



وزارة الصحة
Ministry of Health

Dry Needling Guidelines

Saudi Arabia

N.B. Staff should be discouraged from printing this document.
This is to avoid the risk of out-of-date printed versions of the document.
The Intranet should be referred to for the current version of the document.

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Introduction

Physical therapists regularly utilize a variety of interventions when treating patients with musculoskeletal disorders. In recent years, dry needling has become increasingly popular in treating disorders of skeletal muscle, fascia, nervous system, and connective tissue by mechanically disrupting tissues without using any injectable. This technique reduces pain, alleviates impairments, and reduces activity limitations.

Evidence regarding its effectiveness must be continuously evaluated, as well as the skills needed by the therapists. The results of several systematic reviews indicate that dry needling offers a greater potential for enhancing function and decreasing pain for musculoskeletal disorders in the short term (during the first 12 weeks of treatment) than other treatments such as sham or placebos. Several techniques have been compared with dry needling, including soft tissue procedures for chronic myofascial neck discomfort, trigger point pressure of upper trapezius, stretching for myofascial pain, post-operative physical therapy treatments for shoulder disorders, and proprioceptive/strengthening exercises for unstable ankles.

In terms of reducing pain and achieving functional goals, dry needling has insufficient long-term proof. Further evaluation of dry needling's effectiveness in musculoskeletal conditions requires additional rigorous research with prospective findings. Several studies have demonstrated that dry needling can reduce musculoskeletal discomfort and enhance functional results in the short-term, thus serving as a valuable treatment of individuals with musculoskeletal conditions.

Purpose

1. Standardization of Practice:

The guidelines aim to standardize dry needling practices across the profession, ensuring that all physiotherapists have a common understanding of techniques, indications, and contraindications. This fosters a unified approach to treatment and enhances patient outcomes.

2. Safety and Efficacy:

By outlining best practices and safety protocols, the guidelines intend to minimize risks associated with dry needling. This includes proper training requirements, patient assessment procedures, and techniques to avoid adverse effects, ensuring that practitioners can confidently administer treatment.

3. Evidence-Based Framework:

The guidelines will be grounded in the latest research and clinical evidence, providing physiotherapists with a solid foundation for their practice. This encourages ongoing education and adaptation to new findings, ensuring that practitioners stay informed about the most effective methods.

4. Patient-Centered Care:

The development of these guidelines emphasizes the importance of a patient-centered approach. By focusing on individual patient needs and preferences, physiotherapists can tailor dry needling treatments to enhance therapeutic outcomes and patient satisfaction.

5. Professional Development:

The guidelines serve as a resource for continuing education and professional development. They provide physiotherapists with the knowledge and skills necessary to incorporate dry needling into their practice effectively, fostering confidence and competence.

List of Abbreviations

AE	Adverse event
CME	Continuing professional development
DDN	Deep dry needling
DN	Dry needling
GP	General Practitioner (medical doctor)
HCW	Healthcare worker
IC	Infection Control
IMS	Intramuscular stimulation
LTR	Local twitch response
SCHS	Saudi Commission for Health Specialists
SDN	Superficial dry needling
SPTA	Saudi Physical Therapy Association
PT	Physical Therapist
TrP	Trigger point / myofascial trigger point



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TrPDN	Trigger point dry needling
WCPT	World Confederation for Physical Therapy
WHO	World Health Organization

Definitions

<u>Physical Therapy</u>	Physical therapy is services provided by physical therapists to individuals and populations to develop, maintain and restore maximum movement and functional ability throughout the lifespan.(1)
<u>Myofascial trigger point (TrP)</u>	Hyperirritable spot in a taut band of skeletal muscle / myofascia that is painful on compression and that can give rise to characteristic referred pain pattern, tenderness, motor dysfunction and autonomic phenomena. TrPs have been described extensively by Travell and Simons (3).
<u>Dry Needling (DN)</u>	Term referring to the employment of a solid filament needle for the treatment of pain and / or dysfunction of various body tissues. DN is considered an invasive physical therapy technique. This may include (but is not limited to) needling of myofascial trigger points, periosteum and soft tissues (2).
<u>Trigger point dry needling (TrPDN)</u>	Dry needling technique with emphasis on myofascial trigger points.
<u>Active trigger points</u>	A spontaneously triggered local or referred pain. They cause muscle weakness, restricted ROM and autonomic phenomena (4).
<u>Latent trigger points</u>	Trigger points that do not cause pain unless they are stimulated. They may alter muscle activation patterns and contribute to restricted ROM (5).



<u>Local twitch response (LTR)</u>	An involuntary spinal cord reflex contraction of the muscle fibers in a taut band elicited by palpation or needling of the trigger point (3).
<u>Intramuscular Manual Therapy (Dry Needling)</u>	Technique used to treat myofascial pain that uses a dry needle, without medication, that is inserted into a trigger point with the goal of releasing/inactivating the trigger points and relieving pain (2).
<u>Superficial dry needling (SDN)</u>	SDN has been shown to activate mechanoreceptors coupled to slow conducting unmyelinated C fiber afferents, and indirectly, stimulate the anterior Cingulate cortex. Superficial DN may also be mediated through stimulation of A- δ fibers, or via stretching of fibroblasts in connective tissue (6).
<u>Deep Dry needling (DDN)</u>	Deep DN has been shown to inactivate TrPs by eliciting local twitch responses (LTR), which are modulated by the central nervous system (2).
<u>Flat palpation (dry needling)</u>	Examination and dry needling technique by finger pressure directly onto the skin over the muscle as described by Travell and Simons (Simons, Travell et al. 1999). Flat palpation is also used as a dry needling technique where the fingers press down on the skin and muscle to control the target tissues (7).



<u>Pincer grip technique (dry needling)</u>	Examination and dry needling grip technique where the tissues are pinched and lifted in a pinch like fashion and has been described by Travell and Simons (3). This assists in palpation of the taut band and identification of the trigger point. In dry needling this technique is usually carried out to isolate the target muscle(s) for dry needling by drawing the muscle away from other structures such as the lung, blood vessels and nerves (7).
<u>Adverse effects</u>	An unexpected and undesired incident directly associated with the care or services provided to the patient
<u>Contamination</u>	The presence of an infectious agent on a body surface; also on or in clothes, bedding, surgical instruments or dressings, or other inanimate articles or substances including water, milk, and food, or that infectious agent itself.
<u>Blood-Borne Pathogens (BBP)</u>	Bloodborne pathogens are infectious microorganisms in human blood that can cause disease in humans. These pathogens include but are not limited to: hepatitis B (HBV), hepatitis C (HCV) and human immunodeficiency virus (HIV). Needlesticks and other sharps-related injuries may expose workers to bloodborne pathogens.
<u>Infection</u>	The invasion and multiplication of microorganisms such as bacteria, viruses, and parasites that are not normally present within the body



<u>Disinfection</u>	<p>The destruction of pathogenic microorganisms by processes that fail to meet the criteria for sterilization. The term is most commonly applied to the use of liquid chemical agents known as disinfectants, which usually have some degree of selectivity.</p> <p>Bacterial spores, organisms with waxy coats (e.g., mycobacteria), and some viruses may show considerable resistance to the common disinfectants.</p>
<u>Sterilization</u>	<p>Complete killing, or removal, of all living organisms from a particular location or material. It can be accomplished by incineration, nondestructive heat treatment, certain gases, exposure to ionizing radiation, some liquid chemicals, and filtration.</p>

Legal Scope of Practice

An Educational Resource Paper titled "Description of Dry Needling in Clinical Practice" was published by the American Physical Therapy Association in 2013. In this document, physical therapists will find background information and instructions on how to perform dry needling (8).

The executive committee of the **American Academy of Orthopedic Manual Physical Therapists (AAOMPT)** (2009) supported the inclusion of dry needling in the scope of practice of physical therapy. They stated that in order to apply dry needling effectively, a detailed assessment of the neurological system must be performed manually. A physical therapist is well trained to use dry needling in combination with manual interventions in physical therapy. A number of studies have shown that dry needling can improve pain management, reduce muscle stress, normalize endplate dysfunction caused by biochemical and electrical factors, and accelerate rehabilitation activities following an injury (9).

The FSBPT (USA) summarized that the education and training of Physical Therapist historically and scientifically supports the adequacy of dry needling as a scope of practice which however requires additional training beyond entry level skills.

A statement entitled "**Minimum standards on dry needling for physiotherapists**" was released by the **South African Society of Physiotherapists in 2017**. The South African undergraduate physiotherapy curriculum does not include dry needling as a taught therapeutic skill. In addition, the scope of practice gazette does not explicitly mention the technique. A 2005 recognition by the Health Professions Council of South Africa (HPCSA) acknowledged that "the dry needling course should be considered for CPD accreditation by approved accreditors". Besides adding dry needling to a post-qualification competency, the HPCSA even recommended that Combined Education Committees consider offering an introductory dry needling

course for undergraduates. Currently, undergraduate needling education has not progressed (10). HPCSA's inclusion of dry needling within the scope of physiotherapy was reflected by Representation Association of Medical Schemes' approval as a acceptable physiotherapy technique.

Aim and scope:

The aim of this protocol is to provide evidence-based guidelines for physical therapists in Saudi Arabia to safely and effectively utilize dry needling as part of their therapeutic practice. The protocol outlines standardized procedures, indications, contraindications and precautions to ensure the highest standards of patient care. It serves to enhance clinical practice, promote consistent application of dry needling techniques and support professional development within the field.

Target population:

This protocol is designed for patients with musculoskeletal disorders, including but not limited to myofascial pain syndrome, chronic pain, trigger points and muscle tension. The target population includes individuals across all age groups and activity level who may benefit from dry needling as a component of their rehabilitation or pain management program

End users:

Licensed physical therapist in Saudi Arabia who have undergone specialized training in dry needling techniques.

Conflict of interests:

This protocol was developed based on best available evidence and clinical expertise without any influence from external parties or organization.

Funding: None

Conclusion

Referring to the international practice and the legalization of dry needling practice by physical therapist; most of the international prestigious Physical Therapy boards licensed Physical Therapist to practice dry needling as a postgraduate level. In reflection to this the role of this document to present a set of competencies that enable Physical Therapist to practice dry needling safely and based on best evidence-based practice and guidelines in Saudi Arabia.

Training Standards

Essential Criteria of Needling Practice:

- The pre-requisite requirements to be as follows:
 - Postgraduate of Rehabilitation science, Physical Therapy bachelor's degree.
 - Licensed Physical Therapist by Saudi Health Commission of Specialties (SHCS)
 - Minimum of 1 year of clinical experience in healthcare facility

Dry Needling Specific Tasks [adopted from Caramagno et al.,] (11)

Criteria related to patient assessment
Obtaining information regarding the patient/client's history and current condition (e.g., medical, surgical, medication, social, cultural, economic, etc.) from patients, caregivers, and family members.
<ul style="list-style-type: none"> ▪ Assessing prior dry needling experience and reactor type (such as needle phobia and treatment response, sensitivities). ▪ A contraindication or precaution related to dry needling (e.g., age, allergies, disease, implants, acute inflammation, acute systemic infection, medications) should be identified. ▪ Integrate dry needling with other routine treatment or methods (e.g., therapeutic exercises, muscle conditioning, manual therapy, physical modalities) to maximize the therapeutic effect and minimize the risk of adverse outcomes.
Criteria related to Intervention
<ul style="list-style-type: none"> ▪ Identify the area(s) to be needled and expose them. ▪ Minimize the possibility of harm to the patient/client and/or the therapist. ▪ Treatment should be accompanied by an explanation of the impact of movement on the patient or client. ▪ Precisely identify the area(s) in need of needles using palpation techniques. ▪ Follow appropriate needle handling techniques (e.g., washing hands, wearing gloves, minimizing needle contamination). ▪ In order to protect patients' privacy, drape materials (e.g., linens, towels) should be used.



- The technique of dry needling should be performed in accordance with the treatment plan (e.g., placing needles, manipulating them, and removing them).
- Identify and manage complications associated with needle removal (e.g., stuck needles).
- Pay attention to the patient's physiological and emotional reactions.
- Help facilitate hemostasis if necessary.
- Follow regulatory standards and local jurisdictional policies and procedures for the disposal of medical wastes (e.g., needles, gloves).
- Provide the patient/client, family, or caregiver with information about post-treatment expectations.

Criteria related to education and instruction's

- Provide the patient or family/caregiver with instructions pertaining dry needling (e.g., purpose, technique, methods, benefits, tools and equipment).
- Explain the possible adverse effects of dry needling to the patient or family (e.g., fainting, bruises, soreness, fatigue).
- Provide patient clear information regarding precautions and contraindications for dry needling (e.g., age, allergies, sensitivity, diseases/conditions, implant, inflammation, acute systemic infections, medications).

Criteria related to patient and staff safety

Emergency procedures

- Ensure emergency policy and procedures are implemented when a patient or client is injured while dry needling (e.g., a hollow organ has been perforated, bleeding has been heavy, the needle has broken).
- Provide an emergency investigation(s) and treatment for practitioners injured during dry needling (e.g., needle sticks injury).

Criteria related to environmental safety

- Assure a safe, comfortable, clean and obstructed environment is created for dry needling (i.e., unobstructed walkways, privacy areas for patients and clients).
- Maintain close access to supplies and equipment when treating patients with dry needling.

Criteria related to infection control

- Make sure infection control procedures are implemented to minimize the effects of needle stick injuries.
- Follow regulatory standards and procedures for cleaning and disinfecting blood and bodily fluid spills.
- Surfaces that cannot be cleaned should be replaced.

Competencies and Knowledge in Dry Needling:

<h3>Anatomy and physiology</h3> <ul style="list-style-type: none"> Surface anatomy includes variations in form, proportion, and anatomical landmarks that are related to underlying tissues, organs, and other structures
<h3>Emergency preparedness and response</h3> <ul style="list-style-type: none"> Preparation and/or response to secondary physiological reactions associated with dry needling (e.g., shock and vasovagal reactions). Identify emergency procedures that can be implemented in the event of psychological reactions or difficulties linked to dry needling (e.g., claustrophobia, anxiety, agitation). Standard operating procedures for handling needles (e.g., hand hygiene, single-use needles, etc.).
<h3>Prevention, safety and Protection</h3> <ul style="list-style-type: none"> Procedures and techniques for personal protection associated with dry needling (for example, positioning yourself to access the treatment area, and wearing protective equipment). Theoretical foundations of dry needling (e.g., rehabilitation, health promotion, fitness, wellness, performance). Using dry needling in conjunction with other therapeutic interventions based on theoretical foundations Other systems may experience a secondary effect or complication as a result of dry needling (e.g., digestive, cardiovascular, and musculoskeletal). A theoretical foundation for pain science, including anatomy, physiology, pathophysiology, and the relationship between body structures and functions. Dry needling contraindications and precautions (such as allergies, diseases, and conditions).

<ul style="list-style-type: none"> ▪ The use of palpation techniques in dry needling
<ul style="list-style-type: none"> ▪ Techniques for inserting needles
<ul style="list-style-type: none"> ▪ Techniques for manipulating needles
<ul style="list-style-type: none"> ▪ . Effects of dry needling on the body's physiological systems
<ul style="list-style-type: none"> ▪ The physical characteristics of solid filament needles (e.g., diameter, length, etc.)

Curriculum Structure

A comprehensive dry needling training program must consist of several units. Less than 80 hours should be dedicated to the entire learning process, which should include at least 40 hours of contact time, clinical practice, and examination. All dry needling training requirements are meant to be finished within a year of starting. A three-day course (24 hours) is the minimal prerequisite for limited dry needling practice for each level or module. It is very important to combine theoretical, practical, and reflective learning strategies in an educationally sound manner. (9)

Training-Requirements:

The practical space should be designed to resemble the real needling setting, but the training site should be ready before the session begins. In Saudi Arabia, one lecturer and one helper are required to provide high-quality dry needling training. A maximum of thirty participants should be present, with 25 being the ideal audience size. However, the worldwide training benchmark states that the training facility must supply more assistance in the event that there are more participants. Each bed should have a fixed or mobile table, and depending on the number of participants, each bed should have one or two sheets and one or two pillows.

- Needling station consists of:
 - Each box of needles should contain various sizes, covering all the sizes covered in the course material, will be provided by the organizer for training and practice.
 - A kidney tray, cotton rolls, alcohol substitutes or antiseptic gel, and varying-sized non-latex-gloves.
 - Having three bins—a yellow sharps container, a general garbage bin, and a medical waste bin on each table.

Examination Policy

After completing the modules of the training, it is crucial that each participant pass a formal assessment of practical abilities that measures their safety of application, practical efficacy, and understanding of the concept.

- Exam-Procedure:
 - Theoretical assessment upon satisfactory fulfilment of all CME requirements
 - Practical assessment following completion of each module or level
 - Submission of cases and clinical practice
 - Certification

Ongoing CME Requirement

- Obtaining at least six hours of formal and informal CME is advised to be completed every three years. It is necessary for formal CME to have a minimum of 50% emphasis on practical activities in DN.
- If a practitioner does not regularly practice Dry Needling, they must complete at least one Dry Needling CME course every two years.
- Practitioners who have not practiced Dry Needling for over 5 years are required to take a refresher course in the technique.

Principles of Safe Practice

Indications for Dry Needling

Dry needling is utilized to address neuromusculoskeletal discomfort and biomechanical problems, which may include a variety of conditions. Body structures can be affected by myofascial trigger points, as well as pain and functional limitations. Additionally, these points may result in a restricted range of motion associated with shortening of muscle fibers, taut bands, or other soft tissue limitations such as fascial adhesions or scar tissue.

Contraindications and Special Precautions

A description of contraindications, situations in which caution is advised, and special precautions is provided in this section. In accordance with the patient selection section, patients will be screened in order to determine whether they have contraindications and special precautions prior to receiving DN therapy. In order to determine whether a patient is eligible for treatment, a physiotherapy assessment must be conducted, and an indication for the use of DN therapy must be provided. It is crucial to maintain a detailed record of medical history and medication use in the past as well as in the present. The importance of taking into account medical diagnoses and co-morbidities, such as a patient with diabetes, peripheral vascular disease, or heart disease, should not be overlooked. A clinician must resist pressure from a patient who insists on using DN when it is not recommended (12,13).

Absolute Contraindications:

There are several conditions in which DN therapy should not be administered (12,14):

- 1- An individual suffering from needle phobia
- 2- Patient who is reluctant to participate in treatment - patient beliefs, fears, etc.
- 3- Incapable of giving consent - age-related, communication-related, cognitive-related

- 4- Previous untoward reactions to needling (or injection)
- 5- An emergency medical situation
- 6- If the patient is on an anticoagulant regimen or has thrombocytopenia, haemostasis cannot be achieved appropriately by palpation, e.g., the psoas muscle, the posterior tibialis muscle.
- 7- A patient with lymphedema may be more susceptible to infection in an area or limb with lymphedema. The needling of a limb following a surgical lymphectomy is also not recommended.

Relative Contraindications:

In the absence of absolute contraindications, it is essential to take into account relative contraindications and possible risks. Specialists are responsible for discussing the risks and benefits of DN therapy with each patient (12).

To determine whether there are relative contraindications / precautions, it is necessary to employ clinical reasoning based on the individual patient's needs and the goals of treatment.

A) Pneumothorax

Pneumothorax occurs when air or gas is found in the pleural cavity, affecting oxygenation and/or ventilation. A variety of outcomes are possible depending on how much collapse occurs in the lung on the affected side. In the case of a severe pneumothorax, the mediastinum can move and abnormal hemodynamic stability can result. It is possible for air to enter the intrapleural space through an opening in the chest wall (such as a trauma) or through the visceral pleura located within the lung tissues.

Clinical signs

There is a wide variety of pain experienced by individuals. Classic symptoms include chest pain, coughing, and shortness of breath, and ultrasounds or X-rays can be employed to diagnose the condition.

Procedure

In the event that pneumonia is suspected, the patient should be taken to an emergency room for confirmation.

B) Abnormal Bleeding Tendency:

Anticoagulant drugs, thrombocytopenia, or patients taking high doses of blood thinning medications (such as Plavix and Warfarin) or who suffer from thrombocytopenia due to any cause (such as haemophilia) may not be suitable candidates for DN. It is important to be cautious when DN patients are taking anticoagulants. It may be wise to use avoidance or gentle needling technique. Applying pressure after removing the needle is crucial for achieving haemostasis.

If proper palpation for haemostasis cannot be achieved, such as in the psoas or tibialis posterior muscles, needling should not be done on those muscles, as it is considered a complete contraindication.

C) Compromised Immune System:

Individuals with weakened immune systems are more vulnerable to infections and, as a result, have a higher chance of developing either a local or systemic infection from DN. Individuals at higher risk of infection include (12,14):

1. Patients with compromised immunity (e.g. patients with bloodborne diseases, cancers, HIV, AIDS, hepatitis, bacterial endocarditis, incompetent heart valves, and valve replacements, etc.)
2. Having an immunosuppressive condition or being treated for cancer that has compromised their immune system
3. Patients who are debilitated or who have chronic illnesses
4. Infections of the immune system (e.g. acute rheumatoid arthritis, current infection either locally or systemically, etc.).

D) Vascular Disease:

A person suffering from vascular disease may be more susceptible to bleeding, tissue trauma, and infections.

E) Diabetes:

As a result of diabetes mellitus, a patient's ability to heal tissues or their peripheral circulation may be compromised.

F) Pregnancy:

Discussing the use of dry needling therapy during pregnancy with caution is important as around 20% of pregnancies can naturally end in the first trimester (14). The possibility of mistakenly linking these events to acupuncture treatments should be taken into account in patient education and clinical decision making. There is disagreement regarding the potential of acupuncture to induce labor or lead to spontaneous abortion (12,14,15). However, a study conducted on 593 pregnant women found that acupuncture was ineffective in improving pregnancy outcomes or the health of the fetus (16).

G) Frail Patients:

Care should be taken with weak or fragile patients because they may have difficulty tolerating dry needling or expressing their sensations accurately.

H) Epilepsy:

When treating epilepsy patients, especially those with unstable epilepsy, dry needling should be performed carefully and under supervision at all times.

I) Allergy to Metals or Latex in Gloves:

People who suffer from metal allergies may experience adverse reactions to the metal solid filament needles used in dry needling, and it is important to discuss potential risks before commencing the treatment. A solid filament needle is unlikely to cause an allergic reaction. Some patients may be allergic to latex, a common ingredient in examination gloves, and the healthcare provider should use alternative gloves for them.

J) Children:

Besides obtaining informed consent, it is necessary to obtain consent from parents or guardians when treating minors under the age of 18. Make sure that younger patients do not suffer from a fear of needles and are willing to cooperate with the procedure. It is typically suggested to steer clear of TrPDN in patients under the age of 13 because of their limited procedural comprehension and tolerance to the local twitch response stimulus.

K) Medications:

Physiotherapists who are licensed by the Saudi Council of Health Specialties (SCHS) should always consider the patient's past medications. This information must be reviewed thoroughly with the patient. Any medical conditions or circumstances that may not be suitable or require extra care during treatment. Examples consists of individuals on immunosuppressive medications, antidepressants, anticoagulants, and more.

L) Psychological Status:

Patients suffering from high levels of distress, stress, or psychological disorders may not be appropriate candidates for DN therapy. These problems could decrease the chances of responding to treatment or increase the risk of negative psychological or physical reactions to DN therapy.

Adverse Events (adopted from Boyce, et al., 2020 (17))

Adverse Events	Symptoms/ Signs (Usually)	Prevention	Actions to take
<u>Bleeding</u>	<i>Mild</i>	Haemostasis When DN is administered to patients with abnormal bleeding tendencies (anticoagulants, thrombocytopenia), caution should be exercised. Ensure that varicose veins are avoided. Do not apply haemostasis to muscles in which adequate haemostasis cannot be achieved.	<ul style="list-style-type: none"> Using a cotton swab, apply pressure to the affected area. If necessary, apply ice locally to minimize bleeding. Clinicians must wear gloves when palpating
<u>Haematoma</u>	<i>Mild</i>	Haemostasis. When DN is administered to patients with abnormal bleeding tendencies (anticoagulants, thrombocytopenia), caution should be exercised. Avoid varicose veins etc.	<ul style="list-style-type: none"> Using a cotton swab, apply pressure to the affected area. If necessary, apply ice locally to minimize bleeding.
<u>Needling pain</u>	<i>Mild</i>	Communicating verbally as well as non-verbally. A description of the local twitch response.	<ul style="list-style-type: none"> Avoid sharp and burning pain immediately withdraw the needle
<u>Post treatment soreness</u>	<i>Mild</i> – Typically one hour to two days, but on occasion up to four days	Haemostasis of the needled region. An application of cold in conjunction with stretching.	<ul style="list-style-type: none"> Suitable patient. Educate patient. Planned treatment to accommodate the patient's lifestyle, social and professional obligations
<u>Drowsiness</u>	Mild	A very small percentage of patients may feel excessively relaxed and/or sleepy after DN treatment.	Patient should be advised not to drive until they have recovered. It is recommended that future DN sessions for patients experiencing drowsiness be scheduled around their lifestyle, so that they can recover, as well as be driven home by a third



			party. They must avoid operating heavy machinery.
<u>Fainting</u>	<i>Significant</i>	If patient is needle phobic, DN is contraindicated. Avoid if patient has high levels of psychological stress and tension or in patients with autonomic lability. Treatment is administered to patients while they are lying or recumbent. In patients with a history of fainting caused by needling therapies, injections, or blood drawing, caution should be exercised.	<ul style="list-style-type: none"> ▪ Titrate DN treatment. ▪ If fainting occurs, remove needles. ▪ Consider raising the patient's legs or placing them in a recovery position while they are lying down. ▪ Offer reassurance and water or sweet drink. Monitor until recovered. ▪ Patient should not drive until fully recovered. ▪ Medical assessment if there is any concern
<u>Vaso-vegal reactions</u> (e.g. vertigo, sweating, nausea syncope)	<i>Mild -serious</i>	A history of similar reactions in the patient. Communicating both verbally and non-verbally. Monitor patient and reassure.	<ul style="list-style-type: none"> ▪ All needles should be removed. ▪ Ensure the patient is in a comfortable position or a recovery position. ▪ Monitor, reassure. ▪ If necessary, seek medical attention. ▪ Driving is not permitted
<u>Miscarriage in Pregnancy</u>	<i>Serious</i>	Recognize conflict in scientific literature. Acupuncture recommendations include: Avoid strong needling stimulation Avoid needling LI 4, SP 6, BL 60, BL 67, LV 3* over the abdomen, ear points for the genitor -urinary system and scalp points for the genital and motor sensory areas Needle with caution GB 21* and upper lumbar spine Electro-acupuncture should be avoided	<ul style="list-style-type: none"> ▪ Patient education and consent vital. ▪ Recognize conflict of opinion on the risks of acupuncture during pregnancy
<u>Infection:</u>	<i>Significant</i> For instance: mycobacteriosis,	The knowledge of anatomy. There is an increased risk of DN in patients with compromised immune	<ul style="list-style-type: none"> ▪ Inspect the skin in the treatment area for signs of infection.



<p>Local infection</p> <p>Systemic infection</p> <p>Patient, clinician and third party</p>	<p>Hepatitis B</p> <p>HIV</p>	<p>systems, vascular disease, diabetes mellitus, etc.</p> <p>It is recommended not to needle the affected limb after surgical lymphectomy.</p> <p>Inflammation, lesions, cysts, ganglion cysts, and tumors should not be needled.</p> <p>close to prosthetic implants.</p> <p>Avoid needling into joints.</p> <p>Consider that everyone is possibly infected or contaminated with an organism transmissible to healthcare workers or third parties.</p>	<ul style="list-style-type: none"> ▪ There is a need to defer current treatment and seek medical advice. ▪ Utilize a set of work practices for blood, body fluids, mucous membranes, and non-intact skin, including: <ol style="list-style-type: none"> 1. hand hygiene 2. Wearing protection tools (gloves) 3. Suitable patient selection 4. Practice safe needling techniques (do not touch the needle shaft) 5. Alcohol, Betadine, etc., whenever relevant. 6. management of sharps 7. Control of spilled blood and body fluids. 8. Etiquette for coughing and respiratory hygiene. 9. Injuries caused by needle sticks. 10. Disposal of waste. 11. Laundry management. 12. Decontaminating reusable medical equipment, e.g. beds
<p>Penetration of abdominal organs, including the kidney, liver, spleen, intestines and urinary bladder</p> <p>Potentially</p>	<p>Significant</p>	<p>Avoid needles that penetrate deeply into organs. Anatomical variances or enlarged organs increase the risk.</p> <p>Good anatomical knowledge is needed.</p>	<ul style="list-style-type: none"> - Anatomy and technique application. - Urgent medical assessment as required
<p>Nerve irritation</p> <p>Nerve injury</p>	<p>Mild - Significant</p>	<p>Anatomical knowledge.</p> <p>Needle slowly.</p>	<ul style="list-style-type: none"> - Withdraw needle immediately if electrical or burning pain or in the vicinity of a nerve.



Forgotten needle	Significant	Ensure that all needles have been counted. In the case of a forgotten needle, tissue trauma or serious complications, such as pneumothorax, could occur. Static needling techniques, which leave the needle in place for a period of time or when needling different parts of the body, are more likely to cause forgotten needles.	<ul style="list-style-type: none">- Use a "count them in count them out policy". Tally needle packets with withdrawn needles.
Stuck needle	Mild	The needle should not be twisted excessively to avoid binding the skin and soft tissues around it.	<ul style="list-style-type: none">- A needle that is stuck because it has been overrotated should be rotated in the opposite direction and removed.- Whenever a needle is stuck due to muscle tension, it should be left in for a short period of time, then gently massaged to relieve muscle tension by inserting 1-2 needles around the stuck needle, then removed.
Bent needle	Mild	The needle should be inserted while the patient is relaxed and in an optimal position to prevent bending. When performing dynamic needling, it is imperative to use an optimal needling technique to avoid over-curling the needle.	<ul style="list-style-type: none">- In the event that a needle is bent, it should be removed, discarded, and replaced with a new one.
Broken needle	Significant	Single-use sterile needles should be used (never reuse needles). It is recommended that you use good quality needles that are within their expiration date. Approximately one centimeter of the needle should remain outside the skin. In the event that the needle becomes bent, it should be removed, discarded, and replaced with a new one.	<ul style="list-style-type: none">- To prevent the needle from going deeper, the patient should be advised to remain calm. The broken needle can be removed with tweezers if the broken section is visible, otherwise press the tissue surrounding the insertion site until the inserted section is exposed and removed.



			<ul style="list-style-type: none">- Surgical removal of the needle may be necessary if the needle cannot be removed in the clinic.- Make the needle site easily identifiable by marking the site with a pen or marker.
Needle allergy	Mild - Significant: Redness, itches	Allergies to needle metals. Use of latex free examination gloves in Latex allergy.	<ul style="list-style-type: none">- Inquire about the allergies of the patient.- High-quality needles should be used.- If necessary, use latex-free examination gloves.- Monitor.- Consult a medical professional if necessary.
Forgotten patient	Significant	The patient should not be forgotten when using a static needle technique and leaving them in a room or cubicle for some time.	<ul style="list-style-type: none">- Use an appropriate call bell system.
Damage to implants and electrical device implants, including drug delivery systems and implanted spinal cord stimulators	Serious	Avoid DN in the vicinity of implanted devices.	<ul style="list-style-type: none">- Take patient specific history

Anatomical Considerations

Dry needling (DN) carries risks to anatomical structures, including the lungs, blood vessels, nerves, and organs. These risks can be minimized through thorough anatomical knowledge and careful technique. Peuker and Gronemeyer (2001) emphasized that needling injuries could be prevented with better anatomical understanding.

1) Pleura and Lung (Pneumothorax)

Pneumothorax is the most serious DN-related complication, particularly near the rib cage and upper trapezius. It can be iatrogenic, caused by accidental puncture. Symptoms vary from immediate breathlessness to delayed chest pain, cough, or cyanosis. According to Witt et al. (2009), the occurrence is less than 0.01 per 10,000 treatments. The American College of Chest Physicians suggests conservative treatment for minor cases, with aspiration or chest tube insertion for severe cases. Factors like patient positioning, BMI, and gender affect lung depth, influencing needling safety. Holding the needle over bone and using a pincer grip can help prevent pneumothorax.

2) Blood Vessels

DN poses a risk of vascular injury. Clinicians should palpate for arterial structures before needling.

3) Nerves

Proper anatomical knowledge is crucial to avoid nerve damage, particularly in vulnerable areas like the brainstem and spinal column.

4) Organs

Needling over internal organs (e.g., kidneys, peritoneum) should be avoided due to the risk of penetration and injury.

5) Joints

DN should not be performed in joints or joint capsules to prevent infections.

6) Prosthetic Implants

Avoid needling near implanted prosthetics or fixation devices.

7) Electrical Implants

Needles should not be inserted near implanted medical devices like pacemakers or spinal stimulators.

8) Tumors and Other Pathological Sites

DN should not be performed over tumors, varicose veins, cysts, acute inflammations, or skin lesions.

Physiotherapists must work within their expertise to ensure safe and effective DN application. Alternative treatments should be considered if confidence or knowledge of a specific anatomical area is lacking.

Hygiene

Standard hygiene

Assuming that each individual may carry an organism that has the potential to be spread in a healthcare environment. Dry needling carries some danger as it is an invasive procedure, increasing the risk of infection and injury to the patient, the clinician, and others involved. Hence, proper basic hygiene is the most trustworthy foundation for infection control in order to stop the spread of infectious agents in healthcare environments, which consist of:

- Washing hands
- Utilization of personal protective gear
- Handling and controlling blood and body fluid spills
- Suitable placement of the patient
- Handling of sharp objects
- Secure methods of injecting substances
- Proper ways to take care of respiratory system and prevent spread of germs through coughing.
- Handling needle stick injuries
- Handling of waste
- Operation of the laundry
- Cleaning and disinfecting medical equipment to remove contaminants.
- Cleaning up the environment.

These precautions must be implemented for every activity that poses a risk of infection:

1. For the treatment of dry needling, it is recommended that only sterile, single-use, disposable solid filament needles should be used.
2. It is important that needles are of good quality and should carry a quality mark.
3. Make sure the outer packaging is intact, and the needles are within their expiration date. If not, dispose of the needles
4. It is not recommended to re-sterilize or reuse needles.
5. Make sure the needle shaft is not touched as this may increase the risk of infection.
6. You should only hold the needle by the handle.
7. Immediately discard other objects or surfaces contaminated by the clinician's hand before replacing them with a fresh sterile needle if the needle has been contaminated by the clinician's hand.
8. After treatment, all needles should be disposed of in a sharps container immediately following the procedure.
9. Do not store used needles for use in another treatment session.
10. After each visit, it is imperative that each needle is counted and accounted for in order to minimize any possibility of leaving a needle in situ in a patient or exposing the clinician or a third party to a needle stick injury.
11. When reusable plunger apps are used to stimulate intramuscularly, the applicator should be washed and disinfected (e.g., in an autoclave) after each use (27).
12. As a precaution, needles should not be taken home with patients.

Needle specification

Single time use, sterilized, thin, throwaway, packaged in blister pack with guide tube, Stainless steel shaft, plastic, copper or rubber handle.

1. Needles are made of solid filament that can be disposed of after dry needling therapy. The needles must be of high quality and must bear a quality stamp.

Make sure the outer packaging is undamaged, and the needles are not expired; if they are, dispose of them.

2. It is important to never re-sterilize or reuse needles.
3. Never touch the shaft of the needle, that might increase the risk of infection
4. If the needle becomes contaminated by the clinician's hand, another object, or surface, it must be disposed of and substituted with a new sterile needle.
5. All needles and needle guide tubes must be disposed of right after use in a designated "sharps container".
6. Do not keep a used needle to be used on the same patient during another treatment session.
7. It is important to keep track of all needles to prevent any needles being left in a patient or causing a needle stick injury to the clinician or a third party.
8. After using a reusable plunger type applicator for intramuscular stimulation (Gunn technique), it is important to clean and sterilize the applicator with an autoclave before using it with a new patient (27).
9. It is not safe for patients to be provided with needles to bring home or use on themselves or others because of the obvious dangers involved.

Safe Environment

Hand Hygiene Preparation:

1. Nails should remain short and trimmed with a smooth cut.
2. It is not permissible to wear nail varnish or false nails
3. Any wrist and hand accessories, including watches (excluding simple wedding rings), need to be taken off.
4. The sleeves of the shirt should be short or turned up.

Several methods can be used to decontaminate hands, including plain soap and water and alcohol-based gels or hand rubs.

Hand Decontamination Should be Carried Out when hands are:

1. Always wash hands if visibly dirty, soiled, or tainted with organic material.
2. Before and after work shifts.
3. Prior to and following each contact with a patient.
4. During patient care after moving from a contaminated to a clean area.
5. Immediately following the removal of gloves.
6. Following the handling of soiled equipment, materials, or environments.
7. Whenever food is being prepared or handled.
8. Immediately following the performance of personal bodily functions, such as blowing one's nose or using the restroom.

Hand Decontamination Technique:

Decontaminating with Handwashing (adopted from (28-30):

1. Wash your hands with water before handling anything
2. Wash hands with a soap product recommended by the manufacturer
3. In order to remove bacteria, firmly rub hands together against each other for minimum of 15 seconds, providing coverage for the hand and fingers areas.
4. Wipe your hands thoroughly with disposable towels after rinsing them with water
5. Turn off the faucet using a towel
6. Avoid using hot water due to the risk of dermatitis associated with repeated exposure to hot water.
7. Ensure that you use single-use, dispensed, durable paper towels (29). Using cloth towels for multiple uses, either hanging or rolled, is not recommended (28).

Decontamination with an Antiseptic Handwash Agent, or Alcohol Handrub Product on visibly clean hands only. Indication for use:

1. Prior to patient interaction in intensive care units, especially patients who are immunocompromised or with substantial injuries or burns, as well as before entering a unit or ward in which they are present.

2. Upon completing all contact with patients who are on transmission-based precautions and prior to leaving the ward/room in which they are located.
3. In the event that hands have been inadvertently contaminated with a high level of bacterial load, such as foul or infectious materials.
4. When performing invasive procedures in an aseptic manner, it is important to wash hands when visible contamination is present.

Decontaminating with Alcohol-based Hand Rub – Technique (adopted from (27,28):

It is recommended that you clean your hands with an alcohol-based hand rub that contains 60-70% alcohol by weight (isopropanol, ethanol, n-Propanol). It is possible to use concentrations of up to 95%, however, concentrations greater than 70% should generally be avoided in order to avoid the risk of skin dryness or dermatitis. There is a possibility that organic materials may inactivate alcohol-based hand rubs (31). The following technique is recommended:

1. Rub the product between the palms of one hand.
2. Ensuring that all surfaces of the hands and fingers are covered.
3. Leave on for minimum of 15 seconds and till hands are completely dry.

Skin preparation:

1. Prior to needling, it is advised to disinfect the skin using 70% isopropyl alcohol.
2. Ensure that the patient's skin is visibly clean. If not, clean the skin with warm soapy water and ensure it is completely dry.
3. If the DN is close to a more infection-prone area like a joint or bursa, or in a consistently moist area such as the axillary cavity or groin, it is advisable to clean the skin by wiping, rubbing with alcohol, isopropanol or povidone-iodine, and leaving it to dry for 2 minutes. This procedure may also be necessary for patients with a compromised immune system if deemed appropriate for DN therapy.

Skin Sterilization (14):

1. Patients with weakened immune systems, such as those with S.L.E, AIDS, or R.A., as well as individuals taking immune suppressive drugs like organ transplant recipients, should undergo skin sterilization. These individuals are more susceptible to infections caused by a small number of contagious agents compared to those with a healthy immune system. Disinfection alone may not eliminate enough organisms to prevent infection, necessitating the need for skin sterilization.
2. Use a sterilizing solution, such as 2% iodine in 70% alcohol, and allow it to dry on the skin for at least two minutes. For individuals allergic to iodine, chlorhexidine in alcohol is a suitable alternative.
3. When palpating the sterilized skin is necessary, use a sterile glove.

Needle Station

Needling station should include:

- Table to keep the station on
- All available sizes of needles, i.e (0.22x13mm), (0.25mmx25mm), (0.25mmx30mm), (0.30mmx40mm), (0.35mmx50mm), (0.35mmx75mm), (0.35mmx100mm).
- Kidney tray
- Cotton wool
- Properly fitting size gloves
- Required bins for disposables (needles, solid materials)

Gloves should be worn on both hands during DN. The HSE Standard precautions document (29) recommends the use of gloves:

1. For all physical activities that may expose participants to bodily fluids such as blood, bodily fluid discharges or excretions, sharp objects, or sullied clothing
2. When contacting non-intact skin and mucous layers

3. When maintaining damaged equipment.
4. Gloves should be used only once and should conform to standards. Workers in the healthcare industry who are allergic to latex should use gloves made without latex.
5. If contact with a sterile body range is necessary, sterile gloves are advised. Gloves should be put on right away after DN and taken off as soon as DN is over.
6. Gloves soiled with bodily fluids or blood should be disposed of as medical waste (at yellow sack). Although it has been argued that gloves may affect the kinesiosthetic critique during DN or needle therapy ⁽¹⁴⁾, doctors should be able to adapt their palpation strategies to include the use of gloves.

Disposable

1. Needles and contaminated trash should be disposed of in accordance with each hospital's specific policy.
2. Gently dispose of needles in a "sharps container." Containers for sharps should adhere to standards and be approved by UN3291.
3. The sharps container needs to be conveniently located near the treatment area.
4. Filling the container over the typical fill line indicator is crucial because doing so increases the risk of an unintentional needle stick injury.
5. The sharps container should ideally be fixed on a wall or on a trolley; it should not be left on the ground or in a kid-accessible area.
6. Using the locking mechanism, full sharps containers should be closed and disposed of by a licensed waste disposal firm in compliance with local regulations.
7. Serous, filthy gloves and swabs tainted with blood are examples of clinical waste from DN therapy.
8. The proper yellow bag should be used to dispose of clinical waste.
9. The purpose of yellow bags is to dispose of soft materials like gloves, soiled swabs, etc.
10. Needles and other sharp things should not be put in yellow bags.

11. Yellow bags should be easily accessible from the treatment area, and when they are full, they should be disposed of with a licensed waste disposal business in compliance with local regulations.

Needle stick injury

1. Use warm water and soap to give the area a thorough cleaning. Encourage them to bleed if they have wounds from a needlestick. Avoid suctioning the puncture site. Avoid using a nail brush.
2. Inform your manager about the situation right away. Fill out an accident report. Note the information about the source patient, or the person on whom the needle was used. Please provide the name, birthdate, address, and phone number.
3. Go to the Emergency Room, where a doctor will evaluate the issue (you have to go there as soon as possible after the injury).
4. The ER physician must take into account the following:
5. In terms of potential exposure to another person's blood or bodily fluid, was this a serious injury?
6. Has the victim of this injury received a Hepatitis B vaccination?
7. Can the patient who suffered the major injury be checked for blood borne illnesses (Hep C, Hep B, HIV)?
8. The ER physician will treat you right away if necessary. If you need additional blood tests, your employer's occupational health resource or your family physician will often take care of them.

Bleeding Management

Spills of blood or body fluids are uncommon in DN practice. The following protocols are advised in the event of a spill involving blood or body fluids. (Note that the guidelines have been modified from ASAP 2007 (14)):

1. Put on the appropriate safety gear, such as goggles, an apron, and gloves, if needed.
2. Use paper towels to mop up the spill. When there are significant protein quantities present, as there are in blood, disinfectants may become less efficient or perhaps ineffective. Before disinfecting, most of the blood or bodily fluid that has spilled should be cleaned up. Put the used absorbent paper towel trash in a yellow, waterproof bag that is appropriate.
3. Use water and detergent to clean the spill spot. Then, rinse, dry, and discard the cleaning towels in yellow bags.
4. If naked skin will come into touch with the spill site (such as a treatment plinth) or if cleaning the surface in the clinical area proves to be challenging, disinfect the area with a disinfectant that produces chlorine. Sodium hypochlorite solutions (bleach) must be newly produced. Observe the manufacturer's usage and safety guidelines while using disinfectants. It is recommended to let disinfectants sit on the surface for ten minutes. When diluted 1:100 with tap water, domestic liquid bleach, which typically has 4-5% accessible chlorine, produces about 5000 parts per million (PPM). In two minutes, this concentration will render the HIV virus inactive and Hepatitis B inactive in ten. Carpeted surfaces, for example, may need to be replaced if they are not sufficiently cleaned.
5. Use disposable towels soaked in disinfectant to clean up the spill spot or flood it
6. Use throwaway materials to absorb the disinfection solution. As an alternative, you might let the disinfectant dry.
7. Use water to rinse the spill site to get rid of any unpleasant chemicals or smells. To stop sliding and more spills, dry the spill spot.
8. All materials that were utilized to clean up and absorb the spill area ought to be disposed of properly after being put in waterproof yellow bags.

Dry Needling (DN) During Pregnancy

During pregnancy, it is essential for patients to be fully informed about dry needling therapy and to use it cautiously, since one in four to five pregnancies may end inevitably during the early pregnancy period (13). Those occurrences may be erroneously linked to dry needling, and this should be taken into account when educating patients and informing clinical judgments and decisions. Contradictory opinions exist regarding the effectiveness of acupuncture for inducing labour or causing natural miscarriage (12,14,15). It is important to note, however, that acupuncture in first pregnancy period did not adversely affect pregnancy results or the child's health in a clinical trial of 593 women with nausea associated with pregnancy (16). Thus, following a guideline that highlights how to use dry needling during pregnancy is crucial.

Indications of DN for pregnant:

Neuro-musculoskeletal pain and biomechanical dysfunction including but not necessarily limited to:

- Myofascial trigger points can affect the structure of the body, cause pain and limit functionality.
- A restriction in range of motion caused by shortening of muscle fibers or taut bands.
- Other restrictions of the soft tissues, such as fascial adhesions or scar tissue.

Safety Precautions:

- DN should generally be used with caution while treating pregnant women.

- All specialized health-care practitioner should take extensive subjective history and objective assessment with all pregnant women before starting dry needling. All systems and overall health should be reviewed, consult the patient`s gynecologist if needed.
- Literature recommended avoiding dry needling in the first trimester of pregnancy.
- Prone position is not allowed during DN for pregnant and supine is not preferred for long period after 16 weeks of gestation; try to avoid putting your patient in supine for long time and find alternative comfortable and supported positions.
- Psychological Status is important during pregnancy, patients with high distress, stress or highly physical sensitive during pregnancy may not be suitable for DN therapy.

Practical application:

Particular locations should be avoided, including:

- Abdomen
- Spine includes Lumbar, sacrum and coccyx
- Hand especially the first web space
- Foot – there is a region 3cm proximal to the medial malleolus that is contra-indicated
- Peroneal

Adverse events [[refer to the general adverse events chapter](#)]

Practical Application

Consent form:

- Clinician must gain informed consent from patients.
- Proper language must be used for each individual content form (Arabic and English)
- Consent should be documented.
- Consent must be written.
- Persons under 18 years of age should also have informed consent from parent or guardian.

Consent form should include:

- Full patient name and his/her medical record number (MRN).
- Full Guardian name if needed and his relation to the patient.
- Full clinician name and his/her Badge number.
- Specific area of treatment.
- Treatment indications, benefits , possible adverse events and risks
- Date, time and place.
- Patient/guardian signature.
- Clinician Signature.

Patient Selection:

In order to determine whether dry needling is appropriate for a particular patient, screening should be conducted. Selection considerations of patient's involve (adapted from College of Physical Therapists of Alberta (27)):

1. A clinician's diagnosis that DN will provide benefits with a reasonable expectation.
2. A description of the patient's current health conditions, including any conditions that require caution.
3. Capacity of the patient to:
 - Understanding what needs to be done and why is essential.
 - Communicate effectively his or her reaction to therapy.
 - Be compliant with treatment requirements (such as lying still)
 - Comply with local regulations regarding informed consent.

Moreover, consideration should be given to the patient and practice setting regarding issues and circumstances associated to the application of dry needling, the clinician should understand (adapted from College of Physical Therapists of Alberta (26)):

- Cultural characteristics of the patient, comfort with needles, pain threshold, and handling tolerance.
- Cognitive and physical abilities of the patient: anxiety and cognition
- Communication and language: consent, understanding, and reliability.
- Psychological status of the patient: needle phobia, emotional response to the procedure
- Limitations based on patient age: caution in pre-teenagers (consider other non-DN methods); consent requirements as standard procedure.

Full procedure explanation:

A technique known as "dry needling" has been recommended by your physiotherapist. A more detailed explanation of this technique can be found in this information leaflet.

A dry needle is a very successful medical treatment that employs very thin needles without the use of any medication (a dry needle). Using dry needling, pain and dysfunction caused by muscle problems, headaches, and some nerve problems can be treated. Acupuncture is not the same as this technique. There is a difference between acupuncture, which is part of traditional Chinese medicine, and dry needling, which is a western medicine technique, which requires medical diagnosis. Dry needling is based on a clear scientific understanding that does not rely on any religious beliefs.

In addition to changing the way your body perceives pain; dry needling also helps the body heal stubborn muscle spasms associated with trigger points. In addition to electrical and chemical changes, dry needling therapy also assists in the healing process. A needle treatment should be considered only one part of your overall rehabilitation program. It should be noted that dry needling is not a miracle cure, but rather a normal component of physiotherapy. In order to achieve optimal results, you must perform the exercises and follow the advice your therapist gives you in conjunction with the needling.

It is your therapist's specific training that has enabled him or her to perform the different types of needling. In order to achieve the desired effect, the therapist will select a needle size and thickness that is appropriate for your condition and your body size and insert it through the skin at the appropriate point. There will be a small pinprick sensation. The type of needle technique used by your therapist may also result in muscle aches and twitches. There is nothing abnormal about these sensations, and they indicate that your symptoms will be relieved soon.

Generally, if performed properly by a trained Physiotherapist, there is very little risk associated with this technique. Similar to any injection, you may experience some bruising around the needle site. Rarely, people may experience extreme feelings of happiness, tears, sweat or cold. All of these symptoms will soon disappear. A very

small minority of individuals can experience fainting. These side effects are temporary and do not cause long-term harm.

The lung may be at risk if you are being treated in the shoulder, neck, or chest areas. It is possible to suffer from a pneumothorax (air in the space surrounding the lung) if the lung itself is punctured. If you experience this problem, you should go directly to a hospital Emergency department without panicking. There are a variety of symptoms associated with this event, including shortness of breath that worsens over time, a sharp pain with every breath, a bluish tinge to the lips, and an inability to regain your breath. In the case of this rare but possible complication, treatment is very successful.

If you wish to continue with therapy as suggested by your therapist and have asked any questions you may have, please sign the consent form attached to this page and give it to your physiotherapist. It is recommended that you keep a copy of this information page for your own records.

Technical Part:

Practical Application Positioning:

- It is essential that the patient is positioned properly in order to access the muscle(s) to be needed, primarily in a reclining position.
- Various positions can be used, including supine, prone, side lying, or a combination of these positions.
- It is important to ensure the patient is comfortable and relaxed, Pillows and bolsters can be utilized to ensure a relaxed position for the patient.
- Treating patients in sitting should be avoided unless treating hand, forearm (depending on patient's tolerance), thus to prevent a fall from potential fainting, though low risk.
- It is essential that the muscle(s) or body area being treated be positioned in such a manner that the taut band and trigger points can be palpated and dry needling can be undertaken.

- A face-to-face meeting with the patient is helpful for obtaining feedback from them, although it may not always be possible.
- In order to prevent work-related disorders, the clinician should ensure good body mechanics and a comfortable position while needling.

Palpation Techniques:

- Palpatory evaluation begins with a study of the normal topography of structures and then applies it to the current condition of the body.
- It is imperative that the clinician avoid other anatomical structures in the relevant area prior to needle insertion, for example, the sciatic nerve, the lung, etc.
- It is necessary to palpate the muscle and identify the taut band and trigger point using the appropriate criteria.
- Flat palpation or pincer/ lumberical grip techniques should be employed as appropriate for the area being needled to ensure safe insertion, However Clinician should not remove his hand grip until safe removal of needle.
- Before beginning the needle procedure, make sure that the patient and the muscle are relaxed.
- Dry needling therapy should be avoided by clinicians who cannot palpate or confirm muscle or anatomical landmarks or are uncertain of the anatomical topography of the area to be needled. It may occur in certain circumstances, such as in obese patients.

Thoracic Needling (10):

It is necessary to set standard practices for needling targets near the pleura in order to minimize the risk of pneumothorax injuries. In order to ensure safety, the muscles listed below should be needled according to the instructions, bearing in mind that the needles sizes might varies one size above or below based on patient's size, and the depth of muscle layer.

- No indwelling needle techniques are permitted.
- Techniques that are not listed below should be described in a peer-reviewed article.
- Unless specifically motivated, there should be no use of needles greater than 25 mm in the thoracic region where the needles are designed to penetrate the ribs.

Specific Areas of Concern (10)

- Upper fibers of trapezius - needle in side lying, passive scapula elevation. Use a pincer/lumbrical grip, antero-posterior direction aiming at therapist's own finger – 0.25x25mm. No leaving of needles in situ without lumbrical grip at all times until needle is removed.
- Levator scapula - needle in side lying, into a pincer/lumbrical grip, antero-posterior direction aiming at therapist's own finger – 0.30x30mm. No leaving of needles in situ without lumbrical grip at all times until needle is removed.
- Middle fibers of trapezius – Prone, 0.25x25mm, split finger block, aim toward the bracketed rib.
- Lower fibers of trapezius – Side lying, 0.25x25mm, pincer grip, aim within the muscle toward the spinous process one level above.
- Intercostal muscles – NOT safe to needle under any circumstance.
- Serratus anterior - Side lying, 0.25x25mm, split finger block, aim toward the bracketed rib.
- Serratus posterior superior and inferior - Side lying, 0.25x25mm, split finger block aim toward the bracketed rib.
- Rhomboid major and minor - Side lying, 0.25x25mm, split finger block aim toward the bracketed rib.
- Longissimus thoracis, iliocostalis thoracic - Prone, 0.25x25mm, split finger block aim toward the bracketed rib.

- Multifidus and other paraspinal muscles- Side lying, 0.25x25mm, angled inferomedially to the lamina of the vertebra below.
- Pectoralis major – Pincer grip, 0.25x30mm aimed at the therapist’s finger.
- Pectoralis minor – Modified pincer grip, 0.3x40mm aimed anteromedial toward the therapist’s finger.
- Abdominal muscles overlying ribs anteriorly – 0.25x13mm.
- Supraspinatus – Side lying. Accurate palpation of the supraspinous fossa required. 0.25x40mm angled toward spine of scapula.
- Latissimus dorsi - Side lying, pincer grip 0.25x25mm.
- Quadratus lumborum – Side lying, sufficient pillow under contralateral lumbar spine to open the gap between ribs and ilium, aim towards transverse process – 0.30x40mm-0.35x75mm, insertion onto the 12th rib is not to be needed.
- Sternocleidomastoid – Pincer with head lateral flexed passively and slightly rotated away from needling side, needling towards gripping finger, sternal head anterioposterior, clavical head posterioanterior – 0.25x25mm. Keep the pincer grip throughout the technique to avoid trauma to the Jugular and carotid vessels.
- Subclavius – not needled, unless an expert with the necessary training.
- Scalenes – not needled, unless an expert with the necessary training.

Pulmonary Pleura landmarks (adopted from Gray, Williams et al. 1995 (32)):

In order to avoid the potential complication of pneumothorax caused by needle penetration, it is important to note the landmarks along the surface of the parietal pleura. There is a close connection between the parietal pleura and the inner surface of the thorax.

Superiorly:

- At the apex of the pleural cavity, the pleura diverges from the midline in an upward and outward movement. At this point, there is a small gap between the anterior end of the first rib and the posterior end, approximately 3-4 cm above the anterior end. The superior point of the pleura is located approximately 2.5 cm above the middle third of the clavicle.
- Laterally: The parietal pleura is intimately fused with the thoracic cavity, and it can be traced laterally and inferiorly down the chest wall to the level of the 10th rib in the midaxillary line, which represents its lowest level.

Posteriorly:

- A line connecting the transverse processes of the second to the 12th thoracic vertebrae is a good place to begin looking for the pleura posteriorly and medially. Thereafter, the pleura extends horizontally and laterally, crossing the oblique 12th and 11th ribs and meeting the 10th rib in the midaxillary line.

Anteriorly:

- From the midaxillary line to the midline on the right side, the costodiaphragmatic reflections of the pleura can be traced across the 8th rib and the midclavicular line to the xiphisternum. Continuing superiorly, the pleura extends to the angle of Louis.
- Towards the midline, the costodiaphragmatic reflections of the pleura can be seen crossing the 8th rib in the midclavicular on the left side. However, the left pleura does not reach the midline as it turns superiorly at the anterior end of the 6th rib about three to five centimetres from the midline and ascends

to the level of the 4th costal cartilage where it re-joins the right pleura in the midline and arises to the second costal cartilage. It is designed to accommodate the heart on the left side.

Electrical Stimulation Via Dry Needles:

Dry needle electrotherapy may be applied for the relief of pain, treatment of abnormal muscle tone, or strengthening of muscles.

Suitable equipment and procedure have been recommended:

1. Ensure that you are aware of the contraindications of the electrotherapy device
2. Ensure that only electro DN-specific devices are used.
3. It is important to follow the recommendations provided by the device's manufacturer
4. Use sterile metal-tipped needles that can be used only once. Plastic-handled needles should not be used.
5. Connecting electrical clips to contaminated needle shafts should be avoided.

Contraindications to electrical stimulation via dry needling include:

1. Not comfortable or phobic patients.
1. Needles should not be connected across the spinal cord, including the chest wall, arm to arm, or leg to leg.
2. Patients who have implants such as pacemakers and spinal cord stimulators.
3. In pregnancy, in the area of the mid- or lateral back, pelvis, or abdomen.
4. Around the carotid sinus, the vagus nerve in the anterior triangle of the neck, or along the recurrent laryngeal nerve.
5. In areas of sensory denervation.
6. Epileptic patients should be treated with particular caution.
7. It is important to take particular care when treating patients with bleeding disorders because associated muscle contractions caused by the use of indwelling needles during electrotherapy may result in serious bleeding.

Documentation

- Documentation of treatment and informed consent should be maintained by the clinician.
- A detailed description of the DN treatment should be included in the treatment documentation, as well as the procedure used and the area or muscle treated, if local twitch responses occurred.
- In addition to noting the patient's response to treatment, adverse reactions should also be noted.
- Documentation should include any additional information pertinent to the treatment.

Appendix

Consent for Dry Needling treatment

I.....(full name)

Do hereby give my consent for the performance of dry needling therapy by the physiotherapist named

.....
It is my understanding that the Therapist at the Rehabilitation Department of the Hospital is appropriately qualified and trained to perform the therapy required. I consent to having dry needles applied to the following areas of my body:

.....
As a result of the full explanation of the technique, my concerns and my questions have been addressed to my satisfaction, and I am satisfied with the outcome. In addition to being fully informed of complications and side effects resulting from the use of this technique, I am also aware of any representations or warranties that the hospital or the therapist may make regarding its outcome.

As a general rule, this technique carries very little risk if it is performed properly by an appropriately trained Physiotherapist. It is possible that you will experience bruising around the needle site, as you would with any injection. Rarely, people may feel extremely happy, tearful, sweaty or cold. All of these symptoms will soon disappear. There is a very small percentage of people who experience fainting. The stimulation of a nerve may result in paraesthesia (a prickling sensation), which is usually brief, but may last for several days. These side effects have no lasting effect.

The lungs are at risk if the treatment is administered in the shoulder, neck, or chest area. In the event that the lung itself is punctured, you may develop a condition known as a pneumothorax (in which there is air present in the space around the lung). If this

موافقة العلاج بالوخز بالإبر الجافة

..... أنا
الموقع ادناه افوض أخصائي العلاج الطبيعي

.....
أجاء العلاج بالإبر الجافة في قسم التأهيل الطبي وأنفهم أن الأخصائي مؤهل لإجراء العلاج اللازم وهو جزء من برنامجي التأهيلي العلاجي في المناطق التالية:

.....
وأقر بأنه تم شرح طبيعة الإجراء لي ووافقت عليه وجميع استفساراتي تمت الإجابة عليها، وأنا على إطلاع تام بالمضاعفات والآثار والأعراض الجانبية المترتبة على استخدام هذه التقنية دون تعهد أو ضمان من المستشفى أو الأخصائي فيما يتعلق بالنتيجة أو الشفاء. المضاعفات والآثار والأعراض الجانبية المترتبة على استخدام الإبر:

بشكل عام، هناك أخطار ضئيلة جداً مرتبطة مع هذه التقنية إذا أجريت بشكل صحيح من قبل أخصائي العلاج الطبيعي المدرب. قد يكون لديك القليل من كدمات حول موقع الإبرة (إلى حد كبير نفس التي تكون مع أي حقنة). في حالات نادرة، قد يشعر بعض الناس بسعادة غامرة أو دامعة، والبعض قد يتعرق أو يشعر بالبرد. كل هذه الأعراض تتلاشى بسرعة. قد يحدث إغماء في عينة صغيرة جداً من الناس.

إذا تم لمس العصب بواسطة الإبرة فستشعر بتنميل أو خدار يزول خلال أيام معدودة وليس هناك أي آثار سوء دائمة. إذا كنت تعالج في منطقة الكتف والعنق أو الصدر، هناك مخاطر إضافية تتعلق بالرتة.

إذا تم ثقب الغشاء المحيط بالرتة نفسها، وهذه الحالة تسمى استرواح الصدر (هواء في الفضاء حول الرتة). هذه مشكلة نادرة ولكنها خطيرة، ويجب أن تذهب مباشرة إلى طوارئ المستشفى دون هلع في حال حدوثه. وتشمل أعراض هذا الحدث ضيق في التنفس والتي تسوء، وآلام حادة مفاجئة مع التنفس، ازرقاق شفتيك، وعدم القدرة على " التقاط الانفاس ". العلاج ناجح جداً لهذه المضاعفات النادرة ولكنها ممكنة.



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occurs, you should go directly to a hospital's emergency department without panicking. Shortness of breath that gets worse over time, sudden sharp pains with each breath, bluish tinge to the lips, and an inability to catch one's breath are some of the symptoms of this disease. This rare but possible complication is treated very successfully.

توقيع المريض أو قريبه patient name or relative

.....

.....

التاريخ والوقت date and Time

.....

.....

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