

SOFT TISSUE TECHNIQUES

1. Connective tissue release
2. Corrective frictions (transverse)
3. Soft tissue release (STR)
4. Trigger points- Neuromuscular technique (NMT)
5. Muscle energy technique (MET)

Aim of application

- Remove soft tissue adhesions
 - Inside the muscle – intramuscular, e.g. when fibres stick
 - Between soft tissues, e.g. muscle, fascia, ligaments
 - Between soft tissue and bone
- Address muscle imbalances
- Promote optimal tissue function
- Reduce pain associated with soft tissue dysfunction

1.Connective tissue release

Benefits :

- Ease the performance of other massage movements which cannot be performed due to the tenseness of the tissue
- Very relaxing technique
- Stimulates blood circulation
- Releases congestion

Used at the start of a treatment if tissues are tense and feel congested with poor skin plasticity, usually after palpation has been performed.

Cautions:

- Contra-indications to massage
- Connective tissue disease

Application:

- No lubricant
- Applicator - normally applied through tips and pads of fingers, hands, thumbs.
- A good grip with the skin is essential
- Initial movement:
- Slow, sustained pressure into the skin and subcutaneous layer
 - Stops at the level of muscle
 - Need good tactile skills to know how deep to press
- Move skin over muscle fascia
 - If fascia good → easy movement
 - If not → no smooth movement
- Stroke is applied with constant pressure present
 - Needs to be slow, steady speed
 - Skin should not be allowed to slide under fingers
 - Only initial sensation - touch
 - If tissue does not want to move - apply force
 - Could have burning or scratching sensation as tissue moves over fascia

Methods:

- Skin rolling (skin lifted from underlying fascia, skin fold rolled forward in varying directions, even glide)
- Longitudinal, diagonal or cross-fibre
- Slight downward pressure combined with horizontal drag,
- Fibres elongated beyond point of bind, held until tissue releases
- Client may experience burning/pulling sensation

Connective tissue release is used on any area of the body, especially on the back, upper leg area, between intercostal muscles, around pectoralis muscles (to improve posture and breathing).

2. Corrective frictions

Breaking adhesions, frictions bind the fibres and the movement causes this to happen in exactly the right direction

Benefits :

- Removing soft tissue adhesions
- Breaking down scar tissue and helping realign fibres back into normal form
- Assisting the realignment of muscle fibres
- Increasing healing of the tissues
- Helping to improve movement and function of the tissue
- Reducing pain

Cautions:

- Acute injury
- Fragile skin
- Haemophilia
- Contra-indications to massage

Application:

- Reinforced thumbs or fingers
- Transverse, longitudinal (tendons, muscles)
- Tendons and ligaments on a slight stretch, muscles relaxed
- With or without lubricant
- 30 seconds to ten minutes
- Tissue compression with back and forth movement across fibres
- Contact maintained
- 1-2 cm movement range
- Pressure modified to tolerable pain within comfort threshold

Possible contra-actions: Local tenderness, erythema, inflammation.

3.Soft Tissue Release (STR)

With STR the therapist applies passive pressure and the movement is made functionally: active or passive. It can produce quick and effective results in releasing local areas of severe soft tissue tension. Most often used on muscles, can be used on tendons and ligaments

Cautions:

- Acute injury
- Fragile skin
- Easy bruising
- Hypermobility
- Contra-indications to massage

Application:

- Could be applied through fabric or skin contact
- Lock applied with various applicators - forearm, elbow, fist, palm, grip, reinforced thumbs, tools
- Angle of application and depth of pressure
- Lock applied with muscle in relaxed position
- Limb moved to facilitate a stretch
- Pressure is static and tissue themselves are moved
- Work proximal to distal
- Avoid bony structures, neural plexus
- Passive, active assisted, resisted

Method :

- Start with the muscle relaxed and held in shortened position by moving associated joint
- Deep focused pressure should be applied directly into adhered fibres to fix them in position
- Muscle is then stretched away from this fixed point by moving the joint
- When working on small areas, strongly supported thumb is used
- Working on larger areas - palm usually works better
- Active (when the client actively work the muscle) and resisted movements (when the client contracts opposing muscle while technique is applied) can enhance outcome.

Common mistake: allowing the pressure to move with the tissue as they are stretched which takes away all the effect of movement

STR is not a pure technique based on its own theory but a hybrid that combines several techniques. The points where the pressure is applied are often same as those used in NMT and held only for a few seconds in STR. It still has a good neuromuscular effect and the client still has to relax into the pain. The client has to overcome the instinct to contract the muscles by allowing it to lengthen instead. It also helps the nervous system relax tissue through a range of movement rather than being in one position.

STR can be used as one of the pre-event techniques in sports situations.

Neuromuscular Techniques

When musculoskeletal problems occur, they cause change in tension of tissues. It occurs naturally and is controlled automatically by the nervous system. Usually tension increases around trauma to protect and contain damage. It also builds up in specific areas of tissue that are habitually held in a shortened position.

General massage techniques can ease tension, however, they do not work with long-term conditions to release hyper-tension created through nervous system. For this reason it is necessary to work on neuromuscular level, working on reflex effect, which are based on deep frictions and pressure techniques.

- It understood that in certain situations very deep pressure into a tender spot causes pain at the time and results in relaxation afterwards
- Pain factor releases endorphins which suppress pain and releases tension
- Pressure compresses blood vessels and starves the immediate area of blood
- When pressure is released, blood rushes back in
- Nervous system responds to extreme local changes and causes relaxation

Soft tissue techniques affecting the nervous system are Trigger Points (NMT) and Muscle energy techniques.

4. Trigger Points technique Neuromuscular Technique(NMT) or Ischemic

Compression is a soft tissue manipulation which allows to reduce and/or eliminate Trigger Points and conditions connected with them.

Trigger Points (TPs) are hypersensitive tight spots of soft tissue (muscle, fascia, tendon) which can be found in any skeletal muscle of the body. These palpable nodules, of size about 2-10mm, are located in skeletal muscles' fascia, mainly in the centre of the muscle belly. They could also be described as microscopic areas of stagnation in muscle fibres or micro-cramps.

Trigger points affect not only skeletal muscles but also may have impact on tendons, ligaments, joint capsules, periosteum, skin (scar-associated) and other structures of the body

They occur as a result of:

- Trauma
- Post traumatic tension in soft tissue
- Habitual muscular tightness due to posture, emotion or occupation
- Sedentary life stile
- Irregular exercises
- Over exercising

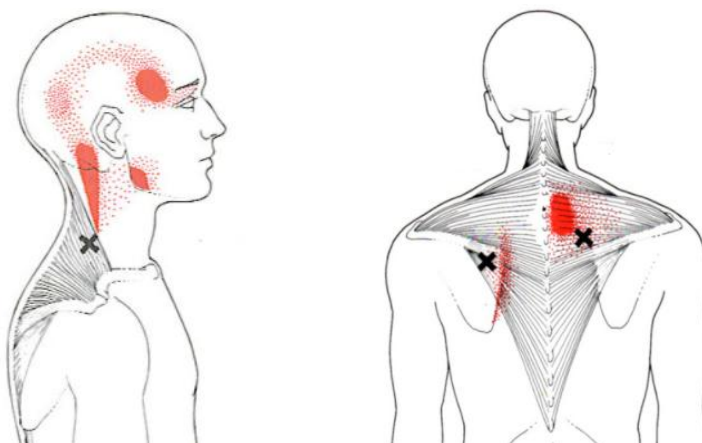
TPs can be **active** (painful) and **latent** (not painful).

TPs can cause:

- Pain and discomfort : dull ache, deep ; pressing pain, "stabbing", burning , referred pain
- Malfunction and debilitation of soft tissue such as weakness, stiffness, accelerated fatigability, etc
- Redaction in range of movement in muscles, including both postural and phasic muscles
- Restricted joint range of motion
- Decrease range of motion of different parts of the body such as lower back, neck, legs, etc
- fear of pain, caused by trigger points can lead to muscle dysfunctions in different parts of the body
- Tension headaches, tension in neck and jaw pain, tinnitus, etc
- Produce a variety of symptoms such as dizziness, sinusits, nausea, numbness, etc
- Contribute to the development of muscle cramps
- Referral pain patterns, etc.

Referred (reflective) pain, is the type of pain which happens at a different location than the site with a Trigger Point, which stimulates this pain. This type of pain is reproducible and does not follow nerve roots, dermatomes or myotomes. There are normally no signs of specific joints or neurological dysfunction.

Referred pain map is a distinct and constant pattern of pain with reproductive symptoms, regardless of gender, age or racial differences.



For example: Referred pain map of upper trapezius muscle trigger points

Trigger Points technique (NMT)

- Identifying the problem to treat: the client might be aware of discomfort or dysfunction in muscle but not the point of pain
- When palpating or treating muscle, the therapist feels an area of tightness and seeks tender spots
- When deep pressure is focused on a point it causes pain, local twitching of soft tissue
- Makes client aware that problem area has been found, that pain might stimulate the recovery process.
- Client should be encouraged to relax into pain and not tense up, to breathe deeply to assist relaxation

Cautions:

- Acute injury
- Fragile skin
- Easy bruising
- Haemophilia
- Contra-indications to massage

Application:

- Reinforced thumb/fingers, elbow, tool
- Palpation to locate TP, referred pain patterns, latent, active
- Apply gradual increasing pressure
- Tolerable pain level
- Maintain pressure until discomfort eases (up to 90 seconds)
- Digital compression
- Pinching pressure or repeated deep compressions
- Avoid neural plexus
- Stretches following treatment to maximise effect

Method:

- While massaging, find a spot of harder and denser tissue
- Work on the area with general techniques first to warm and soften tissue
- Explore area with palpation to find problem area
- Throughout ask the client to rate the pain felt on scale of 1 – 10
- Once pain area has been found, increase pressure slowly until just inside client's pain tolerance
- If pressure is increased too quickly, reflex tightening will occur
- If tightening of tissue starts, release pressure
- Pressure is applied for up to 90 seconds
- Help the client deal with pain by a better distribution of pressure and more control
- Speak calmly and be supportive to the client
- Ask the client 3 – 4 times whether the pain is reducing
- Types of movements to use : static, vibration, friction
- Stretch, massage the affected area
- Take several sessions to resolve the problem

Contra-actions::- bruising, tenderness.

5. Muscle Energy Techniques (MET)

MET is a direct and active technique in which the patient is also an active participant.

The main principle of MET is **Post Isometric Relaxation (PIR)**. It is the effect when after a brief period of isometric contraction of a single or a group of muscles, the muscle tone in them decreases and they elongate. PIR based on **Autogenic inhibition** reflex is a sudden relaxation of muscle upon the development of high tension

Benefits

- Reducing pain, discomfort
- Elongating tight muscles
- Releasing tension in muscles and soft tissue
- Mobilising joint restrictions
- Improve strength of the weak muscles
- Improve local circulation

Cautions:

- Fractures
- Avulsion injuries (fracture occurs when a small chunk of bone attached to a tendon or ligament gets pulled away from the main part of the bone (such as hip, elbow and ankle) The most common in the young athlete.)
- Osteoporosis
- Skeletal instability
- Hypermobility
- Pain, discomfort
- Mental incapacity to follow instructions

Post isometric relaxation or Proprioceptive Neuromuscular Facilitation (PNF)

This technique affects directly the muscle (group of muscles) to which the technique is applied. E.g. the patient is instructed to move away from the restrictive barrier

Application of post isometric relaxation (PNF)

- Target muscle lengthened just to the first muscular barrier
- Agonist isometrically contracted against therapist resistance
- 20-30% contraction
- 7-12 second hold
- Contraction relaxed
- Client inhales/exhales
- Target muscle lengthened to new position with exhalation
- 3 to 4 repetitions
- Final position held for 20-30 seconds
- Performed on relevant muscle groups

Reciprocal inhibition (RI)

This technique affects the antagonist muscle, when the agonist muscle contracts. E.g. the patient is instructed to move toward the restrictive barrier.

Natural reciprocal inhibition is a general phenomenon in which the stretch of one muscle (antagonist) inhibits the activity of the opposing (agonist) muscle. It prevents muscles from working against each other when external loads occur.

Application of RI

- Target muscle lengthened just to the first restrictive muscular barrier
- Antagonist isometrically contracted against therapist resistance
- 20-30% contraction
- 7-12 second hold
- Contraction relaxed
- Client inhales/exhales
- Target muscle lengthened to new position with exhalation
- 3 to 4 repetitions
- Final position held for 20-30 seconds

Usually used during the sports massage treatment or afterwards, when muscles are warmed up.