may vary in their responses to different acupuncture modalities, hence a range of important techniques: traditional body acupuncture, ear acupuncture, scalp acupuncture, needleless techniques such as moxibustion, cupping and electrical stimulation will be taught and demonstrated in this face-to- face training session. Participants will also have the opportunity to practice various modalities under the supervision of a faculty of experts.
- **Therapeutic approach:** Instruction in both the formula approach, based on empirical efficacy, and the analytical approach, based on theoretical reasoning, and their application to a spectrum of common medical conditions will enable participants to more effectively apply their knowledge to improve patient care.
- **Practical experience:** Face-to-face clinical instruction sessions, with ample opportunities for hands-on training in acupuncture point locating, needling techniques for body and ear acupuncture and pulse and tongue diagnoses, among other training exercises.

PHASE 3: Enhancement of Clinical Experience

- **Research:** Presentation on historically important clinical and basic scientific research on acupuncture in various medical fields.
- **Additional Acupuncture Modalities:** Instruction in trigger point injection and acupuncture point injection techniques, which use local anesthetic, normal saline, and ultra-low-dose steroids.
- **Clinical Cases Presentation:** In-depth discussion on actual clinical cases to illustrate the principles of diagnosis and formulation of treatment protocols.

- **Clinical runs consisting of detailed analysis of diagnostic findings and therapeutic interventions relating to actual patients.**
- **Contemporary Explanation of TCM Syndromes:** Lectures on the common pathways of the symptom complexes of diverse medical conditions and how such concepts can be used to simplify and facilitate therapeutic approaches.



Analysis of Competencies for Dry Needling by Physical Therapists

Final Report

Prepared for: Federation of State Boards of Physical Therapy
124 West Street South, Third Floor
Alexandria, VA 22314

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Executive Summary

Dry needling is a skilled technique performed by a physical therapist using filiform needles to penetrate the skin and/or underlying tissues to affect change in body structures and functions for the evaluation and management of neuromusculoskeletal conditions, pain, movement impairments, and disability.

Since 2010, jurisdictions have sought information from the Federation of State Boards of Physical Therapy (FSBPT) regarding the ability of physical therapists (PTs) to perform dry needling; however, no publically available studies have explicitly examined what PTs must know and be able to do to perform dry needling safely and effectively. To provide its members with objective, professionally-developed guidance, FSBPT sponsored a practice analysis of the competencies required of physical therapists to perform dry needling. Competencies are measurable or observable knowledge, skills, and/or abilities an individual must possess to perform a job competently.

The practice analysis drew from multiple sources of information (i.e., extant literature on dry needling; licensed physical therapists; dry needling experts) to provide an authentic and accurate assessment of the knowledge, skills, and abilities needed to perform dry needling safely and effectively. The process for developing the dry needling competencies included three main steps.

1. **Background Review** . Information gleaned from a review of the literature on dry needling was used to develop a preliminary set of dry needling tasks that describe job-related actions and a separate set of dry needling knowledge requirements that describe factual or procedural information directly involved in the performance the intervention.
2. **Practitioner Survey** . A survey of more than 350 licensed PTs, including individuals working in hospitals, private practice, clinics, academia, and the military, was administered to identify entry-level knowledge, skills, and abilities that are important for competency in dry needling.
3. **Task Force Meeting** . Seven dry needling experts, supported by observers from the American Physical Therapy Association (APTA) and FSBPT's Board of Directors, met to consolidate the information collected in the previous two steps and construct a final set of competencies.

Steps 1 and 2 were conducted concurrently between February and May, 2015. The Task Force meeting was held at FSBPT's headquarters on May 29-31, 2015.

The Task Force's primary objective was to identify knowledge, skills, and abilities that are specifically needed for competency dry needling. To accomplish this objective, they performed five activities.

1. **Define Dry Needling** . constructed a definition of dry needling that clearly communicates the purpose and defining features of the intervention
2. **Define the Standard for Competence (Safe and Effective Practice)** . clarified the standard of competence for dry needling representing the minimum level of proficiency needed to perform the technique competently
3. **Review and Refine Dry Needling Tasks** . identified job tasks that PTs perform when applying dry needling as part of a physical therapy treatment plan

4. **Review and Refine Dry Needling Knowledge Requirements** . identified the knowledge required to carry out the tasks identified in the previous activity
5. **Identify Dry Needling Skills and Abilities** . determined which skills and abilities are needed for safe and effective dry needling

The task force members were also charged with evaluating to what extent entry-level knowledge (i.e., knowledge required for licensure in physical therapy) is needed for safely and effectively using dry needling. To that end, the results of the 2011 Analysis of Practice for the Physical Therapy Profession (Bradley, Waters, Caramagno, & Koch, 2011) were incorporated into the analysis as a starting point. First, the Task Force identified which entry-level physical therapy job tasks and knowledge are relevant to competency in dry needling. Then, they identified additional tasks and knowledge that are needed specifically for performing the dry needling technique.

Major results from the dry needling practice analysis are presented below.

- Of the 214 entry-level and 27 dry needling-specific job tasks analyzed, 123 were identified as directly relevant to the competent performance of dry needling.
- Of the 116 entry-level and 22 dry needling-specific knowledge requirements, 117 were identified as important for competency in dry needling.
- 86% of the knowledge requirements needed to be competent in dry needling is acquired during the course of PT entry-level education, including knowledge related to evaluation, assessment, diagnosis and plan of care development, documentation, safety, and professional responsibilities.
- 16 (14%) of the knowledge requirements related to competency in dry needling must be acquired through post-graduate education or specialized training in dry needling.
- In terms of skill and ability requirements, psychomotor skills needed to handle needles and palpate tissues require specialized training. This skill was the only skill or ability noted as not being required to be an entry-level physical therapist.

The job tasks specifically involved in the use of dry needling are presented on the following pages along with the 16 knowledge requirements that are acquired through advanced or specialized training are displayed.

Table i. Dry Needling-specific Tasks

ID#	Tasks
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, economic) to...
1.	• identify prior experience with and tolerance for dry needling (e.g., needle phobia, response to treatment, ability to comply with treatment requirements)
2.	...identify contraindications and precautions related to dry needling (e.g., age, allergies/sensitivities, diseases/conditions, implants, areas of acute inflammation, acute systemic infections, medications)
3.	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	
Manual Therapy Techniques	
	Position the patient/client to
4.	• expose the area(s) to be needled
5.	• reduce the risk of harm to the patient/client and/or therapist
6.	Educate the patient/client on the impact of movement during treatment
7.	Perform palpation techniques to identify the area(s) to be needled
8.	Apply needle handling techniques that ensure compliance with relevant and current professional standards (e.g., wash hands, wear gloves, minimize needle contamination)
9.	Apply draping materials (e.g., linens, towels) to minimize unnecessary exposure and respect patient privacy
10.	Perform dry needling techniques consistent with treatment plan (e.g., place, manipulate, and remove needles)
11.	Manage needle removal complications (e.g., stuck needle, bent needle)
12.	Monitor patient/client's emotional and physiological response to dry needling
13.	Facilitate hemostasis as necessary
14.	Dispose of medical waste (e.g., needles, gloves, swabs) in accordance with regulatory standards and local jurisdictional policies and procedures (e.g., sharps container)
15.	Discuss post-treatment expectations with the patient/client or family/caregiver
ID#	Tasks
Education	
16.	Educate patient/client or family/caregiver about dry needling (e.g., purpose, technique, methods of action, benefits, tools and equipment)
17.	Educate patient/client or family/caregiver about potential adverse effects associated with dry needling (e.g., fainting, bruising, soreness, fatigue)
18.	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	
19.	Implement emergency response procedures to treat patient/client injuries sustained during dry needling (e.g., perforation of hollow organs, heavy bleeding, broken needles)
20.	Implement emergency response procedures to treat practitioner injuries sustained during dry needling (e.g., needle stick)

Table i. (Continued)

ID#	Tasks
Environmental Safety	
21.	Prepare and maintain a safe and comfortable environment for performing dry needling (e.g., unobstructed walkways, areas for patient/client privacy)
22.	Stock dry needling supplies and equipment in safe proximity during treatment
Infection Control	
23.	Implement infection control procedures to mitigate the effects of needle stick injuries
24.	Clean and disinfect blood and bodily fluids spills in accordance with regulatory standards and local jurisdictional policies and procedures
25.	Replace surfaces that cannot be cleaned
Professional Responsibilities	
26.	Determine own ability to perform dry needling safely and effectively

Table ii. Specialized Knowledge Required for Competency in Dry Needling

Anatomy and Physiology	
1.	Surface anatomy as it relates to underlying tissues, organs, and other structures, including variations in form, proportion, and anatomical landmarks
Emergency Preparedness and Response	
2.	Emergency preparedness and/or response procedures related to secondary physiological effects or complications associated with dry needling (e.g., shock, vasovagal)
3.	Emergency preparedness and/or response procedures related to secondary emotional effects or complications associated with dry needling (e.g., claustrophobia, anxiety, agitation)
4.	Standards for needle handling (e.g., hand hygiene, application of single-use needles)
Safety and Protection	
5.	Factors influencing safety and injury prevention
6.	Personal protection procedures and techniques as related to dry needling (e.g., positioning self to access treatment area, use of personal protective equipment)
7.	Theoretical basis for dry needling (e.g., applications for rehabilitation, health promotion, fitness and wellness, performance)
8.	Theoretical basis for combining dry needling with other interventions
9.	Secondary effects or complications associated with dry needling on other systems (e.g., gastrointestinal, cardiovascular/pulmonary, musculoskeletal)
10.	Theoretical basis of pain sciences, including anatomy, physiology, pathophysiology, and relation to body structures and function
11.	Contraindications and precautions related to dry needling (e.g., age, allergies, diseases/conditions)
12.	Palpation techniques as related to dry needling
13.	Needle insertion techniques
14.	Needle manipulation techniques
15.	Physiological responses to dry needling
16.	Solid filament needles (e.g., physical characteristics)

Analysis of Competencies for Dry Needling by Physical Therapists

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Analysis of Competencies for Dry Needling by Physical Therapists

Introduction and Overview

Dry Needling in the Physical Therapy Scope of Practice

Dry needling is a procedural intervention used by physical therapists (PT) to treat pain, functional impairments, and disabilities. The technique involves the insertion of solid filament needles into the skin and underlying tissue to disrupt pain sensory pathways and relax contracted fibers (Dommerholt, & Fernández-de-las-Peñas, 2013). Clinical research suggests that dry needling helps reduce local and peripheral pain and sensitization, thereby hastening the restoration of muscle function and range of motion (Lewit, 1979; Dommerholt, 2011; Clewley, Flynn, & Koppenhaver, 2014). Dry needling (alone or with other physical therapy interventions) has been shown to be an effective treatment for neuromusculoskeletal diseases or conditions, including arthritis, tendonitis, carpal tunnel, and chronic pain (Dommerholt, 2004; Kalichman, & Vulfsons, 2010).

The theoretical genesis of dry needling is attributed to the pioneering work of Janet Travell, M.D. and David Simons, M.D. (Simons, Travell, & Simons, 1999) who used .22-gauge hypodermic needles to treat myofascial pain with trigger point therapy (i.e., needling of taut bands of muscle fibers). Over the past several decades, practitioners have adopted variations on the original approach including superficial and deep needling techniques (Gunn, 1997; Baldry, 2002; Ma, 2011). Modern dry needling has largely abandoned hypodermic needles in favor of round tip, solid filament needles ranging from .22 to .30 millimeters in diameter as the beveled tip of hypodermic needles causes greater tissue damage. In addition, modern dry needling is used to treat a variety of conditions and dysfunction of neuromusculoskeletal structures (Ma, 2011; Dommerholt & Fernández-de-las-Peñas, 2013; Dunning, et al, 2014).

The use of needles to treat health conditions is not unique to physical therapy. Needles of similar design are used by practitioners of Acupuncture and Oriental Medicine. However, the use of needles, per se, does not imply that one needling approach is equivalent to another or that one medical profession is infringing on the scope of practice of another. It is not the specific individual procedures or tools that define a profession, but the totality of the scope of practice (National Council of State Boards of Nursing, 2012).

Dry needling in the context of physical therapy is based on a distinct philosophical and theoretical framework supported by modern scientific study of the musculoskeletal and nervous systems (American Physical Therapy Association, 2012; Cummings, 2013; Dunning, et al, 2014). At every stage of the physical therapy visit, from patient selection to the actual needling of the affected areas, the PT is guided by his/her education, clinical training and experience, professional responsibilities and competence, and legally defined scope of practice, as well as the patient's reaction to needling. For example, the type and number of needles used, as well as their location, depth, and manipulation, are heavily influenced by the PT's knowledge of anatomy, histology, physiology, biomechanics, kinesiology, neuroscience, pharmacology, and pathology, as well as the overall plan of care.

In the United States, physical therapy practice is governed by occupational and regulatory standards for ensuring public protection and professional integrity. Statutes (i.e., practice acts) define the scope of practice for a particular jurisdiction and licensure laws ensure practitioners meet and maintain prescribed standards for the competent performance of their jobs. However, practice acts are often ambiguous regarding the procedures and techniques PTs are allowed to perform because methodologies and evidence-based treatments continually evolve with

advances in education, research, and technology. As a result, interpretation of the law falls to state boards/agencies which develop rules and regulations to define, in practical terms, whether or not a specific procedure, technique, or modality is within the scope of practice. Because each state creates its own licensure laws, the scopes of practice vary. An allowed technique in one state may be restricted in another. Currently, dry needling is specifically allowed in 33 states and strictly prohibited in eight; the remaining states are either undeclared or have conflicting rulings.

Scope and Purpose of the Project

Since 2010, many jurisdictions have sought information from the Federation of State Boards of Physical Therapy (FSBPT) regarding the ability of PTs to perform dry needling. Much of the empirical research on dry needling has focused on the clinical aspects of the technique, such as methods of action and treatment effects (Dommerholt & Fernández-de-las-Peñas, 2013; Dommerholt, 2011; Dunning, et al, 2014). However, no publically available studies have explicitly examined what PTs must know and be able to do to perform dry needling safely and effectively, or what factors (personal capacities or environmental conditions) contribute to competent performance. To provide its members with objective, professionally-developed guidance, FSBPT sponsored a study of the competencies required for safe and effective dry needling.¹

The primary objectives of this research were to:

1. Define Dry Needling Competencies for Physical Therapists

- a. What must physical therapists know and be able to do to perform dry needling safely and effectively?
- b. When, where, and how do physical therapists acquire the knowledge, skills, and abilities needed to perform dry needling?

2. Evaluate Factors that Impact Safe and Effective Practice

- a. What characteristics of the individual contribute to safe and effective dry needling?
- b. What institutional and environmental factors influence the safe and effective practice dry needling?

Research Design

The systematic process for developing competencies in a licensure context is often referred to as *practice analysis*. The process begins with an analysis of the work itself to identify the tasks individuals perform on the job. This is followed by an investigation of the knowledge, skills, and abilities needed to perform those tasks. Finally, additional information is collected to determine the requirements for evaluating the quality of performance on a task (e.g., effective versus not effective). The result of this process is a list of the knowledge, skills, and ability requirements for competent performance.

¹ Competencies are defined as measurable or observable knowledge, skills, or abilities an individual must possess to perform a job effectively. They possess both descriptive and evaluative information (i.e., what characteristics an individual must possess and to what extent or level of quality). Because they describe behavioral characteristics of the individual in terms of the job being performed, competencies can provide a strong foundation for a variety of professional and regulatory functions, including the establishment of education and training requirements, performance assessment and management, professional guidelines, and practice regulations. They are also useful for communicating with and educating the public on the dry needling technique and how it fits with the physical therapy scope of practice.

Practice analysis relies on the input and judgment of subject matter experts (SMEs) to provide an authentic and accurate assessment of the job tasks and competencies. Their primary role is to bring their education, training, and on-the-job experience to bear in identifying knowledge, skills, and abilities that are relevant and important for competent practice. In this way, SME participation adds credibility and validity to the outcomes of the research.

FSBPT contracted with the Human Resources Research Organization (HumRRO) to conduct the study in accordance with current best-practices in practice analysis procedures. HumRRO is a non-profit, social and behavioral science research and consulting firm dedicated to the measurement and improvement of human and organizational performance. As an independent contractor, HumRRO was instrumental in carrying out an objective, unbiased analysis. In addition, HumRRO provided an external perspective of the nature of physical therapy work, particularly the human and environmental factors related to competent job performance.

Competency Development Process

The process for developing the dry needling competencies included three main steps. First, HumRRO staff conducted a background review of the literature on dry needling and constructed draft versions of the competencies. Concurrently with the background review, FSBPT surveyed a broad sample of licensed PTs to identify knowledge, skills, and abilities that are important for dry needling. Finally, HumRRO and FSBPT convened a task force meeting with experts in dry needling to consolidate the information collected in the previous two steps and construct a final list of competencies. Each step is described in more detail in the following sections.

Background Information Review

The purpose of the background review was to obtain current theoretical, procedural, and descriptive information on dry needling and translate it into a preliminary set of competencies. The review began with an internet search to identify source material containing information related to: dry needling knowledge and skills, tasks and/or duties, contraindications, adverse effects, safety, needle techniques, patient education and communication, and emergency preparedness and response. This search returned 30 sources encompassing websites, resource papers, text publications, peer-reviewed research journals, instructional curricula, and testing materials. FSBPT identified an additional seven electronic documents covering FSBPT periodicals and testing materials related to the National Physical Therapy Licensure Exam (NPTE). The complete list of source materials is provided in Appendix A.

During the review, text fragments (e.g., sentences, phrases, paragraphs) that provided potentially useful information were extracted and stored in an electronic database. A total of 937 fragments were collected ranging in size from 19 to 2,329 characters (including spaces). The average size of an extracted fragment was 229 characters. Examples include:

- % inquiries specifically about reactions to needles +
- % sustained contractures of taut bands cause local ischemia and hypoxia in the core of trigger points.+
- % The muscle and treatment area needled should be compressed immediately following needle with-drawal for hemostasis for up to 30 seconds or until any bleeding has stopped. A cotton swab may be used and should be discarded as appropriate.+
- % The clinician should be cognizant of anatomical structures within the treatment area that are vulnerable to [dry needling], e.g. neurovascular structures and the lung, and ensure

that the needling technique avoids penetration of vulnerable anatomical structures. Also, voluntary and involuntary patient movement may compromise safe [dry needling], which is why the needling hand should always rest on the patient's body.

The extracted information was analyzed, sorted, and coded into groupings reflecting common (or recurrent) topics or themes. For example, the following sentences provided information related to knowledge of body systems affected by dry needling.

- Dry needling is a neurophysiological evidence-based treatment technique that requires effective manual assessment of the neuromuscular system.
- Anatomical knowledge of the vascular system is important as there is a potential to puncture blood vessels during needling.
- Identify specific bony landmarks of the pelvis and differentiate individual pelvic muscles for needling.
- Anatomical knowledge of internal organs is important as there is potential for internal organ penetration such as the kidney with needling of [trigger points] in the psoas major and quadratus lumborum muscles or organs within the peritoneal cavity with needling of TrPs in the abdominal muscles.

In some instances, a single fragment provided information across multiple topics and was coded accordingly. After sorting and grouping the information, common topics with each grouping were identified and used to construct draft lists of dry needling tasks and knowledge requirements.

Tasks are defined as discrete job-related actions taken to achieve some goal or purpose, and the tools, conditions, and reasons for doing so. Twenty-seven tasks were derived from the background review materials. Below is an example of a task statement.

Interview patients/clients, caregivers, and family to obtain patient/client history and current information (e.g., medical, surgical, medications, social, cultural, economic) to identify prior experience with and tolerance for dry needling (e.g., needle phobia, response to treatment, ability to comply with treatment requirements).

Knowledge requirements describe organized bodies of factual or procedural information that are directly involved in the performance of a job or job task. Twenty-seven knowledge requirements were derived from the background review. An example of a knowledge requirement statement is presented below.

Knowledge of contraindications and precautions related to dry needling (e.g., age, allergies, diseases/conditions, implants, pregnancy, areas of acute inflammation, acute systemic infections, medications).

The draft lists of tasks and knowledge requirements were reviewed with FSBPT to (a) identify content gaps, (b) make adjustments to the phrasing or content, and (c) organize the information in a meaningful way for review by the Task Force. The complete list of draft statements is presented in Appendix B.

Practitioner Survey

The purpose of the practitioner survey was to identify entry-level physical therapy tasks and knowledge (required at the time of licensure) that are also required for dry needling. A large sample

of licensed PTs (n=353) was recruited to complete the survey. This sample included individuals working in hospitals, private practice, clinics, academia, and the military. Respondents were presented with two lists: 214 entry-level tasks (a.k.a., work activities) and 116 entry-level knowledge statements. Both lists were drawn verbatim from the results of the 2011 Analysis of Practice for the Physical Therapy Profession (Bradley, Waters, Caramagno, & Koch, 2011).² The practitioner survey was conducted concurrently with the review of background materials. Therefore, draft competencies from the review were not included in the practitioner survey. Respondents were instructed to rate whether each task (or knowledge) was relevant or not relevant to competency in performing dry needling. Tables indicating the percent of respondents selecting each task or knowledge as relevant were prepared for presentation to the Task Force.

Respondents were also asked to identify qualities or capabilities that PTs need to be effective in the practice of dry needling that were not already covered by the lists of tasks and knowledge statements. HumRRO content analyzed their responses and identified commonly cited characteristics. Broadly, the responses could be categorized into three areas of dry needling-specific information: skills and abilities, tasks, and knowledge. For example, some of the respondents suggested adding tasks related to needle selection and placement, identification of contraindications, and palpation. A small portion of respondents observed that PTs need knowledge of surface and cross-sectional anatomy, adverse effects related to needling, and clean needle techniques. The information identified by the survey respondents was incorporated into the draft list of tasks and competencies developed during the background review.

Task Force Meeting

The purpose of the Task Force meeting was to review the draft competencies and survey results and consolidate the information into a final set of dry needling competencies. FSBPT extended invitations to a group of dry needling experts who were employed in a variety of sectors (e.g., private, academia) and were geographically dispersed. Because more individuals were interested than there were positions to fill, FSBPT requested from each individual a short summary of his/her training and professional experience with dry needling as well as his/her availability to attend the Task Force meeting on the selected dates (see below). Based on the narratives, FSBPT looked for individuals who possessed regulatory experience with FSBPT or FSBPT's licensing boards and/or have been involved in the legislative process with regard to dry needling.

Seven individuals were selected to participate on the Task Force based on their depth and breadth of experience and education in dry needling. Their years of professional experience performing dry needling ranged from five to fourteen. All participants were licensed PTs with a minimum of fourteen total years of experience in physical therapy and a maximum of 31. Five participants possessed Doctorate level degrees (i.e., DPT); one had a Master's level degree (i.e., MPT/MSPT), and one had a Bachelor's degree. All were certified to practice dry needling, and five were currently in an educational or training role (e.g., faculty, instructor) providing dry needling instruction in addition to their clinical employment as therapists. One was a full-time faculty member.³

The Task Force meeting was held at FSBPT's headquarters on May 29-31, 2015. HumRRO staff facilitated the meeting with technical support from FSBPT as well as observers from the American Physical Therapy Association (APTA) and FSBPT's Board of Directors. The agenda covered the following activities:

² Available at: https://www.fsbpt.org/download/pa2011_ptfinalreport20111109.pdf

³ At this time there are no required certifications, or certifications that are acknowledged by a regulatory board. All Task Force members have extensive training in dry needling and practice it regularly.

1. Define Dry Needling
2. Define the Standard for Competence (Safe and Effective Practice)
3. Review and Refine Dry Needling Tasks
4. Review and Refine Dry Needling Knowledge Requirements
5. Identify Dry Needling Skills and Abilities

Define Dry Needling

The first activity was aimed at constructing a definition of dry needling that clearly communicates the purpose and defining features of the intervention without inadvertently narrowing the scope. A draft definition was presented to the Task Force for review and is presented below.⁴

*Draft definition: Dry needling is a skilled intervention using a thin, filiform needle, without injectate, to penetrate the skin in order to stimulate and effect change in underlying tissues.*⁵

The Task Force noted several issues with the draft definition they believed would confuse certain audiences and narrow its applicability across individual practitioners and practice settings. These included the following.

- Dry needling is not limited to physical stimulation of acutely affected tissue.
- There is a neural component that includes the peripheral and central nervous system.
- Dry needling can be used to stimulate as well as inhibit the neuromusculoskeletal system.
- Dry needling is a method for evaluating, treating, and managing functional impairment and pain.
- Dysfunction and disability are also treated with dry needling.
- The term filiform should be kept; however, some needles are thicker than others so %thin+ might be misleading.
- Needles may penetrate more than just the dermal layer (i.e., skin).

The definition adopted by Arizona Physical Therapy Board which was developed to address many of the same issues was presented. The Task Force elected to use this definition as a starting point and made a few additional revisions, such as adding %disability+ to the list of things dry needling can be used to treat. The final definition is presented below.

Dry needling is a skilled technique performed by a physical therapist using filiform needles to penetrate the skin and/or underlying tissues to affect change in body structures and functions for the evaluation and management of neuromusculoskeletal conditions, pain, movement impairments, and disability.

Define the Standard for Competence (Safe and Effective Practice)

⁴ This version was developed by FSBPT staff with contributions from two practicing physical therapists that have expertise in dry needling. The draft version was primarily developed as a starting point to facilitate discussion.

⁵ Draft definition; do not cite.

The second activity was conducted to clarify the standard of competence for dry needling. This standard represents the minimum level of proficiency needed to perform the technique competently. Although there are many ways to define competence (e.g., efficiency, cost, speed, quality, satisfaction), the criteria ~~safe and effective~~ were selected because (a) they are meaningful to the practice of dry needling (and physical therapy in general), and (b) this approach is consistent with the 2011 practice analysis (Bradley, Waters, Caramagno, & Koch, 2011).

To begin, the Task Force participated in a brainstorming task to identify (at a broad level) what PTs do when applying dry needling, what they must know to do so safely and effectively, and what psychological or physical characteristics they must possess (e.g., skills, abilities).

Examples of their responses include:

- DO: assess and evaluate; determine need for intervention, educate patients, establish goals, handle needles safely, manage waste disposal
- KNOW: anatomy; palpation techniques; dosing; informed consent; adverse effects; reimbursement
- POSSESS: psychomotor skills; social skills; ability to communicate; ethics; self-awareness; empathy/compassion; cultural competence

This activity helped orient the Task Force to the practice analysis approach and establish a common frame of reference regarding the meaning of safe and effective practice.

The Task Force noted that safety and effectiveness are related but distinct concepts so both criteria are warranted. They unanimously agreed that the concept of safety applies to both patient and practitioner and includes prevention as well as emergency response. Prevention covers direct actions such as safe needle handling and infection control, as well as more indirect actions like attending to and correctly interpreting patient data. In relation to the minimum standard for competence, they defined safe practice as the prevention and mitigation of harm to the patient or therapist, directly or indirectly, through careful patient selection, evaluation, and treatment.

The concept of effectiveness was more difficult to define because dry needling can be used to achieve a variety of therapeutic responses and outcomes (e.g., reduced pain and/or sensitization, increased mobility). Each patient's needs are dependent on his/her symptoms or conditions and whether dry needling is appropriate. Measuring the effectiveness of the treatment requires careful pre- and post-treatment assessment to establish a baseline health status, select the patient for dry needling, and detect change. Accordingly, the Task Force opted to define the standard for effectiveness in relation to the entire physical therapy session (or visit). In other words, dry needling is effective when the PT continually assesses and evaluates the patient and adjusts the treatment according to the patient's specific needs or presentation.

Review and Refine Dry Needling Tasks

The objective of the third activity was to identify job tasks that PTs perform when applying dry needling as part of a physical therapy treatment plan. Job tasks are not included as part of the competencies but the identification of tasks is essential for linking the competencies to the actions that PTs perform on the job. In other words, in order to identify the competencies required for a job, one must first understand the job itself. The job task analysis served this purpose.

The analysis was carried out in two parts. First, the Task Force reviewed a list of entry-level physical therapy tasks. These tasks were identified during the 2011 practice analysis (Bradley, Waters,

Caramagno, & Koch, 2011) and, as such, reflect the actions expected of all licensed, entry-level PTs. Because the same list was used in the practitioner survey, the Task Force reviewed the survey results (i.e., percent of respondents endorsing each task as relevant). Through discussion and consensus-building, the Task Force made a final determination of the relevance of each task. For this activity, relevance was based on the standard for competence defined in the previous section (i.e., a task is relevant if it is necessary for safe and effective practice).

Next, the Task Force reviewed the list of draft task statements developed during the background review. These tasks describe the procedural actions involved in performing the dry needling intervention and are at a somewhat finer grain of analysis than the entry-level tasks. As a result, the Task Force spent more time editing these tasks to improve their clarity and accuracy.

During the review, the Task Force noted that dry needling is always performed as part of a comprehensive treatment plan and almost never the only physical therapy intervention included in the plan. As a result, the Task Force initially identified all of the entry-level interventions as relevant to dry needling. However, this decision created redundancy with the list of entry-level physical therapy tasks and obscured the purpose and usefulness of the dry needling task list.⁶ Because dry needling is frequently combined with other interventions, the Task Force observed that an important part of a PT's role is determining the proper sequence of events to reduce or eliminate the risk of relative contraindications. Therefore, instead of including every physical therapy intervention/treatment on the task list, the Task Force created a new statement that specifically addressed the action of sequencing dry needling with other interventions.

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.

The statements describing the other interventions were excluded from the final dry needling task list.

Review and Refine Dry Needling Knowledge Requirements

The objective of the fourth activity was to identify the knowledge required to carry out the tasks identified in the previous activity. The Task Force began by reviewing the 116 entry-level knowledge requirements identified in the 2011 practice analysis as well as the practitioner survey results. They identified 13 statements as clearly unrelated to the safe and effective practice of dry needling and excluded them from further consideration. These statements covered knowledge of biofeedback, electromagnetic radiation, data collection techniques, and measurement science, to name a few. Next, the Task Force reviewed the 27 dry needling-specific knowledge requirements developed during the background review. This list was heavily refined to ensure the knowledge requirements were clear and accurate. During the review, the Task Force eliminated eight and created two new knowledge requirements.

Once the Task Force was comfortable with the content of the lists, they performed a rating task to evaluate the importance of the knowledge requirements. The importance rating reflects the extent to which the knowledge described by a particular statement is needed for safe and

⁶ From a methodological standpoint, task lists should include only actions/activities necessary to perform the work. The inclusion of other interventions on the dry needling task list suggests they are essential to the proper implementation of technique.

effective dry needling. If lack of the knowledge would lead to very serious negative consequences, the importance rating should be higher. If none or few consequences would result from a lack of the knowledge, the importance rating should be lower. The importance rating scale is shown below.

How important is the knowledge for the safe and effective performance of dry needling by a licensed physical therapist?

1. Minimally important
2. Somewhat important
3. Important
4. Very important
5. Extremely important

The Task Force members rated each of the remaining 103 knowledge requirements. HumRRO compiled and analyzed the ratings to identify knowledge requirements for which there were large discrepancies in judgment (e.g., split-decisions, no clear majority) were marked for review. All of these discrepancies were resolved through a process of discussion to reinforce the purpose and goals of the activity and reach agreement regarding the knowledge that is required for competent dry needling.

Identify Dry Needling Skills and Abilities

The process for determining which skills and abilities are needed for safe and effective dry needling differed from that used for the tasks and knowledge requirements. To date, no publicly available description of skills and abilities needed for dry needling exists. However, the U.S. Department of Labor developed a comprehensive database called the Occupational Information Network (O*NET) which contains information on skills and abilities that are related to job performance in different industries, including physical therapy (Tsacoumis & Van Iddekinge, 2006). The data analysis conducted by the Department identified 21 skills and 22 abilities that apply to the physical therapy occupation. Accordingly, to identify attributes specifically related to dry needling, HumRRO integrated the O*NET information with expert judgments made by the Task Force.

First, the Task Force brainstormed a set of attributes needed for performing dry needling safely and effectively and identified five general activities.

1. Communicating with patients
2. Adapting behavior or treatment to accommodate patient's needs/preferences
3. Handling and controlling needles and palpating tissues
4. Reflecting on and evaluating own competence to perform dry needling (e.g., only treating areas for which the PT has specific training)
5. Abiding by professional and ethical standards (e.g., adhering to OSHA regulations)

They noted that PTs acquire the skills and abilities to perform these activities competently during their general physical therapy education, residency, and/or clinical internships, with one exception; the psychomotor skills needed to physically perform dry needling (e.g., needle insertion) are not learned in physical therapy school and must be developed as part of specialized training on the technique.

Next, HumRRO mapped the activities identified by the Task Force to the skills and abilities listed in the O*NET database. Two HumRRO analysts reviewed the definition of each O*NET

skill or ability as well as any behavioral examples provided and used this information to link the two sets of information. For instance, writing skill is defined in the O*NET database as “communicating effectively in writing as appropriate for the needs of the audience” (e.g., taking a phone message, writing a memo to staff outlining new directives) and corresponds with the Task Force-identified activity focused on patient communication.

Outcomes

Dry Needling Job Tasks

Of the 214 job tasks required of entry-level, licensed PTs, 97 were judged to be relevant to dry needling. These tasks describe activities related to information gathering and systems review (n = 17), testing and measurement (n = 33), evaluation and diagnosis (n = 11), prognosis and plan of care (n = 5), non-procedural interventions (n = 16), and patient/client and staff safety (n = 15). Of the 27 tasks derived from the background review, 26 were identified as specifically relevant to dry needling (see Table 1). Nearly half (n = 12) of these tasks describe procedural actions such as positioning the patient, palpating the area(s) to be needled, needle handling, monitoring the patient, and disposing of medical waste. The remaining 14 tasks describe activities related to information gathering, prognosis and plan of care, non-procedural interventions, and patient/client and staff safety. The final list of 123 dry needling tasks is displayed in Appendix D. Tasks that were deemed not relevant to dry needling are presented in Appendix E.

Table 1. Dry Needling-Specific Tasks

ID#	Tasks
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, economic) to...
1.	o identify prior experience with and tolerance for dry needling (e.g., needle phobia, response to treatment, ability to comply with treatment requirements)
2.	o identify contraindications and precautions related to dry needling (e.g., age, allergies/sensitivities, diseases/conditions, implants, areas of acute inflammation, acute systemic infections, medications)
3.	o 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	
Manual Therapy Techniques	
	Position the patient/client to o
4.	o expose the area(s) to be needled
5.	o reduce the risk of harm to the patient/client and/or therapist
6.	o Educate the patient/client on the impact of movement during treatment
7.	o Perform palpation techniques to identify the area(s) to be needled
8.	o Apply needle handling techniques that ensure compliance with relevant and current professional standards (e.g., wash hands, wear gloves, minimize needle contamination)
9.	o Apply draping materials (e.g., linens, towels) to minimize unnecessary exposure and respect patient privacy
10.	o Perform dry needling techniques consistent with treatment plan (e.g., place, manipulate, and remove needles)
11.	o Manage needle removal complications (e.g., stuck needle, bent needle)
12.	o Monitor patient/client's emotional and physiological response to dry needling

Table 1 (Continued)

ID#	Tasks
13.	Facilitate hemostasis as necessary
14.	Dispose of medical waste (e.g., needles, gloves, swabs) in accordance with regulatory standards and local jurisdictional policies and procedures (e.g., sharps container)
15.	Discuss post-treatment expectations with the patient/client or family/caregiver
Education	
16.	Educate patient/client or family/caregiver about dry needling (e.g., purpose, technique, methods of action, benefits, tools and equipment)
17.	Educate patient/client or family/caregiver about potential adverse effects associated with dry needling (e.g., fainting, bruising, soreness, fatigue)
18.	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	
19.	Implement emergency response procedures to treat patient/client injuries sustained during dry needling (e.g., perforation of hollow organs, heavy bleeding, broken needles)
20.	Implement emergency response procedures to treat practitioner injuries sustained during dry needling (e.g., needle stick)
Environmental Safety	
21.	Prepare and maintain a safe and comfortable environment for performing dry needling (e.g., unobstructed walkways, areas for patient/client privacy)
22.	Stock dry needling supplies and equipment in safe proximity during treatment
Infection Control	
23.	Implement infection control procedures to mitigate the effects of needle stick injuries
24.	Clean and disinfect blood and bodily fluids spills in accordance with regulatory standards and local jurisdictional policies and procedures
25.	Replace surfaces that cannot be cleaned
Professional Responsibilities	
26.	Determine own ability to perform dry needling safely and effectively

Dry Needling Competencies

Physical Therapy Knowledge Needed for Dry Needling

Determination of the knowledge needed for competency in dry needling was based on the average of Task Force members' importance ratings for each knowledge requirements. Mean importance ratings ranged from 1.57 to 4.71. Requirements with a mean rating of less than 2.00 (Somewhat Important+) were marked for potential elimination and discussed with the Task Force (n = 9). Of these, one statement (i.e., *knowledge of pneumatic compression modalities*) was retained as important because PTs must understand potential interactions between the interventions. Knowledge requirements falling near the threshold were discussed and reassessed. Of the 116 entry-level knowledge requirements, 95 were identified as important for dry needling. All 22 of the dry needling-specific knowledge requirements were identified as important for dry needling. The final list of 117 dry needling knowledge requirements is presented in Appendix F.

Knowledge requirements rated less than 2.00 were deemed not important to dry needling (n = 8). These included knowledge of other equipment and devices (e.g., prosthetics), other therapeutic modalities (e.g., mechanical), ultrasound imaging, and gastrointestinal interventions. Knowledge not related to competency in dry needling is presented in Appendix G.

Although much of the knowledge needed for dry needling is acquired during the course of a PT's entry-level education (e.g., coursework; clinical internships), dry needling is not an entry-level technique. Therefore, some knowledge must be developed through specialized training.⁷ Sixteen knowledge requirements were identified as requiring advanced/specialized training for dry needling (see Table 2). All but one (i.e., *Factors influencing safety and injury prevention*) cover dry needling-specific knowledge such as surface anatomy, emergency preparedness and response procedures and standards (as related to dry needling), theoretical basis for dry needling, aspects of the technique itself, and secondary effects or contraindications related to the use of needles.

Table 2. Specialized Knowledge Required for Competency in Dry Needling

DRY NEEDLING-SPECIFIC KNOWLEDGE	
<i>Anatomy and Physiology</i>	
1.	Surface anatomy as it relates to underlying tissues, organs, and other structures, including variations in form, proportion, and anatomical landmarks
<i>Emergency Preparedness and Response</i>	
2.	Emergency preparedness and/or response procedures related to secondary physiological effects or complications associated with dry needling (e.g., shock, vasovagal)
3.	Emergency preparedness and/or response procedures related to secondary emotional effects or complications associated with dry needling (e.g., claustrophobia, anxiety, agitation)
4.	Standards for needle handling (e.g., hand hygiene, application of single-use needles)
<i>Safety and Protection</i>	
5.	Factors influencing safety and injury prevention
6.	Personal protection procedures and techniques as related to dry needling (e.g., positioning self to access treatment area, use of personal protective equipment)
7.	Theoretical basis for dry needling (e.g., applications for rehabilitation, health promotion, fitness and wellness, performance)
8.	Theoretical basis for combining dry needling with other interventions
9.	Secondary effects or complications associated with dry needling on other systems (e.g., gastrointestinal, cardiovascular/pulmonary, musculoskeletal)
10.	Theoretical basis of pain sciences, including anatomy, physiology, pathophysiology, and relation to body structures and function
11.	Contraindications and precautions related to dry needling (e.g., age, allergies, diseases/conditions)
12.	Palpation techniques as related to dry needling
13.	Needle insertion techniques
14.	Needle manipulation techniques
15.	Physiological responses to dry needling
16.	Solid filament needles (e.g., physical characteristics)

Physical Therapy Skills and Abilities Needed for Dry Needling

⁷ The Task Force defined specialized training as a full course on a particular topic or set of topics. Short (e.g., half-day) workshops do not fulfill this requirement and recommended that opportunities to practice actual needling should be incorporated into and provided immediately after the training to reinforce learning.

As mentioned, the determination of skills and abilities needed for competent dry needling was made by coupling Task Force members' judgment with information from the O*NET database. HumRRO linked the five Task Force-identified activities to 16 O*NET skills and abilities. The list covers attributes that are needed to perform dry needling safely and effectively, including communication (e.g., reading, writing, speaking), active listening and clinical thinking, social skills, psychomotor abilities, and judgment and decision-making. The Task Force observed that the majority of these skills and abilities are acquired through entry-level training and education. However, because dry needling is not included in most entry-level physical therapy programs (Adrian, 2013), the psychomotor skills needed to handle needles and palpate tissues require specialized training.⁸ The final list of skills and abilities is presented in Appendix H.

Role of the Physical Therapist Assistant in Dry Needling

Physical therapist assistants (PTAs) are health care workers who are directed and supervised by PTs. In this role, they are involved in direct patient care, including (but not limited to) observation and records management, therapeutic exercise, gait and balance training, massage, and patient education. However, PTAs do not evaluate, diagnose, assess/reassess, or prepare treatment plans for patients. They also do not make recommendations for various types of treatments modalities and equipment.

Task differences between PTs and PTAs are partly related to the scope of educational curricula provided by accredited physical therapist assistant degree programs. Whereas assistants receive instruction in many of the same domains as PTs (e.g., anatomy and physiology, biomechanics, kinesiology, neuroscience, clinical pathology, behavioral sciences, communication, ethics/values), the depth and breadth of education and training is not equivalent. PTAs spend roughly 16 weeks in clinical education, whereas PTs spend more than 27. In addition, PTAs receive no didactic or clinical training in evaluation and differential diagnosis. Because this report focused on the competencies required of the PT to perform dry needling, which are based on a strong foundation in evaluation and differential diagnosis, it is not appropriate to assume the same competencies would qualify a PTA to perform the treatment.

Conclusions

The practice analysis of dry needling revealed several important characteristics about PTs' capabilities for performing the intervention as part of their scope of practice. First, of the 116 entry-level and 22 dry needling-specific knowledge requirements, 117 were identified as important for competency in dry needling. More than four-fifths (86%) of what PTs need to know to be competent in dry needling is acquired during the course of their entry-level education, including knowledge related to evaluation, assessment, diagnosis and plan of care development, documentation, safety, and professional responsibilities. Advanced or specialized training (e.g., dry needling course, residency program) is required for 16 of the knowledge areas

⁸ Although additional training is needed for the development of psychomotor skills (as well as the 16 knowledge requirements noted previously), there does not appear to be widespread agreement regarding the minimum number of practice hours necessary (Kalichman & Vulfsons, 2010). Indeed, the acquisition of knowledge and skills is dependent on more than just the number of hours of deliberate practice (Hambrick, Oswald, Altman, Meinz, Gobet, & Campitelli, 2014). The Task Force argued that variation across individuals in terms of their aptitude, education, experience, and clinical specialization results in different rates of development. Additionally, any practice hour metric should be theoretically or practically linked to the professional standard for safe and effective practice (AERA, APA, NCME, 2014).

needed for dry needling and these are almost solely related to the needling technique (e.g., selection, placement, and manipulation of needles; identification of contraindications). In addition, the psychomotor skills needed to handle needles and palpation of tissues specifically in regard to dry needling appropriately require specialized training. Because this report focused on the competencies required of the PT to perform dry needling, which are based on a strong foundation in evaluation and differential diagnosis, it is not appropriate to assume the same competencies would qualify a PTA to perform the treatment.

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Appendix A

Background Review Source Materials

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Appendix B

Draft Dry Needling-Specific Tasks and Knowledge Requirements

Table B1. Draft List of Dry Needling Tasks

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, economic) to...

1. ○ identify prior experience with and tolerance for dry needling (e.g., needle phobia, response to treatment, ability to comply with treatment requirements)
2. ...identify contraindications and precautions related to dry needling (e.g., age, allergies, diseases/conditions, implants, pregnancy, areas of acute inflammation, acute systemic infections, medications)

INTERVENTIONS

Manual Therapy Techniques

Position the patient/client using supportive devices and equipment (e.g., pillows, rolls, cushions) to

3. ○ ensure the patient/client is comfortable and relaxed
4. ○ enable ease of access to the tissue(s) being needled
5. ○ reduce the risk of harm to the patient/client and/or therapist
6. Instruct the patient/client to limit movement during treatment
7. Perform palpation techniques to identify the area(s) to be needled
8. Apply sterile needle handling techniques (e.g., wash hands, wear gloves, avoid contact with needle shaft, use sterile plunger, minimize needle contact with skin)
9. Disinfect needle site using detergent, water, alcohol, or iodine solution
10. Perform dry needling techniques on muscles, tendons, ligaments, and other connective tissue to reduce pain and improve functional ability
11. Monitor patient/client's psychological and physiological response to dry needling
12. Apply pressure to the needle area to facilitate hemostasis
13. Dispose of medical waste (e.g., needles, gloves, swabs) in accordance with regulatory standards and local jurisdictional policies and procedures (e.g., sharps container)
14. Discuss post-treatment care with the patient/client or family/caregiver

NON-PROCEDURAL INTERVENTIONS

Education

15. Educate patient/client or family/caregiver about dry needling (e.g., purpose, technique, methods of action, tools and equipment)
16. Educate patient/client or family/caregiver about adverse effects associated with dry needling (e.g., fainting, bruising, soreness, fatigue)
17. Educate patient/client or family/caregiver about precautions and contraindications for dry needling (e.g., age, allergies, diseases/conditions, implants, pregnancy, areas of acute inflammation, acute systemic infections, medications)

Emergency Procedures

18. Implement emergency response procedures to treat injuries sustained during dry needling (e.g., perforation of hollow organs, heavy bleeding)
19. Remove broken, bent, or stuck needles using clean, sanitized equipment (e.g., tweezers, pliers)

Environmental Safety

20. Prepare and maintain a safe and comfortable environment for performing dry needling (e.g., unobstructed walkways, areas for patient/client privacy)
21. Clean and disinfect surfaces and textiles using detergent, water, and bleach
22. Stock dry needling tools and equipment in close proximity to treatment area
23. Stock infection control tools and equipment in close proximity to treatment area

Infection Control

24. Implement infection control procedures to mitigate the effects of needle stick injuries
25. Clean and disinfect blood and bodily fluids spills using detergent, water, and chlorine-generating

disinfectant

26. Replace surfaces that cannot be cleaned

Professional Responsibilities

27. Determine own ability to perform dry needling safely and effectively

Table B2. Draft List of Dry Needling Knowledge Requirements

Anatomy and Physiology

1. Anatomical features of the external body, including form, proportion, and projection of surface landmarks and their correspondence with underlying tissues, organs, and other structures

Emergency Preparedness and Response

Emergency preparedness and response procedures related to secondary effects or complications from:

2. ♂ perforation of underlying organs (e.g., pneumothorax)
3. ♂ perforation of blood vessels and arteries (e.g., bleeding, bruising)
4. ♂ trauma to the skin (e.g., cellulitis)
5. ♂ trauma to nerves (e.g., neuropraxia, axonotmesis, neurotmesis)
6. ♂ skeletal punctures (e.g., broken/bent needle)
7. Emergency preparedness and response procedures related to secondary psychological effects or complications (e.g., shock, claustrophobia, depression, drowsiness)

Safety and Protection

8. Clean needle techniques (e.g., needle site disinfection, hand hygiene, application of single-use needles, needle reinsertion guidelines, grasping and positioning needles, needle re-sheathing)
9. Draping techniques
10. Equipment sterilization procedures
11. Environment sterilization procedures
12. Personal protection procedures and techniques (e.g., positioning to access treatment area, use of personal protective equipment)
13. Patient positioning techniques (e.g., side-lying, prone, supine) and their effect on anatomy and physiology
14. Local laws and regulations regarding the disposal of needles and medical waste
15. Federal laws and regulations regarding infection prevention (e.g., Occupational Safety and Health Administration Standards)

Theory and Technique

16. Theoretical basis for dry needling interventions, including applications for rehabilitation, health promotion, and performance according to current best evidence
17. Theoretical basis for combining dry needling with other manual techniques and modalities
18. Theoretical basis for pain, including pathways, physiology, pathophysiology, and relation to movement impairment
19. Contraindications and precautions related to dry needling (e.g., age, allergies, diseases/conditions, implants, pregnancy, areas of acute inflammation, acute systemic infections, medications)
20. Tissue palpation techniques, including pressure, duration, and hand placement
21. Needle insertion techniques, including depth, direction, velocity, manipulation, and duration
22. Targeted physiological responses to dry needling
23. Targeted psychological responses to dry needling

Equipment and Devices

24. Solid filament needles, including type, dimensions, and applications
25. Hollow filament, beveled needles, including type, dimensions, and applications
26. Diagnostic equipment and devices (e.g., magnetic resonance imaging devices, ultrasound elastographic devices, and intramuscular electromyographic devices)
27. Supportive devices and equipment (e.g., pillows, cushions, wedges)

Appendix C Task Force Members

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Appendix D

Physical Therapy Tasks Required for the Competent Performance of Dry Needling

ID#	Tasks
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, economic) to...
1.	...establish prior and current level of function
2.	...establish general health status (e.g., fatigue, fever, malaise, unexplained weight change)
3.	...identify risk factors and needs for preventative measures
4.	...identify patient/client's, family/caregiver's goals
5.	...determine if patient/client is appropriate for PT
6.	ō identify prior experience with and tolerance for dry needling (e.g., needle phobia, response to treatment, ability to comply with treatment requirements)
7.	...identify contraindications and precautions related to dry needling (e.g., age, allergies/sensitivities, diseases/conditions, implants, areas of acute inflammation, acute systemic infections, medications)
8.	Review medical records (e.g., lab values, diagnostic tests, specialty reports, narrative, consults)
9.	Gather information/discuss client/patient's current health status with interprofessional/interdisciplinary team members (e.g., teacher, physician, rehabilitation member)
Systems Review	
	Perform screen of the...
10.	...patient/client's current affect, cognition, communication, and learning style (e.g., ability to make needs known, consciousness, orientation, expected emotional/behavioral responses, learning preferences)
11.	...patient/client's quality of speech, hearing, vision (e.g., dysarthria, pitch/tone, use corrective lenses, use of hearing aids)
12.	...vestibular system (e.g., dizziness, vertigo)
13.	...gastrointestinal system (e.g., difficulty swallowing, heartburn, indigestion, change in appetite/diet)
14.	...genitourinary system (e.g., frequency, volume, urgency, incontinent episodes)
15.	...genital reproductive system (e.g., sexual and/or menstrual dysfunction)
16.	...cardiovascular/pulmonary system (e.g., blood pressure, heart rate)
17.	...integumentary system (e.g., presence of scar formation, skin integrity, edema)
18.	...musculoskeletal system (e.g., gross symmetry, strength, weight, height, range of motion)
19.	...neuromuscular system (e.g., gross coordinated movements, motor function, locomotion)
Tests & Measures	
Cardiovascular and Pulmonary	
	Select and perform tests and measures of...
20.	...cardiovascular function (e.g., blood pressure, heart rate, heart sounds)
21.	...pulmonary function (e.g., respiratory rate, oxygen saturation, breathing patterns, breath sounds, chest excursion)
22.	...peripheral circulation (e.g., peripheral pulses, capillary refill, blood pressure in upper versus lower extremities)
23.	...physiological responses to position change (e.g., orthostatic hypotension, skin color, blood pressure, heart rate)
Anthropomorphic	
24.	Quantify edema (e.g., palpation, volume test, circumference)
Arousal, Attention, & Cognition	
	Select and perform tests and measures of...

ID#	Tasks
25.	...attention and cognition (e.g., ability to process commands)
26.	...patient's/client's ability to communicate (e.g., expressive and receptive skills, following instructions)
27.	...arousal and orientation to time, person, place, and situation
28.	...recall (including memory and retention)
<i>Nerve Integrity</i>	
	Select and perform tests and measures of...
29.	...neural provocation (e.g., tapping, tension/stretch)
30.	...cranial nerve integrity (e.g., facial asymmetry, oculomotor function, hearing)
31.	...peripheral nerve integrity (e.g. sensation, strength)
32.	...spinal nerve integrity (e.g., dermatome, myotome)
<i>Ergonomics and Body Mechanics</i>	
	Select and perform tests and measures of...
33.	...postural alignment and position (static and dynamic)
<i>Functional Mobility, Balance, & Vestibular</i>	
	Select and perform tests and measures of...
34.	...balance (dynamic and static) with or without the use of specialized equipment
35.	...gait and locomotion (e.g., ambulation, wheelchair mobility) with or without the use of specialized equipment
36.	...mobility during functional activities and transitional movements (e.g., transfers, bed mobility)
<i>Integumentary Integrity</i>	
37.	Assess skin characteristics (e.g., blistering, continuity of skin color, dermatitis, hair growth, mobility, nail growth, sensation, temperature, texture, and turgor)
38.	Assess scar tissue characteristics (e.g., banding, pliability, sensation, and texture)
<i>Joint Integrity & Range of Motion</i>	
	Select and perform tests and measures of...
39.	...spinal and peripheral joint stability (e.g., ligamentous integrity, joint structure)
40.	...spinal and peripheral joint mobility (e.g., glide, end feel)
41.	...range of motion (e.g., functional and physiological)
42.	...active and passive joint range of motion (e.g., goniometry)
43.	...flexibility (e.g., muscle length, soft tissue extensibility)
<i>Muscle Performance & Motor Function</i>	
	Select and perform tests and measures of...
44.	...muscle strength, power, and endurance (e.g., manual muscle test, isokinetic testing, dynamic testing)
45.	...muscle tone (e.g., hypertonicity, hypotonicity, dystonia)
46.	...patient's need for assistance (e.g. during transfers, in the application of devices)
<i>Reflex Integrity</i>	
	Select and perform tests and measures of...
47.	...deep tendon/muscle stretch reflexes (e.g., quadriceps, biceps)
48.	...superficial reflexes and reactions (e.g., cremasteric reflex, abdominal reflexes)
49.	...upper motor neuron integrity (e.g., Babinski reflex, Hoffman sign)
<i>Pain & Sensory Integrity</i>	
	Select and perform tests and measures of...
50.	...pain (e.g., location, intensity, characteristics, frequency)
51.	...deep sensation (e.g., proprioception, kinesthesia, pressure)
52.	...superficial sensation (e.g., touch, temperature discrimination)
Evaluation & Diagnosis	

ID#	Tasks
	Interpret each of the following types of data to determine the need for intervention or the response to intervention:
53.	Cardiovascular/pulmonary system
54.	Lymphatic system
55.	Neuromuscular system
56.	Vestibular system
57.	Musculoskeletal system
58.	Integumentary system
59.	Anthropomorphic
60.	Genitourinary
61.	Pain
62.	Imaging, lab values, medications
63.	Develop physical therapy diagnosis by integrating system and non-system data

Development of Prognosis, Plan of Care, & Goals

64. Establish PT prognosis based on information gathered during the examination process
65. 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
66. Revise treatment intervention plan based on treatment outcomes, change in patient/client's health status, and ongoing evaluation
67. Develop goals based on information gathered during the examination process, incorporating information from the patient/client, caregiver, payers, family members, and other professionals
68. Select interventions based on information gathered during the examination process, incorporating information from the patient/client, caregiver, payers, family members, and other professionals
69. 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

Manual Therapy Techniques

70. Position the patient/client to
 - ō expose the area(s) to be needled
 - ō reduce the risk of harm to the patient/client and/or therapist
71. Educate the patient/client on the impact of movement during treatment
72. Perform palpation techniques to identify the area(s) to be needled
73. Apply needle handling techniques that ensure compliance with relevant and current professional standards (e.g., wash hands, wear gloves, minimize needle contamination)
74. Apply draping materials (e.g., linens, towels) to minimize unnecessary exposure and respect patient privacy
75. Perform dry needling techniques consistent with treatment plan (e.g., place, manipulate, and remove needles)
76. Manage needle removal complications (e.g., stuck needle, bent needle)
77. Monitor patient/client's emotional and physiological response to dry needling
78. Facilitate hemostasis as necessary
79. Dispose of medical waste (e.g., needles, gloves, swabs) in accordance with regulatory standards and local jurisdictional policies and procedures (e.g., sharps container)
80. Discuss post-treatment expectations with the patient/client or family/caregiver

Non-procedural Interventions

Communication

82. Discuss physical therapy evaluation, interventions, goals, prognosis, discharge planning, and plan of care with interprofessional/interdisciplinary team members (e.g., teacher, physician, rehabilitation member)

ID#	Tasks
83.	Discuss physical therapy evaluation, interventions, goals, prognosis, discharge planning, and plan of care with patient/client and caregivers
84.	Provide written and oral information to the patient/client and/or caregiver
Documentation	
85.	Document examination results
86.	Document evaluation to include diagnosis, goals, and prognosis
87.	Document intervention(s) and patient/client response(s) to intervention
88.	Document patient/client and caregiver education
89.	Document outcomes (e.g., discharge summary, reassessments)
90.	Document communication related to the patient/client's care (e.g. with the doctor, teacher, case manager)
91.	Assign billing codes for physical therapy diagnosis and treatment provided
92.	Document disclosure and consent (e.g., disclosure of medical information, consent for treatment)
93.	Document letter of medical necessity (e.g., wheelchair, assistive equipment, continued therapy)
Education	
94.	Educate patient/client about current condition and health status (e.g., treatment outcomes, plan of care, risk and benefit factors)
95.	Educate caregivers about patient/client's current condition and health status (e.g., treatment outcomes, plan of care, risk and benefit factors)
96.	Educate healthcare team about role of the physical therapist in patient/client management
97.	Educate patient/client and caregiver on lifestyle and behavioral changes to promote wellness (e.g., nutrition interventions, physical activity, tobacco cessation)
98.	Educate patient/client or family/caregiver about dry needling (e.g., purpose, technique, methods of action, benefits, tools and equipment)
99.	Educate patient/client or family/caregiver about potential adverse effects associated with dry needling (e.g., fainting, bruising, soreness, fatigue)
100.	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	
101.	Implement emergency life support procedures
102.	Perform first aid
103.	Implement emergency response procedures to treat patient/client injuries sustained during dry needling (e.g., perforation of hollow organs, heavy bleeding, broken needles)
104.	Implement emergency response procedures to treat practitioner injuries sustained during dry needling (e.g., needle stick)
Environmental Safety	
105.	Perform regular equipment inspections (e.g., modalities, assistive devices)
106.	Prepare and maintain a safe and comfortable environment for performing dry needling (e.g., unobstructed walkways, areas for patient/client privacy)
107.	Perform regular equipment inspections (e.g., modalities, needle expiration, sharps containers)
108.	Stock dry needling supplies and equipment in safe proximity during treatment
Infection Control	
109.	Perform activities using appropriate infection control practices (e.g., universal precautions, hand hygiene, isolation, airborne precautions)
110.	Create and maintain an aseptic environment for patient/client interaction
111.	Implement infection control procedures to mitigate the effects of needle stick injuries
112.	Clean and disinfect blood and bodily fluids spills in accordance with regulatory standards and local jurisdictional policies and procedures
113.	Replace surfaces that cannot be cleaned

ID#	Tasks
Research & Evidence-Based Practice	
114.	Integrate current best evidence, clinical experience, and patient values in clinical practice (e.g., clinical prediction rules, patient preference)
Professional Responsibilities	
115.	Discuss ongoing patient care with the interprofessional/interdisciplinary team members
116.	Refer patient/client to specialists or other healthcare providers when necessary
117.	Disclose financial interest in recommended products or services to patient/client
118.	Provide notice and information about alternative care when the physical therapist terminates provider relationship with the patient/client
119.	Document transfer of patient/client care to another physical therapist (therapist of record)
120.	Determine own need for professional development (i.e., continued competence)
121.	Participate in learning and/or development activities to maintain the currency of knowledge, skills, and abilities
122.	Practice within the jurisdiction regulations and professional standards.
123.	Determine own ability to perform dry needling safely and effectively

Appendix E

Tasks NOT Related to Competency in Dry Needling

ID#	Tasks
PATIENT/CLIENT ASSESSMENT	
Tests & Measures	
Cardiovascular and Pulmonary	
	Select and perform tests and measures of...
1.	...perfusion and gas exchange (e.g., airway protection, pulse oximetry)
2.	...critical limb ischemia (e.g., skin perfusion pressure, pulse volume recordings)
3.	...aerobic capacity under maximal and submaximal conditions (e.g., gait speed, treadmill testing, cadence, numbers of stairs climbed, metabolic equivalents)
Anthropomorphic	
	Select and perform tests and measures of...
4.	...body composition (e.g., percent body fat, lean muscle mass, BMI, hip-to-waist ratio)
5.	...body dimensions (e.g., height, weight, girth, limb length, head circumference/shape)
Muscle Performance	
	Select and perform tests and measures of...
6.	...electrophysiological function using surface electrodes (e.g., surface EMG)
7.	...electrophysiological function using needle insertion (e.g., nerve conduction)
8.	...muscle integrity (e.g., ultrasound imaging)
Environmental & Community Integration/Reintegration (Home, Work, Job, School, Play, & Leisure)	
9.	Assess activities of daily living (ADL) (e.g., bed mobility, transfers, household mobility, dressing, self-care)
10.	Assess instrumental activities of daily living (IADL) (e.g., household chores, hobbies, money management)
11.	Assess ability to perform skills needed for integration or reintegration into the community, work, or school
12.	Assess barriers (e.g., social, economic, physical, environmental, work conditions and activities) to community, work, or school integration/reintegration
13.	Assess ability to participate in activities with or without the use of devices or equipment
Ergonomics and Body Mechanics	
14.	Select and perform tests of safety in work environments
	Select and perform tests and measures of...
15.	...specific work conditions or activities
16.	...tools, devices, equipment, and workstations related to work actions, tasks, or activities
17.	...ergonomics and body mechanics during self-care, home, management, work, community, or leisure actions, tasks, or activities (e.g., how patient moves, whether patient aggravates the injury)
Functional Mobility, Balance, & Vestibular	
	Select and perform tests and measures of...
18.	...vestibular function (e.g., peripheral dysfunction, central dysfunction)
Integumentary Integrity	
19.	Assess activities, positioning, and postures that may produce or relieve trauma to the skin
20.	Assess devices and equipment that may produce or relieve trauma to the skin

ID#	Tasks
21.	Assess wound characteristics (e.g., tissue involvement, depth, tunneling, burn degree)
Muscle Performance & Motor Function	
22.	Select and perform tests and measures of...
23.	...dexterity, coordination, and agility (e.g., rapid alternating movement, finger to nose)
24.	...ability to initiate, modify and control movement patterns and postures (e.g., catching a ball, gait)
25.	...ability to change movement performance with practice (e.g., motor learning)
Neuromotor Development & Sensory Integration	
26.	Select and perform tests and measures of...
27.	...acquisition and evolution of motor skills
28.	...sensorimotor integration
29.	...developmental reflexes and reactions (e.g., asymmetrical tonic neck reflex, righting reactions)
Evaluation & Diagnosis	
	Interpret each of the following types of data to determine the need for intervention or the response to intervention:
30.	assistive and adaptive device
31.	environmental, home, and work/job/school/play barriers
32.	ergonomics and body mechanics
33.	gait, locomotion, and balance
34.	orthotic, protective, and supportive device
35.	prosthetic requirements
36.	ADLs and home management
37.	Evaluate patient/client's ability to assume or resume work/job/school/play, community, and leisure activities
Development of Prognosis, Plan of Care, & Goals	
INTERVENTIONS	
Procedural Interventions	
Therapeutic Exercise/Therapeutic Activities	
38.	Train in aerobic capacity/endurance conditioning
39.	Train in strength, power, and endurance exercises
40.	Train in balance, coordination, and agility activities
41.	Train in body mechanics and postural stabilization techniques
42.	Perform flexibility techniques
43.	Train in flexibility techniques
44.	Train in neuromotor techniques (e.g., movement pattern training, neuromuscular education or reeducation)
45.	Perform desensitization techniques (e.g., brushing, tapping, uses of textures)
46.	Train in desensitization techniques (e.g., brushing, tapping, uses of textures)
47.	Perform mechanical repositioning for vestibular dysfunction
48.	Train in habituation/adaptation exercises for vestibular dysfunction (e.g., vestibuloocular reflex, position changes)
49.	Train in relaxation techniques
50.	Train in genitourinary management (e.g., pelvic floor exercises, bladder strategies)
51.	Train in gastrointestinal management (e.g., bowel strategies, positioning to avoid reflux)

ID#	Tasks
<i>Pulmonary Interventions</i>	
52.	Administer prescribed oxygen during interventions
53.	Perform manual/mechanical airway clearance techniques (e.g., assistive cough, percussion, vibration, shaking)
54.	Train in manual/mechanical airway clearance techniques (e.g., assistive devices, assistive cough, incentive spirometer, flutter valve, percussion/postural drainage)
55.	Perform techniques to maximize ventilation and perfusion (e.g., assistive cough, positioning)
56.	Train in breathing strategies (e.g., active cycle breathing, autogenic drainage, paced breathing, pursed lip breathing) and techniques to maximize ventilation and perfusion (e.g., assistive cough, positioning, pursed-lip breathing)
<i>Functional Training</i>	
57.	Recommend barrier accommodations or modifications (e.g., ramps, grab bars, raised toilet, environmental control units)
58.	Train in the use of barrier accommodations or modifications (e.g., ramps, grab bars, raised toilet, environmental control units)
59.	Train in Activities of Daily Living (ADL) (e.g., bed mobility, transfers, household mobility, dressing, self-care)
60.	Instruct in community and leisure integration or reintegration (e.g., work/school/play)
61.	Train in Instrumental Activities of Daily Living (IADL) (e.g., household chores, hobbies, money management)
62.	Train in mobility techniques (e.g., crawling, walking, running)
63.	Train in fall prevention and fall recovery strategies
64.	Train in behavior modification and cognitive strategies
<i>Manual Therapy Techniques</i>	
65.	Perform manual lymphatic drainage
66.	Perform spinal and peripheral manual traction
67.	Perform soft tissue mobilization (e.g., connective tissue massage, therapeutic massage)
68.	Perform peripheral mobilization /manipulation (thrust/non-thrust)
69.	Perform spinal mobilization (non-thrust)
70.	Perform cervical spinal manipulation (thrust)
71.	Perform thoracic and lumbar spinal manipulation (thrust)
<i>Devices & Equipment</i>	
	Apply, adjust, and/or fabricate...
72.	...adaptive devices (e.g., utensils, seating and positioning devices, steering wheel devices)
73.	...protective devices (e.g., braces, cushions, helmets, protective taping)
74.	...supportive devices (e.g., compression garments, corsets, elastic wraps, neck collars, serial casts)
75.	...orthotic devices (e.g., braces, casts, shoe inserts, splints)
	Apply and/or adjust...
76.	...assistive devices (e.g., canes, crutches, walkers, wheelchairs, tilt tables, standing frames)
77.	...prosthetic devices (e.g., lower extremity and upper-extremity)
78.	...mechanical neuromuscular reeducation devices (e.g., weighted vests, therapeutic suits, body weight supported treadmill, proprioceptive taping)
	Train in use of...
79.	...adaptive devices (e.g., utensils, seating and positioning devices, steering wheel devices)
80.	...assistive devices (e.g., canes, crutches, walkers, wheelchairs, tilt tables, standing frames)
81.	...orthotic devices (e.g., braces, casts, shoe inserts, splints)

ID#	Tasks
82.	...prosthetic devices (e.g., lower extremity and upper-extremity)
83.	...protective devices (e.g., braces, cushions, helmets, protective taping)
84.	...supportive devices (e.g., compression garments, corsets, elastic wraps, neck collars, serial casts)
85.	...mechanical neuromuscular re-education devices (e.g., weighted vests, therapeutic suits, body weight supported treadmill, proprioceptive taping)
<i>Integumentary Repair</i>	
86.	Perform debridement (e.g., nonselective, enzymatic or autolytic, or sharp)
87.	Apply topical agents (e.g., cleansers, creams, moisturizers, ointments, sealants) and dressings (e.g., hydrogels, negative pressure wound therapy, wound coverings)
88.	Recommend topical agents (e.g., pharmacological to physician, over-the-counter to patient) and dressings (e.g., hydrogels, negative pressure wound therapy, wound coverings)
<i>Therapeutic Modalities</i>	
89.	Perform biofeedback therapy (e.g., relaxation techniques, muscle reeducation, EMG)
90.	Perform iontophoresis
91.	Perform phonophoresis
92.	Perform electrical stimulation therapy (e.g., electrical muscle stimulation (EMS), TENS, functional electrical stimulation (FES))
93.	Perform cryotherapy procedures (e.g., cold pack, ice massage, vapocoolant spray)
94.	Train in cryotherapy procedures
95.	Perform hydrotherapy procedures using contrast baths/pools
96.	Train in hydrotherapy procedures using contrast baths/pools
97.	Perform ultrasound procedures
98.	Perform hot pack thermotherapy procedures
99.	Train in hot pack thermotherapy procedures
100.	Perform paraffin bath thermotherapy procedures
<i>Mechanical Modalities</i>	
101.	Apply intermittent pneumatic compression
102.	Apply continuous passive motion (CPM) devices
103.	Train in continuous passive motion (CPM) devices
104.	Apply mechanical spinal traction
105.	Train in mechanical spinal traction
<i>Documentation</i>	
106.	Document intervention/plan of care for specialized services and settings (e.g., individual education plan, individual family service plan, vocational transition plan)
<i>Education</i>	
107.	Educate community groups on lifestyle and behavioral changes to promote wellness (e.g., nutrition interventions, physical activity, tobacco cessation)
108.	Participate in the development of curriculum for the clinical education of students
<i>Patient/client & Staff Safety</i>	
<i>Emergency Procedures</i>	
109.	Implement disaster response procedures
<i>Environmental Safety</i>	
110.	Perform risk assessment of the physical environment (e.g., barrier-free environment, outlets, windows, floors, lighting)

ID#	Tasks
<i>Infection Control</i>	
<i>Research & Evidence-Based Practice</i>	
111.	Search the literature for current best evidence
112.	Evaluate the quality of published data
113.	Participate in research activities
114.	Compare intervention outcomes with published data
<i>Professional Responsibilities</i>	
115.	Supervise physical therapist assistant(s) and support personnel (licensed/unlicensed)
116.	Assign tasks to other personnel (licensed/unlicensed) to assist with patient/client care
117.	Report health care providers that are suspected to not perform their professional responsibilities with reasonable skill and safety to the appropriate authorities
118.	Report suspected cases of abuse involving children or vulnerable adults to the appropriate authority
119.	Report suspected illegal or unethical acts performed by health care professionals to the relevant authority
120.	Advocate for public access to physical therapy and other healthcare services
121.	Read and evaluate the quality of professional journals, magazines, and publications to maintain currency of knowledge
122.	Participate in professional organizations
123.	Perform community based screenings (e.g., posture, musculoskeletal, flexibility, sports-specific)

Appendix F

Knowledge Requirements Related to Competency in Dry Needling

ID#	Knowledge
CARDIOVASCULAR/PULMONARY & LYMPHATIC SYSTEMS	
<i>Physical Therapy Examination</i>	
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)
<i>Foundations for Evaluation, Differential Diagnosis, & Prognosis</i>	
4.	Cardiovascular/pulmonary systems diseases/conditions and their pathophysiology to establish and carry out a plan of care, including prognosis
5.	Nonpharmacological medical management of the cardiovascular/pulmonary systems (e.g., diagnostic imaging, laboratory test values, other medical tests, surgical procedures)
6.	Pharmacological management of the cardiovascular/pulmonary systems
7.	Differential diagnoses related to diseases/conditions of the cardiovascular/pulmonary systems
8.	Lymphatic system diseases/conditions and their pathophysiology to establish and carry out a plan of care, including prognosis
9.	Nonpharmacological medical management of the lymphatic system (e.g., diagnostic imaging, laboratory test values, other medical tests, surgical procedures)
10.	Differential diagnoses related to diseases/conditions of the lymphatic system
<i>Interventions</i>	
11.	Anatomy and physiology of the cardiovascular/pulmonary systems as related to physical therapy interventions, daily activities, and environmental factors
12.	Secondary effects or complications from physical therapy and medical interventions on the cardiovascular/pulmonary systems
13.	Secondary effects or complications on the cardiovascular/pulmonary systems from physical therapy and medical interventions used on other systems
14.	Anatomy and physiology of the lymphatic system as related to physical therapy interventions, daily activities, and environmental factors
15.	Secondary effects or complications from physical therapy and medical interventions on the lymphatic system
16.	Secondary effects or complications on the lymphatic system from physical therapy and medical interventions used on other systems
MUSCULOSKELETAL SYSTEM	
<i>Physical Therapy Examination</i>	
17.	Musculoskeletal system tests/measures, including outcome measures, and their applications according to current best evidence
18.	Anatomy and physiology of the musculoskeletal system as related to tests/measures
19.	Movement analysis as related to the musculoskeletal system
20.	Joint biomechanics and their applications
<i>Foundations for Evaluation, Differential Diagnosis, & Prognosis</i>	
21.	Muscular and skeletal diseases/conditions and their pathophysiology to establish and carry out a plan of care, including prognosis
22.	Nonpharmacological medical management of the musculoskeletal system (e.g., diagnostic imaging, laboratory test values, other medical tests, surgical procedures)
23.	Pharmacological management of the musculoskeletal system
24.	Differential diagnoses related to diseases/conditions of the muscular and skeletal systems
25.	Connective tissue diseases/conditions and their pathophysiology to establish and carry out a plan of care, including prognosis

ID#	Knowledge
26.	Differential diagnoses related to diseases/conditions of the connective tissue
27.	Musculoskeletal system physical therapy interventions and their applications for rehabilitation, health promotion, and performance according to current best evidence
28.	Anatomy and physiology of the musculoskeletal system as related to physical therapy interventions, daily activities, and environmental factors
29.	Secondary effects or complications from physical therapy and medical interventions on the musculoskeletal system
30.	Secondary effects or complications on the musculoskeletal system from physical therapy and medical interventions used on other systems

NEUROMUSCULAR & NERVOUS SYSTEMS

Physical Therapy Examination

31.	Neuromuscular/nervous systems tests/measures, including outcome measures, and their applications according to current best evidence
32.	Anatomy and physiology of the neuromuscular/nervous systems as related to tests/measures
33.	Movement analysis as related to the neuromuscular/nervous systems

Foundations for Evaluation, Differential Diagnosis, & Prognosis

34.	Neuromuscular/nervous system (CNS, PNS, ANS) diseases/conditions and their pathophysiology to establish and carry out a plan of care, including prognosis
35.	Nonpharmacological medical management of the neuromuscular/nervous systems (e.g., diagnostic imaging, laboratory test values, other medical tests, surgical procedures)
36.	Pharmacological management of the neuromuscular/nervous systems
37.	Differential diagnoses related to diseases/conditions of the neuromuscular/nervous system (CNS, PNS, ANS)

Interventions

38.	Neuromuscular/nervous systems physical therapy interventions and their applications for rehabilitation, health promotion, and performance according to current best evidence
39.	Anatomy and physiology of the neuromuscular/nervous systems as related to physical therapy interventions, daily activities, and environmental factors
40.	Secondary effects or complications from physical therapy and medical interventions on the neuromuscular/nervous systems
41.	Secondary effects or complications on the neuromuscular/nervous systems from physical therapy and medical interventions used on other systems
42.	Motor control as related to neuromuscular/nervous systems physical therapy interventions
43.	Motor learning as related to neuromuscular/nervous systems physical therapy interventions

INTEGUMENTARY SYSTEM

Physical Therapy Examination

44.	Integumentary system tests/measures, including outcome measures, and their applications according to current best evidence
45.	Anatomy and physiology of the integumentary system as related to tests/measures
46.	Movement analysis as related to the integumentary system (e.g., friction, shear, pressure, and scar mobility)

Foundations for Evaluation, Differential Diagnosis, & Prognosis

47.	Integumentary system diseases/conditions and their pathophysiology to establish and carry out a plan of care, including prognosis
48.	Nonpharmacological medical management of the integumentary system (e.g., diagnostic imaging, laboratory test values, other medical tests, surgical procedures)
49.	Pharmacological management of the integumentary system
50.	Differential diagnoses related to diseases/conditions of the integumentary system

ID# Knowledge

Interventions

51. Anatomy and physiology of the integumentary system as related to physical therapy interventions, daily activities, and environmental factors
 52. Secondary effects or complications from physical therapy and medical interventions on the integumentary system
 53. Secondary effects or complications on the integumentary system from physical therapy and medical interventions used on other systems
-

METABOLIC & ENDOCRINE SYSTEMS
Foundations for Evaluation, Differential Diagnosis, & Prognosis

54. Metabolic and endocrine systems diseases/conditions and their pathophysiology to establish and carry out a plan of care, including prognosis
 55. Nonpharmacological medical management of the metabolic and endocrine systems (e.g., diagnostic imaging, laboratory test values, other medical tests, surgical procedures)
 56. Pharmacological management of the metabolic and endocrine systems
 57. Differential diagnoses related to diseases/conditions of the metabolic and endocrine systems
-

Interventions

58. Anatomy and physiology of the metabolic and endocrine systems as related to physical therapy interventions, daily activities, and environmental factors
 59. Secondary effects or complications from physical therapy and medical interventions on the metabolic and endocrine systems
 60. Secondary effects or complications on the metabolic and endocrine systems from physical therapy and medical interventions used on other systems
-

GASTROINTESTINAL SYSTEM
Foundations for Evaluation, Differential Diagnosis, & Prognosis

61. Gastrointestinal system diseases/conditions and their pathophysiology to establish and carry out a plan of care, including prognosis
 62. Nonpharmacological medical management of the gastrointestinal system (e.g., diagnostic imaging, laboratory test values, other medical tests, surgical procedures)
 63. Differential diagnoses related to diseases/conditions of the gastrointestinal system
-

Interventions

64. Anatomy and physiology of the gastrointestinal system as related to physical therapy interventions, daily activities, and environmental factors
 65. Secondary effects or complications from physical therapy and medical interventions on the gastrointestinal system
 66. Secondary effects or complications on the gastrointestinal system from physical therapy and medical interventions used on other systems
-

GENITOURINARY SYSTEM
Physical Therapy Examination

67. Genitourinary system tests/measures, including outcome measures, and their applications according to current best evidence
 68. Anatomy and physiology of the genitourinary system as related to tests/measures
 69. Physiological response of the genitourinary system to various types of tests/measures
-

Foundations for Evaluation, Differential Diagnosis, & Prognosis

70. Genitourinary system diseases/conditions and their pathophysiology to establish and carry out a plan of care, including prognosis
 71. Nonpharmacological medical management of the genitourinary system (e.g., diagnostic imaging, laboratory test values, other medical tests, surgical procedures)
-

ID#	Knowledge
72.	Pharmacological management of the genitourinary system
73.	Differential diagnoses related to diseases/conditions of the genitourinary system

Interventions

74.	Genitourinary system physical therapy interventions and their applications for rehabilitation and health promotion according to current best evidence (e.g., bladder programs, biofeedback, pelvic floor retraining)
75.	Anatomy and physiology of the genitourinary system as related to physical therapy interventions, daily activities, and environmental factors
76.	Secondary effects or complications from physical therapy and medical interventions on the genitourinary system
77.	Secondary effects or complications on the genitourinary system from physical therapy and medical interventions used on other systems

SYSTEM INTERACTIONS

Foundations for Evaluation, Differential Diagnosis, & Prognosis

78.	Diseases/conditions where the primary impact is on more than one system to establish and carry out a plan of care, including prognosis
79.	Nonpharmacological medical management of multiple systems (e.g., diagnostic imaging and other medical tests, surgical procedures)
80.	Pharmacological management of multiple systems, including polypharmacy
81.	Differential diagnoses related to diseases/conditions where the primary impact is on more than one system
82.	Impact of comorbidities/coexisting conditions on patient/client management (e.g., diabetes and hypertension, obesity and arthritis, hip fracture and dementia)
83.	Psychological and psychiatric conditions that impact patient/client management (e.g., depression, schizophrenia)

THERAPEUTIC MODALITIES

84.	Thermal modalities
85.	Electrotherapy modalities, excluding iontophoresis
86.	Pneumatic compression modalities

SAFETY & PROTECTION

87.	Factors influencing safety and injury prevention
88.	Patient positioning techniques (e.g., side-lying, prone, supine) and their effect on anatomy and physiology
89.	Draping techniques
90.	Infection control procedures (e.g., standard/universal precautions, isolation techniques, sterile technique)
91.	Environment cleaning and sanitization procedures
92.	Equipment cleaning and sanitization procedures (not including needles)
93.	Local laws and regulations regarding the disposal of needles and medical waste
94.	Regulations and standards regarding infection prevention (e.g., Occupational Safety and Health Administration Standards)
95.	Medical waste disposal equipment
96.	Signs/symptoms of physical, sexual, and psychological abuse and neglect

PROFESSIONAL RESPONSIBILITIES

97.	Standards of documentation
98.	Patient/client rights (e.g., ADA, IDEA, HIPAA)
99.	Human resource legal issues (e.g., OSHA, sexual harassment)

ID#	Knowledge
100.	Roles and responsibilities of physical therapist assistants in relation to physical therapists and other health-care professionals
101.	Roles and responsibilities of other health-care professionals and support staff
DRY NEEDLING-SPECIFIC KNOWLEDGE	
<i>Anatomy and Physiology</i>	
102.	Surface anatomy as it relates to underlying tissues, organs, and other structures, including variations in form, proportion, and anatomical landmarks
<i>Emergency Preparedness and Response</i>	
103.	Emergency preparedness (e.g., CPR, first aid, disaster response)
104.	Emergency preparedness and/or response procedures related to secondary physiological effects or complications associated with dry needling (e.g., shock, vasovagal)
105.	Emergency preparedness and/or response procedures related to secondary emotional effects or complications associated with dry needling (e.g., claustrophobia, anxiety, agitation)
106.	Standards for needle handling (e.g., hand hygiene, application of single-use needles)
<i>Safety & Protection</i>	
107.	Personal protection procedures and techniques as related to dry needling (e.g., positioning self to access treatment area, use of personal protective equipment)
108.	Theoretical basis for dry needling (e.g., applications for rehabilitation, health promotion, fitness and wellness, performance)
109.	Theoretical basis for combining dry needling with other interventions
110.	Secondary effects or complications associated with dry needling on other systems (e.g., gastrointestinal, cardiovascular/pulmonary, musculoskeletal)
111.	Theoretical basis of pain sciences, including anatomy, physiology, pathophysiology, and relation to body structures and function
112.	Contraindications and precautions related to dry needling (e.g., age, allergies, diseases/conditions)
113.	Palpation techniques as related to dry needling
114.	Needle insertion techniques
115.	Needle manipulation techniques
116.	Physiological responses to dry needling
117.	Solid filament needles (e.g., physical characteristics)

Appendix G

Knowledge Requirements NOT Related to Competency in Dry Needling

ID#	Knowledge Requirement
CARDIOVASCULAR/PULMONARY & LYMPHATIC SYSTEMS	
Interventions	
1.	Cardiovascular/pulmonary systems physical therapy interventions and their applications for rehabilitation, health promotion, and performance according to current best evidence
2.	Lymphatic system physical therapy interventions and their applications for rehabilitation, health promotion, and performance according to current best evidence
MUSCULOSKELETAL SYSTEM	
Interventions	
3.	Physical therapy ultrasound imaging of the musculoskeletal system
INTEGUMENTARY SYSTEM	
Interventions	
4.	Integumentary system physical therapy interventions and their applications for rehabilitation, health promotion, and performance according to current best evidence
METABOLIC & ENDOCRINE SYSTEMS	
Physical Therapy Examination	
5.	Metabolic and endocrine systems physical therapy interventions and their applications for rehabilitation, health promotion, and performance according to current best evidence
GASTROINTESTINAL SYSTEM	
Interventions	
6.	Pharmacological management of the gastrointestinal system
7.	Gastrointestinal system physical therapy interventions and their applications for rehabilitation and health promotion according to current best evidence (e.g., positioning for reflux prevention, bowel programs)
EQUIPMENT & DEVICES	
Interventions	
8.	Assistive and adaptive devices
9.	Prosthetic devices
10.	Protective, supportive, and orthotic devices
THERAPEUTIC MODALITIES	
Foundations for Evaluation, Differential Diagnosis, & Prognosis	
11.	Iontophoresis
12.	Phonophoresis
13.	Ultrasound modalities, excluding phonophoresis
14.	Mechanical modalities (e.g., mechanical motion devices, traction devices)
15.	Biofeedback
16.	Electromagnetic radiation (e.g., diathermy)
SAFETY & PROTECTION	
Foundations for Evaluation, Differential Diagnosis, & Prognosis	
17.	Function, implications, and precautions related to intravenous lines, tubes, catheters, and monitoring devices

ID#	Knowledge Requirement
RESEARCH & EVIDENCE-BASED PRACTICE	
18.	Research design and interpretation (e.g., qualitative, quantitative, hierarchy of evidence)
19.	Data collection techniques (e.g., surveys, direct observation)
20.	Measurement science (e.g., reliability, validity)
21.	Statistics (e.g., t-test, chi-square, correlation coefficient, ANOVA, likelihood ratio)
Dry Needling-specific Knowledge	
	Emergency preparedness and response procedures related to secondary effects or complications from:
	...perforation of underlying organs (e.g., pneumothorax)
22.	...perforation of blood vessels and arteries (e.g., bleeding, bruising)
23.	...trauma to the skin (e.g., cellulitis)
24.	...trauma to nerves (e.g., neuropraxia, axonotmesis, neurotmesis)
25.	...skeletal punctures (e.g., broken/bent needle)
26.	Emergency preparedness and response procedures related to secondary psychological effects or complications (e.g., shock, claustrophobia, depression, drowsiness)
27.	Clean needle techniques (e.g., needle site disinfection, hand hygiene, application of single-use needles, needle reinsertion guidelines, grasping and positioning needles, needle re-sheathing)
28.	Equipment sterilization procedures
29.	Environment sterilization procedures
30.	Personal protection procedures and techniques (e.g., positioning to access treatment area, use of personal protective equipment)
31.	Federal laws and regulations regarding infection prevention (e.g., Occupational Safety and Health Administration Standards)
32.	Theoretical basis for dry needling interventions, including applications for rehabilitation, health promotion, and performance according to current best evidence
33.	Theoretical basis for combining dry needling with other manual techniques and modalities
34.	Theoretical basis for pain, including pathways, physiology, pathophysiology, and relation to movement impairment
35.	Contraindications and precautions related to dry needling (e.g., age, allergies, diseases/conditions, implants, pregnancy, areas of acute inflammation, acute systemic infections, medications)
36.	Tissue palpation techniques, including pressure, duration, and hand placement
37.	Needle insertion techniques, including depth, direction, velocity, manipulation, and duration
38.	Targeted physiological responses to dry needling
39.	Targeted psychological responses to dry needling
40.	Solid filament needles, including type, dimensions, and applications
41.	Hollow filament, beveled needles, including type, dimensions, and applications
42.	Diagnostic equipment and devices (e.g., magnetic resonance imaging devices, ultrasound elastographic devices, and intramuscular electromyographic devices)
43.	Supportive devices and equipment (e.g., pillows, cushions, wedges)

Appendix H

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 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	
1. 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.
2. 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.
3. Gross Body Coordination	The ability to coordinate the movement of your arms, legs, and torso together when the whole body is in motion.
4. Gross Body Equilibrium	The ability to keep or regain your body balance or stay upright when in an unstable position.
5. 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.
6. Speed of Limb Movement	The ability to quickly move the arms and legs.
7. Wrist-Finger Speed	The ability to make fast, simple, repeated movements of the fingers, hands, and wrists.



FSBPT Addendum to Report

Selection of HumRRO

HumRRO was selected from an RFP process from among five qualified vendors. All of the proposals were deemed acceptable but HumRRO's proposal had the best understanding of the needs of the licensing jurisdictions.

The Human Resources Research Organization (HumRRO) is a non-profit, applied research and consulting company with a rich, 64-year history of providing services related to the development, validation, and implementation of assessments for credentialing and employment selection purposes. HumRRO employs 80 professional staff members, many of whom have advanced training in measurement fields, including Industrial-Organizational (I-O) Psychology, Education, Psychometrics, and Statistics. HumRRO's staff includes nationally recognized experts in the field of I-O Psychology who have an established history of collaborating with private- and public-sector organizations to develop scientifically robust, legally-defensible high-stakes assessment processes and programs.

HumRRO has conducted hundreds of job analyses to develop test blueprints, performance assessments, job descriptions, and training curricula for professions, specialty areas within and across professions, and entire workforces within an organization. Although there are some fairly uniform best practices, HumRRO designs each method according to the purpose for which it is performed and the available data sources.

To maintain the highest quality, HumRRO uses a multi-level quality assurance process to ensure rigorous standards of technical performance. The first level involves the project staff. Everyone who is involved in a project has the responsibility of maintaining product quality. At the next level, project directors communicate a standard of quality to the project team and conduct quality checks at critical times in the development of each deliverable. This process includes checks for both technical quality and clarity. Our Quality Management Liaison, a senior researcher, consults with all project directors at project outset and periodically thereafter to identify and monitor opportunities to ensure high quality. Finally, before a product is delivered, it receives additional review by other team members for quality, appearance, and suitability to the prospective user, with final approval coming from the project director. As an additional quality measure, the Research Division Directors conduct periodic quality checks both during development and at project completion. These checks involve reviews of technical accuracy, substance, completeness, coherence, clarity, and usefulness.



November 13, 2012

Mr. Justin Elliott
Associate Director, State Government Affairs
American Physical Therapy Association
1111 Fairfax Street
Alexandria, VA 22314-1488

RE: Dry Needling Professional Liability Claims

Dear Mr. Elliott,

CNA has been the underwriting company for the APTA-endorsed physical therapy professional liability insurance plan, offered by Healthcare Providers Service Organization, since 1992, and is responsible for managing reported claims.

After reviewing the CNA claim database, which includes approximately 5,800 closed physical therapist claims, there were no trends relative to dry needling identified that would indicate this procedure presents a significant risk factor. The data indicates there are six closed claims arising from the practice of dry needling with a total indemnity paid for all claims of \$79,000.

At this time, CNA does not foresee the practice of dry needling by a licensed physical therapist as having any immediate claim or rate impact. As with any emerging modality, we plan to monitor the type and severity of injuries that may arise from dry needling, and reserve the right to make any appropriate underwriting adjustments that may be indicated at that time.

Please note that all findings stated herein are based solely upon CNA specific claim data. If I can be of any further assistance, please let me know.

Sincerely,

Michael Loughran
President, Healthcare

CC: Michael A. Scott/CNA HealthPro
Heather Ingledue/HPSO

May 25, 2016

Angela Shuman
Director, State Government Affairs
American Physical Therapy Association
1111 N. Fairfax Street
Alexandria, VA 22314

Dear Ms. Shuman:

RE: Physical Therapists performing dry needling

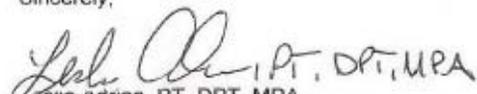
The Federation of State Boards of Physical Therapy (FSBPT or Federation) is an organization made up of the 53 physical therapy licensing jurisdictions within the United States. The mission of the FSBPT is to protect the public by providing service and leadership that promote safe and competent physical therapy practice. To support its mission of public protection, the Federation administers and maintains the Examination, Licensure, and Disciplinary Database (ELDD).

The main purpose of the Federation's ELDD is to serve as an alert mechanism for physical therapy licensing boards. If a physical therapist or physical therapist assistant has been disciplined in a jurisdiction, as soon as FSBPT is aware of the action, the ELDD automatically pushes an alert to all other jurisdictions in which the therapist holds a license. FSBPT regularly receives reports from many of our member jurisdictions regarding disciplinary actions taken. Some jurisdictions experience barriers to reporting disciplinary actions to the Federation. Thus, we cannot guarantee that every disciplinary action from all 53 jurisdictions taken against physical therapists and physical therapist assistants is contained in the ELDD. However, FSBPT also independently searches out public records and databases to maintain the most complete record of disciplinary actions against licensed PTs and PTAs possible.

You asked if FSBPT is aware of any disciplinary actions taken against physical therapists involved in the performance of dry needling. In 2015, one instance of disciplinary action was taken against a physical therapist regarding dry needling. Of the total 257 initial basis for disciplinary actions entered into the ELDD between January 1, 2014-December 31, 2014, two were for incidents involving dry needling performed by physical therapists. Neither of the two instances describes any harm to the patient; however the therapists were disciplined for failing to meet appropriate standards of patient care in the performance of dry needling. One additional record exists in the ELDD referencing dry needling. In 2013, an action was taken against a PT for performing dry needling without the appropriate training and failure to document the procedure. Prior to 2013, there are no disciplinary actions involving dry needling recorded in the ELDD. For the five year period (2010-2015) 0.2% of the 1,987 disciplinary actions reported in the ELDD pertained to issues with performance of dry needling.

Should you have any further question related to the ELDD or other regulatory issues regarding physical therapists, please do not hesitate to contact me.

Sincerely,


Leslie Adrian, PT, DPT, MPA
Director of Professional Standards
Federation of State Boards of Physical Therapy



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October 1, 2014

Why Trigger Point Dry Needling is Not Acupuncture

Steven R. Goodman, M.D.

There is an effort underway by the National Center for Acupuncture Safety and Integrity and other various acupuncture entities to redefine the scope of practice for physical therapists to exclude the practice of trigger point dry needling. Those who are attempting to do so are claiming that dry needling and acupuncture are synonymous, and as such dry needling is outside the physical therapy scope of practice. It is simply not true that trigger point dry needling is indistinguishable from acupuncture.

I am a board certified physical medicine and rehabilitation physician and have sub-specialized in the treatment of chronic pain for over 25 years. Chronic pain is a national epidemic that not only creates immeasurable suffering, impairment, disability and addiction but also is a major contributor to health care expenditures. It is increasingly recognized in the medical community that the type of pain that dry needling treats, 'trigger point' or 'myofascial pain', is a highly prevalent source of under-diagnosed pain in patients seen not only by primary care providers but also by specialists like myself at chronic pain clinics. As such the epidemic of chronic pain that drains our health care systems will never be reversed until trigger point myofascial pain is recognized and treated early and properly.

I learned the Intramuscular Stimulation (IMS) model of trigger point dry needling in 1993 from the physician who developed it, C. C. Gunn, M.D., Clinical Assistant Professor at the University of Washington Pain Center. Dr. Gunn has been recognized internationally by the medical community and has been awarded the Order of Canada for his contributions to the understanding and treatment of chronic pain. Upon Dr. Gunn's recommendation I was appointed to the faculty at the University of Washington Pain Center where I taught the IMS dry needling to other physicians

from 2001-2003. Working with a physical therapist, I recently co-authored a chapter on the IMS form of dry needling in the 2013 published textbook 'Trigger Point Dry Needling: An Evidenced and Clinical-Based Approach'. The editors of this textbook were physical therapists and 23 out of 24 contributors to this textbook were either M.D.s or P.T.s. I have never studied acupuncture.

Numerous clinical trials have been published in the peer review medical literature over the past 30 years (see references below) demonstrating the safety and efficacy of dry needling for trigger point myofascial pain. These articles have been authored by M.D.s and/or P.T.s without any reference to acupuncture principles, points or treatment techniques. IMS trigger point dry needling is currently provided and taught by both medical doctors and physical therapists at both the University of Washington and the University of British Columbia, as well as at other medical institutions and clinics in Europe, the Middle East and South America.

The suggestion that dry needling is acupuncture is wrong. Acupuncture has a long and reputable history, originating in the orient and based on a system of 'energy flow' along what are called meridians throughout the body. Dry needling is a much more recent approach, about 40 years old, and based on an understanding of neuro-anatomy and neurophysiology. Proper practice of dry needling requires a neuro-musculoskeletal physical examination which forms the basis for treatment. Dr. Gunn's neuropathic-myofascial model of chronic pain is based on the widely recognized work of the eminent physiologist Walter Cannon, M.D. (1871-1945), who in addition to his research on denervation was the first investigator to research the 'fight or flight' response of the autonomic nervous system. IMS dry needling is very definitely grounded on western scientific neuroanatomic and neurophysiological principles and evidence.

While dry needling uses a similar monofilament needle as acupuncture, "why" the patient is sick, "what" to look for on physical examination and as such "where" and "how" to treat the patient are entirely different from acupuncture. To say that dry needling and acupuncture are the same because they use the same tool would be like saying that drawing a patient's blood to measure blood chemistries is the same as blood letting. Similarly it would be like saying that Mozart and Bluegrass are the same because they are both played on a violin. Ultrasound is used by a wide variety of health care practitioners including physical therapists for heating soft tissue, by ultrasonographers to visualize the viscera or musculoskeletal structures and by cardiologists to measure blood flow. Thus it is not the tool that defines the model and treatment results but how it is understood to be effective and applied. It is in all of these respects that dry needling shares little in common with acupuncture while much with physical therapy treatment of neuro-musculoskeletal pain.

In addition to treating many different types of pain, the American Academy of Medical Acupuncture lists *all of the following conditions as potentially benefiting from acupuncture: insomnia, anorexia, allergic sinusitis, persistent hiccups, dermatological conditions, diarrhea, severe hyperthermia and urinary incontinence, to name just a few.*

Indeed, in lists of over 40 medical conditions that can be treated with acupuncture ‘trigger point’ or ‘myofascial pain’ are not even mentioned once:

<http://www.medicalacupuncture.org/FAQ.aspx>

(<http://www.medicalacupuncture.org/ForPatients/GeneralInformation/HealthConditions.aspx>)

While I do not dispute the utility of acupuncture for any of these conditions, trigger point dry needling practitioners make no similar claims. Because dry needling is based on specific principles of anatomy and neurophysiology whose effects can be demonstrated using electrophysiological and electromyographic techniques, the condition for which it is useful is limited to exactly one: myofascial trigger point pain. *It does not even claim to treat ALL types of pain*, i.e. the pain caused by an acute injury like an ankle sprain or the pain of inflammation from arthritis. It has *one and only one* specific pathology that it targets: myofascial trigger point pain.

Over the course of my career I have worked closely with all of the various therapies available to treat persistent pain and I can state with confidence that the *only* health profession that can provide this service safely, properly and effectively to the largest number of patients who would benefit from it is physical therapy. Physical therapists have the proper education in the biomedical sciences, are already treating neuromusculoskeletal injuries and conditions associated with trigger point myofascial pain, and significantly, can provide these patients with the proper exercise and functional rehabilitation programs they also require. Indeed physical therapists are the ideal practitioners to provide dry needling to the truly enormous numbers of people who could benefit from it. I know they can learn to safely and effectively provide this treatment with proper training because they have been doing so for over 10 years in Canada and more recently in numerous U.S. states.

Having worked in an orthopedic surgery practice for many years I am familiar with the treatment algorithm-flow chart for patients with musculoskeletal pain: most of the patients that fail to respond to physical therapy do not typically then go to an acupuncturist; many of them go on to have surgery. If their problem is myofascial trigger point pain surgery will not help the patient, and so if physical therapists do not have the option of offering their patients dry needling many of these patients will go on to lives of chronic pain, opioid dependence, vocational impairment and disability.

Unfortunately to date acupuncture has not stemmed the tsunami of chronic pain and preventing physical therapists from dry needling certainly will not change that. Alternatively, allowing physical therapists to offer dry needling when indicated will I believe have a very positive effect on treatment of neuromusculoskeletal pain and actually NO effect on acupuncture practice. To state it again: patients who don’t have the option of receiving trigger point dry needling from a physical therapist will NOT receive acupuncture, but often surgery. With a growing national epidemic of chronic pain one can only wonder why the acupuncture community is so intent on obstructing what should be recognized as a major step towards improving the treatment of patients with chronic pain.

Dry needling is a safe, effective, low cost and low tech treatment that can save large numbers of patients from chronic pain, unnecessary suffering, opioid dependence and disability. From reducing the need for prolonged physical therapy to avoiding unnecessary radiographic studies, lessening medication use and the need for surgery, over time the availability of dry needling will also provide substantial financial savings in the treatment of these conditions. With proper training physical therapists are increasingly offering dry needling as a therapeutic option to their patients, a development I wholeheartedly support.



Steven R. Goodman, M.D.
Spokane, Washington

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EDITORIAL

On the Impossibility of Trigger Point–Acupoint Equivalence: A Commentary on Peter Dorsher’s Analysis

STEPHEN BIRCH, Ph.D., Lic.Ac.(U.S.), M.B.Ac.C.(U.K.)

Six (6) years after Melzack, Stillwell, and Fox¹ published their landmark article claiming to have demonstrated that acupuncture points and trigger points correlate and are essentially the same thing, the parents of trigger point therapy, Travell and Simons,² wrote the first text on trigger points. They analyzed the Melzack et al. study and concluded: “[A]cupuncture points and trigger points are derived from vastly different concepts. The fact that a number of pain points overlap does not change that basic difference. The two terms should not be used interchangeably” (page 21).

I would like to thank Dr. Dorsher for his interesting paper (pp. 353–359). He has done a good job documenting that the needling of trigger points may be useful in the treatment of pain. He has also shown the superficial similarities of the needling of trigger points and acupuncture points, but he has failed to provide any convincing evidence that acupuncture points are correlated with trigger points. I do not deny that trigger point needling is an effective therapy for pain (though I suspect its clinical trial evidence is worse or at least no better than that for acupuncture). Nor do I deny that since the 1970s, a new form of acupuncture has developed and spread that involves the needling of trigger points. The field of acupuncture is a large field with a complicated history. Many forms of acupuncture have developed over the centuries in multiple countries, under the pressure of many different social and cultural factors as part of how it has been acculturated everywhere.³ Trigger point acupuncture is now an established part of this field.⁴ But what social forces have pushed medical specialists such as Dr. Dorsher to want to lay claim to be doing acupuncture rather than trigger point therapy? I suspect that there are complex social issues that create this desire among medical practitioners. I leave it for others more suitably qualified to explore these sociologic, anthropologic considerations. Instead I raise the related question of why it was deemed important in the 1970s to find an association between acupuncture points and trigger points. Surely acupuncture and trigger point therapy could have simply coexisted as different therapies? However, in

the 1970s if the medical community was to start using acupuncture, it was important to establish a clear link between known anatomically based medical knowledge and the less well known and not accepted East Asian origin acupuncture knowledge. The principal reason for the 1977 Melzack et al.¹ study was to show that one does not need to talk about the less well known and less acceptable East Asian origin ideas about acupuncture because in showing a “correlation” to the known biomedical entities called “trigger points,” one can thus replace the older unacceptable ideas with the more acceptable modern ideas.^{1,5} This allows physicians to address political restraints on the practice of acupuncture and at the same time provide plausible-sounding mechanistic explanations of acupuncture’s effects that are acceptable within mainstream medical institutions.

In other words, the importance of the study lies in its attempts at replacing traditional ideas and explanations of the nature of acupuncture points and mechanisms by which they work with modern anatomico-physiologically acceptable explanations. Unfortunately, Dorsher’s analysis has missed this point and thus the methods I used in 2003⁵ to examine the 1977 study in light of this issue. Because he has misunderstood this, he has both missed key requirements in an analysis of the claims of the 1977 study and has distorted or misunderstood some of my analyses.

The principal and unquestionable issue in any claim to have shown an equivalence of acupuncture points and trigger points is that they must necessarily show the same characteristics of each other. It is not enough that some of the acupuncture points are used the same way as some of the trigger points, or that they lie in the same areas as each other; we must first examine their underlying defining characteristics. By definition a trigger point must exhibit pressure pain for it to be a trigger point; thus by definition, if there is an equivalence of acupuncture points and trigger points, acupuncture points *must* exhibit pressure pain. Here, only the class of extra, nonchannel points, the *ashi* points, exhibit this quality as a defining feature. Other acupoints, in particular the main points of acupuncture that Dorsher and the

1977 study claim a correspondence to, may exhibit pressure pain as a result of clinical changes, but this is *not* a defining property of these acupoints; they still exist whether they exhibit pressure pain or not. In fact, *ashi* points are the only candidates for a potential correspondence to trigger points because they must exhibit pressure pain to be an *ashi* point and are also associated with the system of *jing-jin* or channel sinews (see Birch⁵ for references), which have as associated symptoms muscle pain, muscle spasms, joint pain⁶—the principal symptoms associated with trigger points. In other words *trigger points could only ever correlate to ashi points* despite the fact that other classes of acupoints can exhibit pressure pain.

I could stop this here and end with QED—end of story, Travell and Simons² were correct in their 1983 discussion of this topic. This fundamental issue overrides any other issue about an apparent correlation or superficial similarity between acupoints and trigger points, but Dorsher has made a number of mistakes and questionable statements, which it would be unwise to ignore. Although I do not have space to dissect all of his mistakes, I will highlight the more important ones here.

Dorsher quotes the Deadman et al.⁷ text with regards finding pressure pain at the acupoints, but this relates to clinical treatment—find local sore points. *This has nothing to do with the defining nature of the points.* He has confused clinical uses with more fundamental discussions about the nature of the acupoints. Similarly, he cites the O'Connor and Bensky text⁸ about finding pressure pain points. The quote suggests that points may show sensitivity in relation to the symptom. This is basically correct and a common perspective in the Japanese traditions,⁹ but many of these points lie very distant to the location of the pain and thus could not be trigger points. Here a complex trap exists for the unwary researcher. In general, trigger points have another defining feature: they occur and are used proximate to the site of pain or within a referred pain region. One would not use the pressure pain point at LU-6 near the elbow for hemorrhoids or the pressure pain points at BL-60 or BL-62 near the external ankles for neck pain and be able to call those points trigger points. Yet these are commonly found reactions at acupoints in relation to the mentioned symptoms. This usage lies outside the defined nature of trigger points. However Melzack and colleagues¹ and Dorsher try to argue that these are just distant points that utilize similar neurologic mechanisms. In my 2003 study,⁵ I showed that approximately 35% of the points used for treatment of pain in the texts I analyzed lie distant to the pain; these by accepted definition are not trigger points. Nor could the suggestion that these distant points may use similar neurologic mechanisms ever prove that these points are trigger points; instead, it rather raises questions about the nature of trigger points for pain. If these supposedly similar mechanisms can be accessed at nontrigger points, what is it that defines trigger points?

There is also the unacceptable assumption that both Dorsher and the 1977 study make: Because they are *trying*

to talk only about the use of acupuncture points in the treatment of pain to attempt a correlation between trigger points and acupoints, they assume that they can conveniently ignore the much more frequent uses of acupuncture points for nonpain conditions.^{2,5} This is simply unacceptable as the issue in the study is an equivalence of one class of objects for another. One cannot simply ignore the main features of one of the classes of object in such a comparison because it suits one's limited claim. Dorsher himself accepts that acupoints are more frequently mentioned for the treatment of nonpain conditions: In his paper he states this to be 70% of indications. Not only is this unacceptable methodologically, rather, it lends support to the opposite conclusion: Because trigger points are not used for this much larger class of nonpain uses, then trigger points could not correspond to acupuncture points. One cannot claim to be talking about something while one conveniently discusses only those aspects of that thing that may be suitable to one's point of view. This is a form of investigator bias.

In his "reanalysis" of my 2003 article,⁵ Dorsher has missed completely the nature of the analysis I attempted. I have always accepted that almost all acupoints are given indications of use for treatment of local pain conditions. The question is whether this reflects *recommended* clinical usage or not. There are literally dozens of acupoints with the indication of "low-back pain"; the more important question is out of all those, which are actually listed in the treatment sections of the texts as being recommended for the low-back pain? When I looked at the 1977 study, I noticed and then demonstrated in my 2003 review that many of the supposedly corresponded acupoints, such as BL-42, BL-45, SP-17, SP-19, ST-13, ST-15, KI-24, are never indicated for the treatment of pain and hardly ever for the treatment of anything else either.⁵ But Dorsher has conveniently only examined the local indications of acupoints rather than their actual *recommended* use in the texts he has reviewed. He has thus not reanalyzed my 2003 study; rather he has demonstrated an irrelevant superficial similarity of the points to trigger points, a point that Travell and Simons raised in their commentaries on the original 1977 study.² His table detailing this is irrelevant to any reexamination of the analysis I made in 2003.

Early Chinese claims to a lineage for acupuncture dates it back 5000 years to the time of the Yellow Emperor. However, these claims were discredited by 20th-century scholars. The Yellow Emperor is a mythical figure; the earliest texts describing acupuncture date from around 200–300 BC, *not*, as Dorsher claims, 2700 BC.^{3,10–12} In fact, the systems of acupoints were not present at all in the very earliest sources; instead the system of the channels were described with no acupoints.^{5,10,13} At present, it looks as though theories of the channels predated the first descriptions of acupoints and that the system of acupoints emerged out of channel theory and an emerging *qi* circulation model. This may explain why one of the earliest and most important characterizations of the nature of the acupoints said (Ling Shu^{14–16})

“The acupuncture point at the joint is where shen *qi* (vital energy) comes and goes. It is not (of) the skin, flesh, muscles, bones.” (The *Ling Shu*, circa 200 BC, is a pivotal text for the early development of acupuncture; quote is from: Kosodo and Hameda.¹⁴ See also Sunu and Lee¹⁵ and Wu.¹⁶) The very nature of the acupoints according to this important early description is to do with movement and circulation of *qi* and *not* the underlying anatomic structures. Thus any valid investigation of the nature of the acupuncture points must take these descriptions into account.

Unfortunately, Dr. Dorsher’s study has failed to provide any new or convincing evidence that acupuncture points and trigger points are basically the same thing. He has not taken into account the documented historical literature about the nature and development of the acupoints and has misrepresented a number of important issues. I stand by my analysis of Melzack et al.’s article¹ that the 1977 analysis was incorrect. These 2 entities do not appear to show a correlation.⁵ I also agree with Travell and Simons’² statement that these 2 concepts are irreconcilably different and they could never be equivalent.

What if the earliest descriptions of trigger points in the 20th century arose out of a modern encounter with acupuncture? Certainly the earliest uses of acupuncture in the West were almost exclusively limited to treatment of pain, and as early as 1798, speculations had begun on the possible neurologic basis of acupuncture’s analgesic effects.^{3,11} Although limited and inaccurate, this early Western literature on acupuncture was available at the time the idea of trigger points was developing. Maybe the concept of trigger points arose as a kind of adaptation of ancient Chinese ideas to a modern Western system as part of the process of acculturation of acupuncture in the West—define the culturally new concept in terms of existing accepted concepts. Although this gives a superficial patina of acceptability, it does not constitute a scientific proof. Perhaps medical historians can figure this history out more precisely, but it certainly seems similar to other social processes that acupuncture has been subjected to in the West.^{3,17}

Thank you for the opportunity to respond and clarify.

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MEMORANDUM

TO: APTA Component Leaders, State Legislative Chairs, Component Executives, and Chapter Lobbyists

FROM: Paul Rockar, Jr, PT, MS, DPT
President, American Physical Therapy Association

DATE: January 6, 2014

RE: Letter from National Center for Acupuncture Safety and Integrity (NCASI)

APTA is aware that a number of state regulatory boards are in receipt of a November 13, 2013, letter from the National Center for Acupuncture Safety and Integrity (NCASI) alleging, among other things, that physical therapists' (PT) use of acupuncture needles in "trigger point dry needling" (TPDN) procedures, and various state boards' determination that TPDN is within the physical therapist scope of practice, are inconsistent with the requirements for acupuncture needles under the Federal Food, Drug, and Cosmetic Act (FDC Act), 21 U.S.C. § 301 et seq., and U.S. Food and Drug Administration (FDA) implementing regulations. APTA commissioned a legal analysis from the law firm of Hogan Lovells US LLP to investigate whether NCASI's allegation against physical therapists and the physical therapy licensing boards has merit.

Based on the legal analysis, we believe the conclusions of the NCASI letter are without merit. FDA regulates acupuncture needles as class II medical devices. When the FDA down-classified acupuncture needles and promulgated 21 C.F.R. § 880.5580, the FDA stated that acupuncture needles are for use by qualified practitioners as determined by the states. We believe that the FDA, in doing this, was clearly signaling that it would not involve itself in determining who is a qualified practitioner to use acupuncture needles, leaving it to the states to decide. The regulations require that acupuncture needles comply with the following special controls: (1) "labeling for single use only and conformance to the requirements for prescription devices set out in 21 C.F.R. § 801.109" ("prescription device regulation"), (2) "material biocompatibility," and (3) "sterility." *Id.* § 880.5580(b). This regulation does not designate acupuncture needles as restricted devices but rather categorizes them as prescription devices requiring compliance with 21 C.F.R. § 801.109.

To comply with the prescription device regulation special control generally, according to 21 C.F.R. § 801.109(b)(1), prescription devices must bear the following statement:

“Caution: Federal law restricts this device to sale by or on the order of a _____”, the blank to be filled with the word “physician”, “dentist”, “veterinarian”, or with the description designation of *any other practitioner licensed by the law of the State in which he practices to use or order the use of the device.*” (emphasis added)

Together, the FDA regulations at 21 C.F.R. §§ 880.5580 and 801.109 make clear that the determination of who is authorized to use acupuncture needles is a matter left to the states.

This approach is consistent with the principle behind § 1006 of the FDC Act, 21 U.S.C. § 396, which says that nothing in the FDC Act limits the authority of a health care practitioner to administer a legally marketed device for any condition within a legitimate practitioner-patient relationship. The legislative history for this provision indicates that Congress intended to emphasize that FDA should not interfere in the practice of medicine.

I hope this information is helpful. If you need any further information or have any questions, please contact Justin Elliott, Director, State Affairs at justinelliott@apta.org or 703-706-8533. Thank you for your service to the profession.

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