

KINESIOTAPING

Presented by:
Prof.dr.Mahmoud Ewida

⦿ In 1973 Kinesio Tape® was developed by the Japanese Chiropractor dr. Kenzo Kase and produced by the Nitto Denko Company.

⦿ In 1998 Kinesio Tape was introduced to the Netherlands by Fysiotape BV and in 2001 Curetape® was developed and the Medical Taping Concept implemented.



CHARACTERISTICS OF THIS TAPE ARE:

- ❖ Made of cotton with fibers allowing for increased airflow and evaporation. Hypoallergenic.
- ❖ Unidirectional elasticity with 140% longitudinal stretch, similar to skin.
- ❖ Heat activated, water resistant
- ❖ Other names; Spider Tech Taping, Elastic Therapeutic Taping, MyoFascial Taping, Elastic Rehabilitative Taping, KT Kinesiology Tape, Neuro Muscular Taping and Neurostructural Taping.

CHARACTERISTICS OF TAPING TECHNIQUE:

- ◉ Allows range of motion and does not restrict like conventional athletic tape
- ◉ Elastic properties support and reduce muscle fatigue
- ◉ Facilitated myofascial release and improves lymphatic flow - in turn reducing pain and swelling
- ◉ Can be worn for several days (3-5) without re-application

WHAT IS THE SCIENCE BEHIND IT?

- ❖ Kinesiology: Knowledge of muscle movement, force vectors and the relationship to the rest of the body systems.
- ❖ Biomechanics: Providing support to a joint that through gentle compression allows the joint to move through full AROM. Enabling movement to heal.
- ❖ Neurosensory:
 - ❖ Neurophysiology of Pain
 - ❖ Nociception
 - ❖ Neuromuscular Plasticity

APPLICATION AND CLINICAL REASONING:

- ◉ Evidence approach taking into account structural and neural influence of the tape on the body.
- ◉ Application techniques are based on clinical objectives:
 - Neurosensory:
 - Pain modulation, nociception, neuroplasticity
 - Structural: Support an unstable joint, Postural Support
 - Microcirculatory:
 - Accessing the lymphatic system

WHY USE KT TAPING APPROACH?

- ❖ Decrease pain
- ❖ Decrease nociceptive influence of the CNS: based on theory of sensory gating.
- ❖ Restore muscle activation and normalization of muscle tone.
- ❖ Restore and improve range of motion.
- ❖ Promote a faster rate of healing.

(Jardine, 2012)

WHAT TYPES OF THEORIES EXIST ABOUT KINESIOLOGY TAPE?

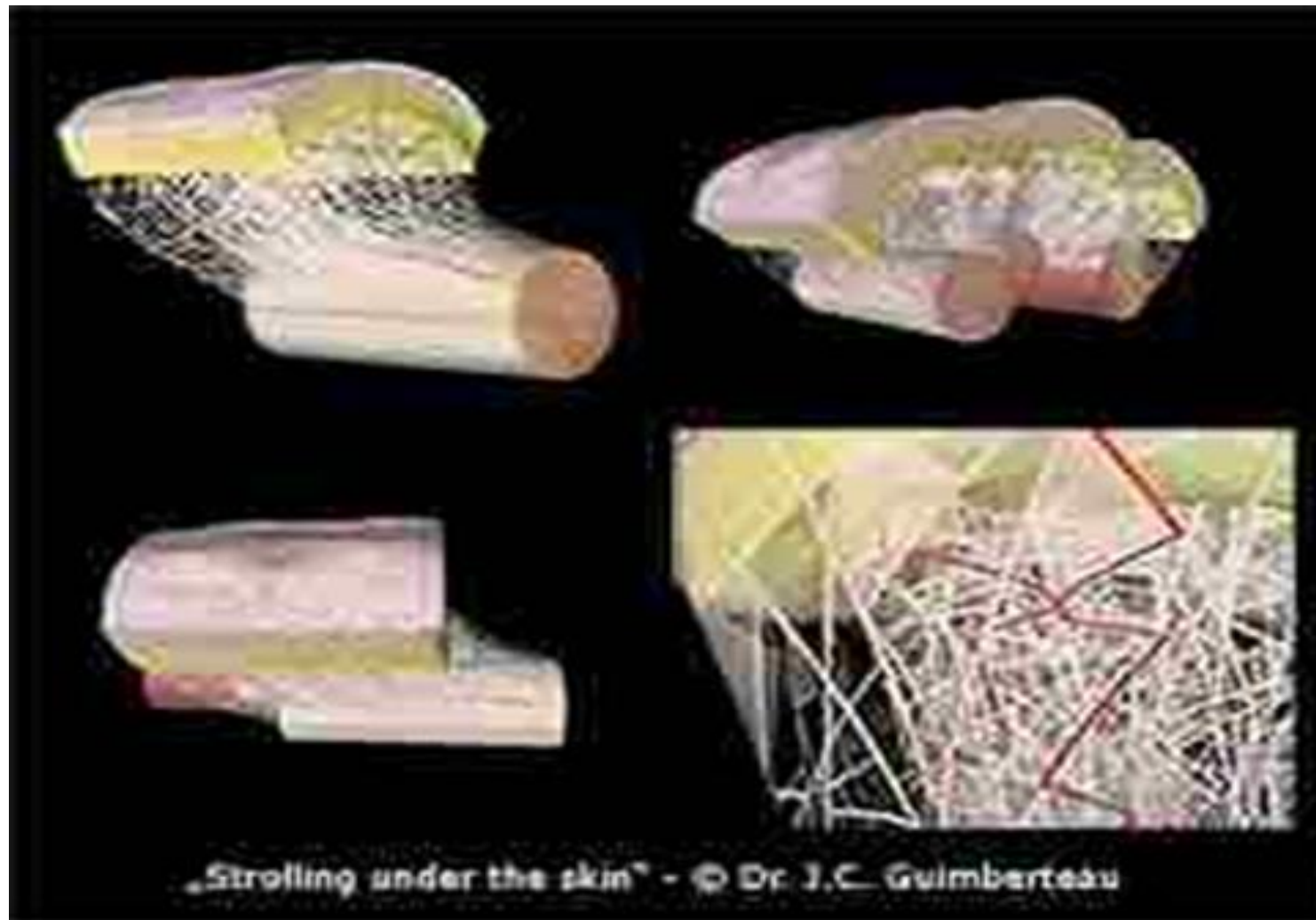
- ◉ I. Original Model: Convolutions, Skin Lifting, Proprioception, Origin-Insertion direction.
- ◉ II. Fascia Models
 - A. Fascia
 - B. Anatomy trains
- III. Skin (brain) model
 - A. Dermatomes/segmental taping
 - B. Entrapment cutaneous nerves
- IV. Energy Model
 - Meridians and acupuncture points

(deRu Ba, 2012)

- **Convolutions: skin-lifting properties**
- skin: elongation and tension
(mechanoreceptors through fascia)
- **Muscle inhibition and muscle facilitation effects (depending on tape direction)**
- Joint receptors/proprioception



◎ I. Fascia model

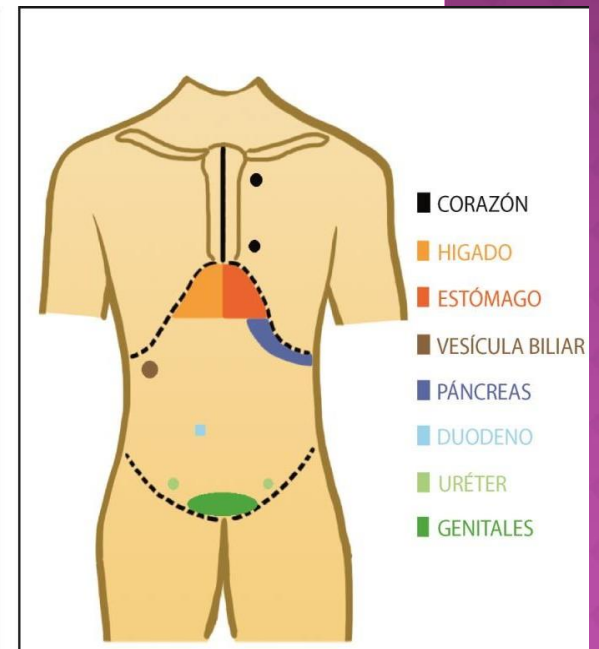
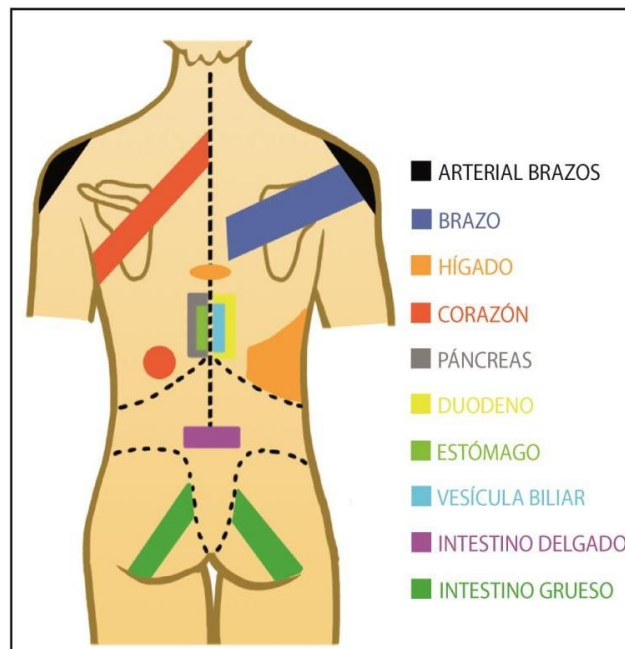
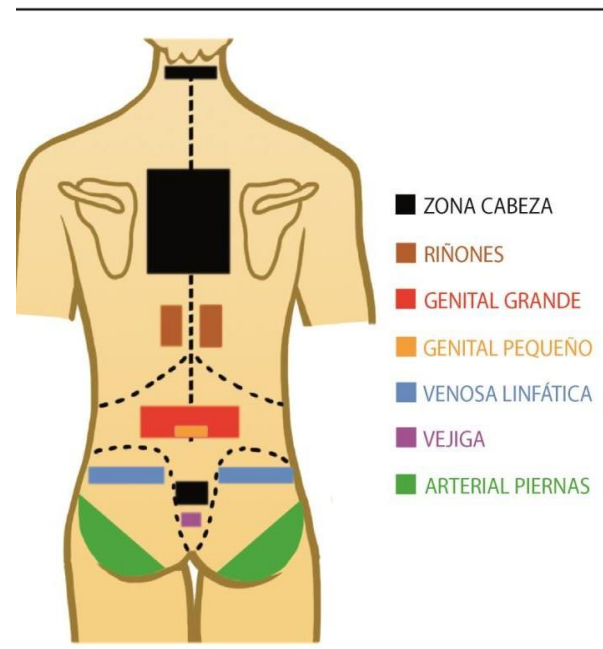


◉ II. Skin model

◉ DermoNeuroModulation (DNM)

Dermatomes/segmental taping

◉ Organzones (skin technique)

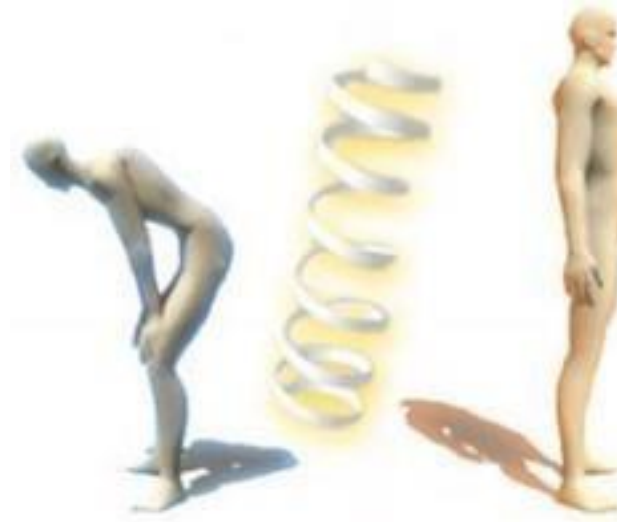
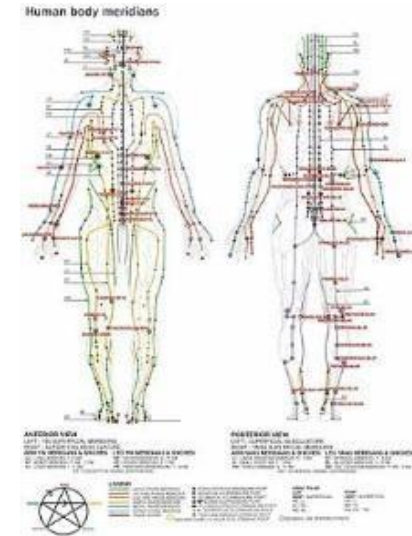


◉ III. Energy Model

◉ Meridians & acupuncture

points Chi – Spiral Taping

◉ Chakra Taping



◎ **IV Combination Model**

1. Combination of both rigid and elastic therapeutic

◎taping techniques.

2. Using ET-tape as if it were rigid tape.

3. Using compressive and de-compressive techniques taping McConnell technique using elastic tape (fascia model).

4. Bony technique EasyTaping (original model).

PHYSIOLOGICAL EFFECTS OF KINESIO TAPING

- ⦿ Kinesio taping is a taping technique based on the body's own natural healing process.
- ⦿ It gives support and stability to a person's joints and muscles without affecting or reducing circulation and range of motion.

PHYSIOLOGICAL EFFECTS OF KINESIO TAPING

- ◉ Using the elastic tape helps muscles and other tissues by outside assistance, still allowing the bio-mechanics of the human body.
- ◉ Kinesio taping shows its effectiveness through the activation of neurological and circulatory systems, lifting the skin and providing support for surrounding soft tissue. This method stems from the science of Kinesiology, hence the name "Kinesio."

SKIN	<ul style="list-style-type: none"> • REDUCES PAIN BY ALLEVIATING PRESSURE ON THE NEURAL & SENSORY RECEPTORS • REDUCES SWELLING BY INCREASING FLUID MOVEMENT.
CIRCULATORY	<ul style="list-style-type: none"> • CAN SPEED LYMPHATIC DRAINAGE & FLOW BY INCREASING THE AMOUNT OF SPACE BENEATH THE SKIN.
FASCIA	<ul style="list-style-type: none"> • BY TAPING THE SKIN IT CAN EFFECT THE DEEPEST LAYER OF FASCIA
MUSCLE	<ul style="list-style-type: none"> • TAPE CAN RELIEVE MUSCLE PAIN, INCREASE ROM ,NORMALIZE LENGTH/TENSION RATIO TO CREATE OPTIMAL FORCE ,ASSIST WITH TISSUE RECOVERY & REDUCE FATIGUE.
JOINT	<ul style="list-style-type: none"> • TAPE CAN IMPROVE JOINT, ALIGNMENT & BIOMECHANICS. • FACILITATE LIGAMENT & TENDON FUNCTION.

HOW KINESIO WORKS

- Kinesio Taping alleviates pain and facilitates lymphatic drainage by microscopically lifting the skin.
- The taped portion forms convolutions in the skin, thus increasing interstitial space. The result is that pressure and irritation are taken off the neural and sensory receptors, alleviating pain.
- Pressure is gradually taken off the lymphatic system, allowing it to drain more freely.

HOW KINESIO WORKS



- Over a contusion, Kinesio® Tex Tape demonstrates the ability to increase circulation and facilitate lymphatic flow. These results are seen within 12 hours of application. Fan-shaped Kinesio® Tex Tape was placed directly over the bruise.

This patient suffered a severe hamstring strain (tear), which caused the bruising. She recovered from her pain using a combination of Kinesio Taping and Graston Technique.



Oct 24th



Nov 2nd



HARMONY
CHIROPRACTIC
CENTER, INC.



Nov 5th

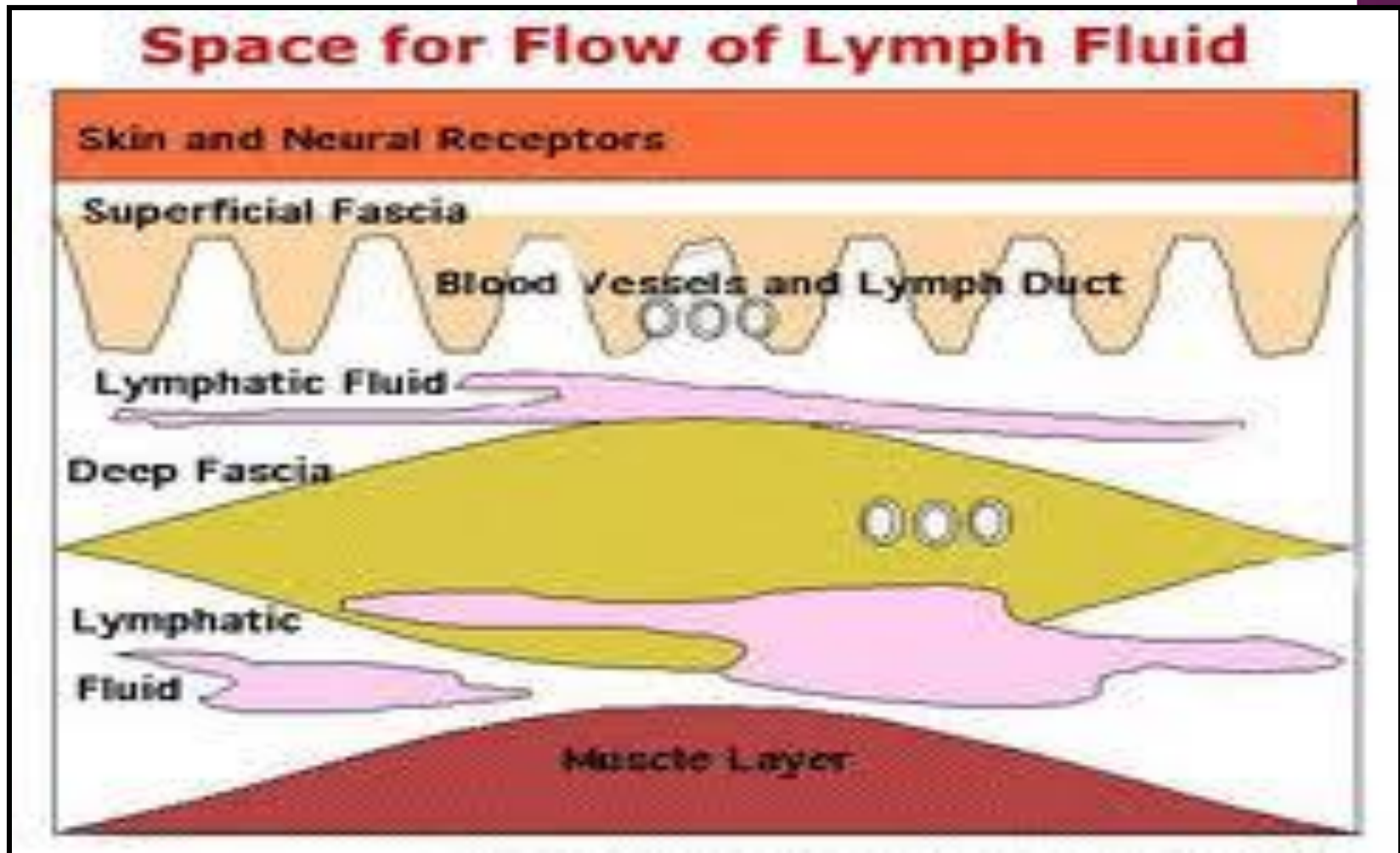


Oct 29th



Nov 12th

HOW KINESIO WORKS



TYPES OF TAPING TECHNIQUE:

1. kinesio taping for support.

- ◉ It helps in treating **chronic conditions** including weak muscles
- ◉ The tape is applied from the origin of the muscle down to the insertion.

TYPES OF TAPING TECHNIQUE:

2. kinesio taping for acute rehabilitation

It helps in treating overused, over contracted muscles, acute inflammation and pain.

The tape is applied from the insertion of the muscle to the origin.

USES OF KINESIO TAPING

- ◉ Reduce pain and inflammation through neurological suppression.
- ◉ Relax overused or tired muscles
- ◉ Support muscles in movement.
- ◉ Correcting muscle function by strengthening (facilitating) weakened muscles.
- ◉ Improving circulation of blood and lymph by eliminating tissue fluid or bleeding beneath the skin by moving the muscle.

USES SUMMARY

- ⊙ Kinesio tape is used for anything from headaches to foot problems and everything in between. Examples include muscular facilitation or
- ⊙ inhibition in pediatric patients, carpal tunnel syndrome, lower back strain or pain, knee and shoulder conditions,
- ⊙ hamstring problems, groin injury, rotator cuff injury, whiplash, tennis elbow, plantar fasciitis, patellar tracking, pre- and post-surgical edema,
- ⊙ ankle sprains, athletic preventative injury method and pinched nerves.

KINESIO TAPE PROCEDURES:

- ⊙ The technique uses a special adhesive cotton tape applied to stretched skin.
- ⊙ The practitioner initially evaluates the patient's condition and determines which muscles are involved and initiate the treatment to the muscle involved by specific corrective application.

THERE ARE 6 CURRENT CORRECTION APPLICATION TECHNIQUES;

1. Mechanical.
2. Fascia.
3. Space.
4. ligament/ tendon.
5. Functional.
6. lymphatic.

MECHANICAL CORRECTION:

- ◉ It provides positional stimulation through the skin.
- ◉ Two techniques are used:
 - ◉ 1) Using the base of the Y to provide tension.
 - ◉ 2) Using the tails of the Y to provide tension.
- ◉ Mechanical correction generally uses moderate to severe tension, 50- 75% of available tension.

MECHANICAL CORRECTION



Neck pain



brachial

2- FASCIA CORRECTION:

- ◉ It gathers fascia tissue in order to align the tissue in the desired position.
- ◉ Two techniques are used:
 - ◉ 1) Manual technique to position fascia with tape used to hold.
 - ◉ 2) Tension is created by “Jiggling” the tape and creating movement of the fascia.
- ◉ Fascia correction generally uses light to moderate tension, 25- 50% of available tension.

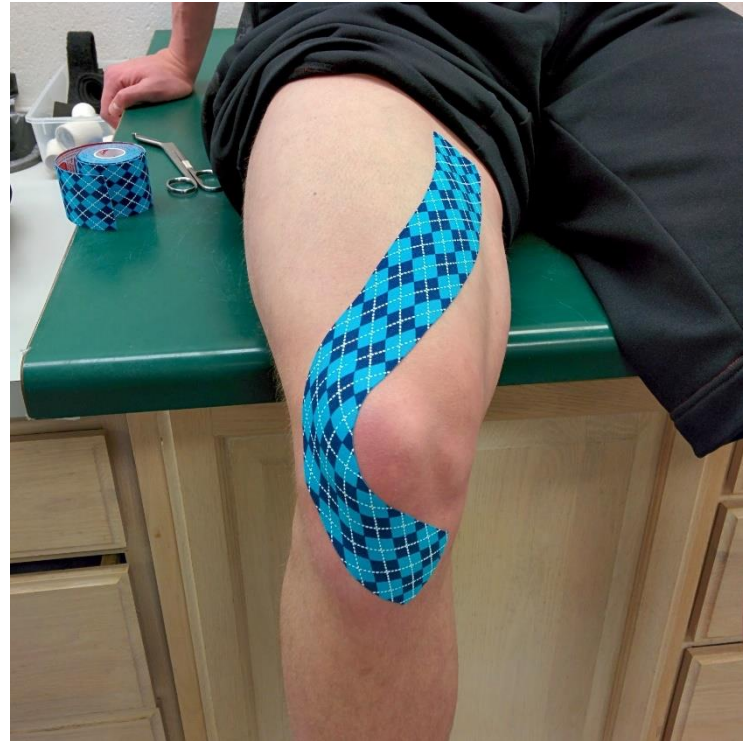
FASCIA CORRECTION



3- SPACE CORRECTION:

- ◉ It creates more space directly above the area of pain, inflammation, swelling or edema. The increased space is believed to reduce pressure by lifting the skin.
- ◉ Three steps technique are used:
- ◉ 1) Manual technique to gather tissue into desired position.
- ◉ 2) Utilize fascia technique of “Jiggling”.
- ◉ 3) Use the tape to pull and hold connective tissue in desired area
- ◉ Space correction generally uses light to moderate tension, 25- 50% of available tension.

SPACE CORRECTION



4- LIGAMENT/TENDON CORRECTION:

- ◉ It creates increased stimuli over the area of ligaments or tendon. It increases stimulation of the mechanoreceptors.
- ◉ Ligament/ Tendon correction generally uses moderate to severe tension, 50-75% of available tension.
- ◉ The physical therapist may apply full, 100% of available tension.

Ankle Sprain



1. Invert and plantar-flex foot. Anchor edema tape above ankle and run strips to ball of foot with little to no stretch.



2. Anchor above ankle and wrap tape to create a weave pattern with first edema application.

5- FUNCTIONAL CORRECTION:

- It is used when the therapist desires a sensory stimulation to either assist or limit a motion. Functional correction generally uses moderate to full, 50-100 % of available tension during active movement.

FUNCTIONAL SUPPORT



6- LYMPHATIC CORRECTION:

- ◉ It used to assist in the removal of edema by directing the exudates towards a lymph duct.
- ◉ Creating areas of decreased pressure under the Tape and acting as channels to direct the exudates to the nearest lymph duct.
- ◉ The Tape is applied with the base near the lymph node , and applied in a fan like pattern. Lymphatic correction generally uses no to very light, 0-15 % of available tension during .

Swollen ankles



1. Place foot in 90° angle. Cut 2 pieces of tape, 6-8" long. Cut tape vertically, 3-4" from end to create "fans". Anchor tape at mid-shin, apply over area of swelling. No stretch.

2. **Optional.** Apply more "fans" to increase fluid removal.



LYMPHATIC DRIANAGE

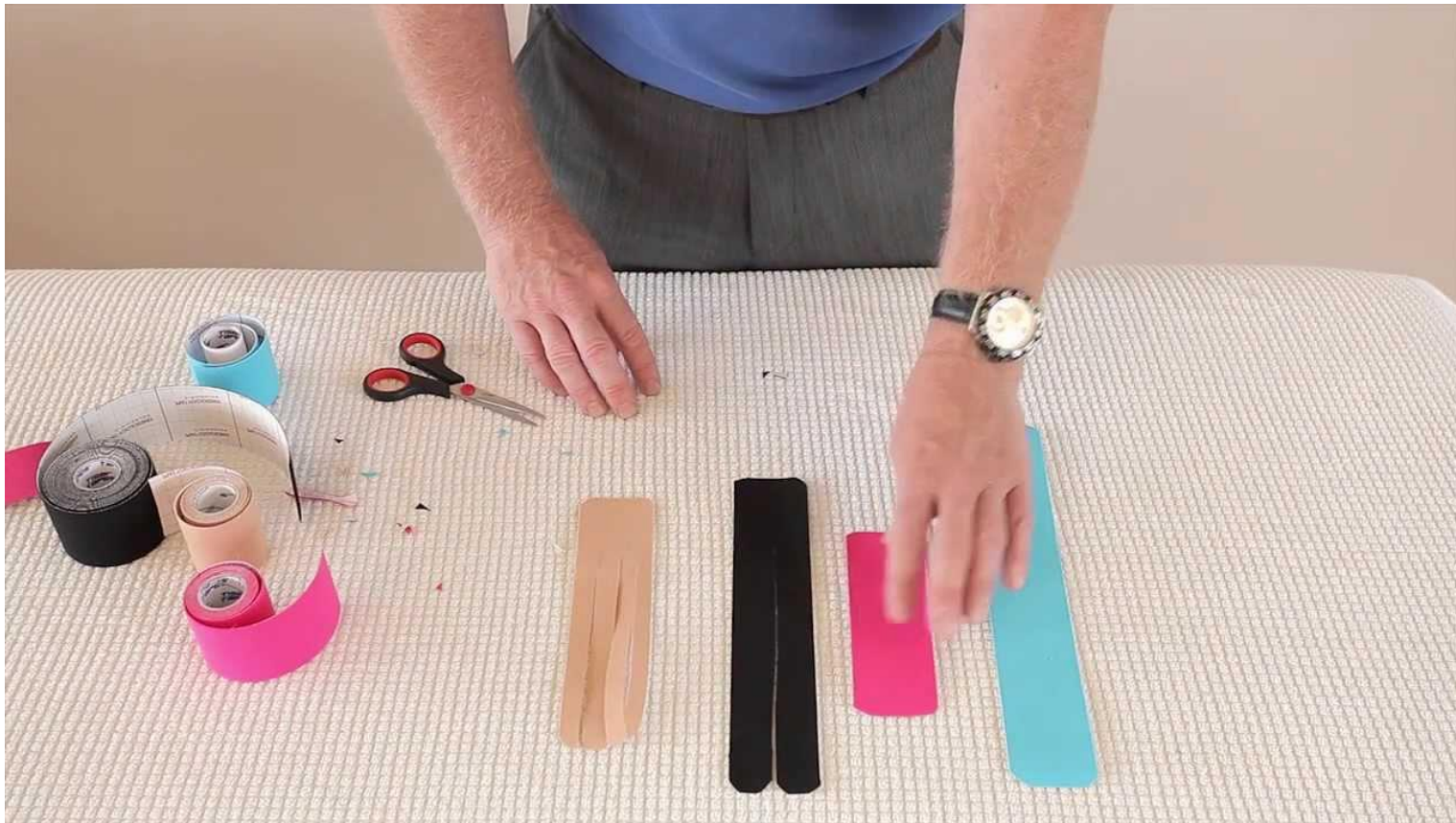


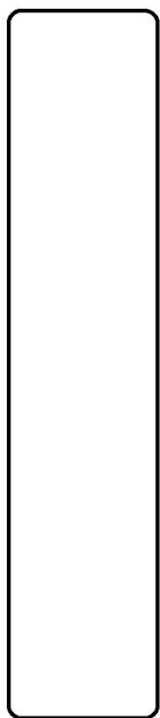


◎ Motion Tracking on Elbow Tissue from Ultrasonic Image Sequence for Patients with Lateral Epicondylitis

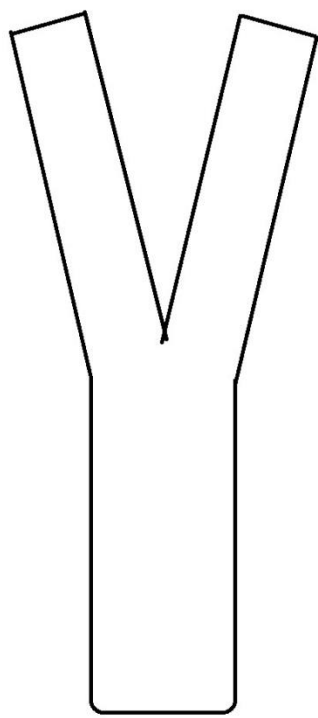
◎ The experimental results show that Kinesio Taping makes the motion of muscle on the ultrasonic images enlarge. It means that the performance of muscle motion gets improve.

HOW TO APPLY ??

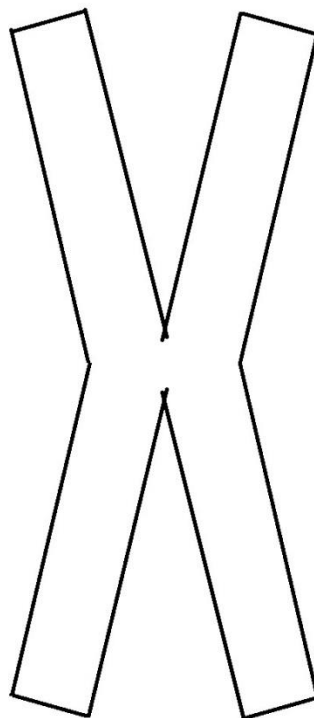




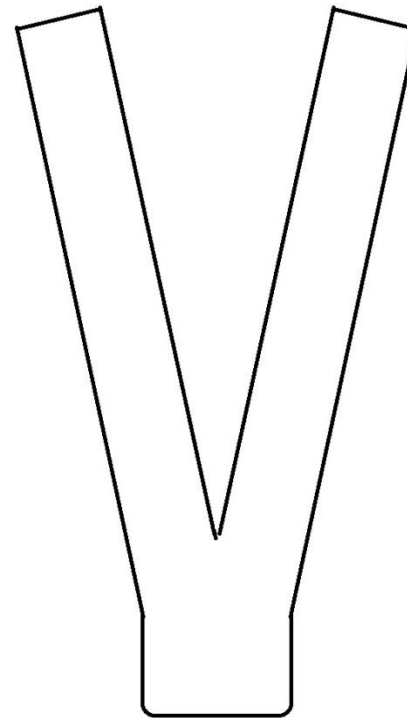
I - Shape



Y - Shape



X - Shape

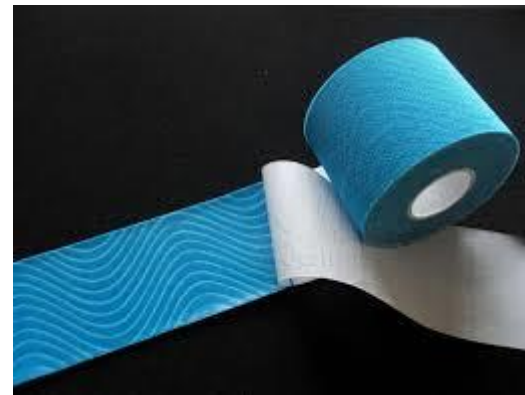


V - Shape

- Cotton with hypo-allergenic acrylic adhesive,
- Tape can be stretched to 30%-40% of its own length. Tape
 - ◉ stretches lengthwise only
- Permeable for air and water
- Water-resistant
- No chemicals or drugs added
- Heat activated glue
- Does not restrict ROM
- Worn for several 4-5 days
- Tape can be applied only once

- Do not touch the glue during application.

- The glue will not adhere properly once it has been touched.



- The tape is easy to handle if the paper is torn and the paper folded back first.

STRETCH USED ACCORDING TO ORIGINAL METHOD

- ◉ Muscle or lymph
- ◉ 0- 10%
- ◉ Ligament
- ◉ 100%
- ◉ Joint correction
- ◉ 50-100%
- ◉ Creating “Space”
- ◉ 100%
- ◉ Fascia “correction”
- ◉ 25-100%
- ◉ **NO research on this topic to be found**

◉ Stretching 'rules'

- Taping around **joint** always stretch skin allowing for complete ROM
- **Do not stretch the tape in** patients with neurological disorders, young children & patients with very sensitive skins
- Stretch **direction**
can initiate
movement in a given
direction (Fukui)



- ◉ *Young & elderly patient: less tape
- ◉ Neurological patients less tape
- ◉ Healthy 'normal' subjects: injury/pain more tape
- ◉ Athletes: more tape: depends on problem & goal:
- ◉ sometimes a lot more tape is needed



⊙ Several tests:

1. Which colour do you like most?
2. Place piece of tape in patient hand
 - Discomfort
 - Light or heavy
 - Colour cause irritation, discomfort
- ⊙ 3. Standard test (O-ring test)

INDICATIONES

- ⊙ Muscle & tendon disorders
 - ⊙ Nerve entrapment (deep and superficial)
 - ⊙ Orthopaedic disorders
- Neurological disorders
- ⊙ Blood / lymph flow problems
 - ⊙ Breathing problems Pain
 - ⊙ Injuries (sports)

CONTRAINDICATIONES

- ⌘ Skins problems & sunburn
- ⌘ Swelling without detailed knowledge of history
- ⌘ **Open wounds**, severe trauma
- ⌘ **T1-4 area**
- ⌘ DVT (Deep Vein Thrombosis)
- ⌘ Kidney problems, such as Renal Insufficiency
- ⌘ Congestive Heart Failure
- ⌘ Infection (bacterial)
- ⌘ Cancer (metastasen)
- ⌘ Allergic reaction to test tape strip or after longer use
- ⌘ No results after 2 or 3 applications

CONT.

- During pregnancy: segmental influence
- Certain parts of the stomach & the groin throat and the axilla area.
- Patients with epilepsy (position patient taping lights may trigger epileptic fit)

- Apply 1cm² - 5cm² start treatment session, check reaction during session
- Remove after 2 days and check skin on day 3



- ◉ Ensure that the skin is clean, fat free and hair free.
- ◉ **If uncertain: clean skin with water and soap**
- ◉ Use a trimmer as shaving can damage the skin.
- ◉ In case of skin blemishes, cover these up with gauze before applying tape.
- ◉ In case of infectious areas use an antiseptic spray or Teatree oil to:
 - prevent skin irritation
 - ▣ protect skin against body fluids (hygiene)
 - ▣ improve adhesion

- ◉ Demonstrate application to show patients how strong the adhesive is.

- ◉ How to remove tape:

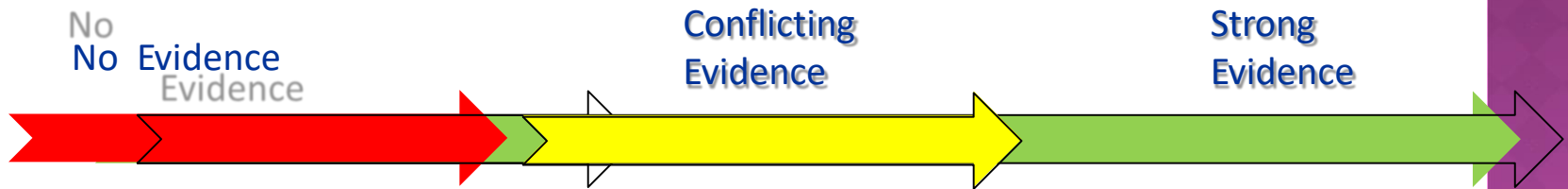
- 1. pull tape parallel on itself
- 2. 'scratch' it off
- 3. use water or oil and soak



EVIDENCE BASED PRACTICE

Before applying tape and integrating into therapy:

1. Search for best evidence and use clinical reasoning to find best tape application.
2. Define tape goal.
3. Assess: test, apply tape and repeat test.



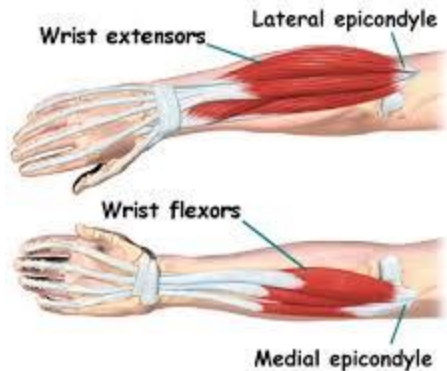
Evidence meter

1. Determine direction of recoil tape
2. Apply base using 0% stretch
3. Does skin need to be stretched? **YES**
4. Bring joint into most stretched position
5. Apply tape using 0-15%* stretch
6. Apply anchor using 0% stretch in rest position
7. Rub tape for optimal adhesion

- ◉ **Action:**

- ◉ flexes elbow

- ◉ Origin: upper 2/3 of lateral supra-condylar ridge and lat. intermuscular septum Insertion: lateral side radius above styloid process



©MMG 2000



- ◉ **Action:**

- ◉ Extends and abducts wrist

- ◉ Origin: lateral epicondyle via common extensor tendon

- ◉ Insertion: base of 3rd metacarpal (posterior surface)



GASTROCNEMIUS & SOLEUS



PERONEUS LONGUS & BREVIS



TIBIALIS ANTERIOR



- ◉ Clinic:
- ◉ Ligament technique
 - Applications for haematomas & contusions
 - Specific applications: Barbapapa, star (space technique), TA- tape
 - Specific applications for both healing scars and hypotrophic
- ◉ scars & adhesions
- ◉ Lymph technique

1. Determine if skin needs to be stretched
2. Tear and fold back paper on both sides
3. Apply mid section tape. Stretch tape 0-10%*
(*in some case more stretch is used)
4. Apply both anchors without stretching the tape
5. Rub tape for optimal adhesion

TAPE ON LIGAMENT



FRACTURES & CONTUSIONS



GRID & BASKET-WEAVE OR WEB APPLICATION





SPACE TECHNIQUE (STAR)



TRANSVERSE ARCH TA-APPLICATION



- ⦿ According to Dr Tae Hwan Park plastic surgeon 'this taping method can help reduce scar widening. As a laceration occurs, tension is present making wounds dehiscence (split open).
- ⦿ **As tension is always perpendicular to the scar directions, you should apply tape in the direction perpendicular to the scar.**
- ⦿ He advises to start taping about 1-2 weeks after healing of the acute wound.

⊙ The two most important factors controlling the risk of

wound dehiscence (Wound **dehiscence** is a surgical complication in which a wound ruptures along a surgical incision) are:

- **The patient's health status** - risk higher in patients weak immune system, malnutrition or chronic medical illness.
 - **The surgical procedure** - the risk of dehiscence increases with over-tightening of sutures, poor suturing technique, inappropriate surgery site or suturing material.
- ⊙ **Other factors** - the risk is greater smoking, obesity, premature post-surgery exercise, heavy lifting, recurrent vomiting, coughing, constipation.

TAPING GOALS;

- ⦿ stretch or strain tissue (muscle technique)
- ⦿ apply pressure on tissue (ligament technique)



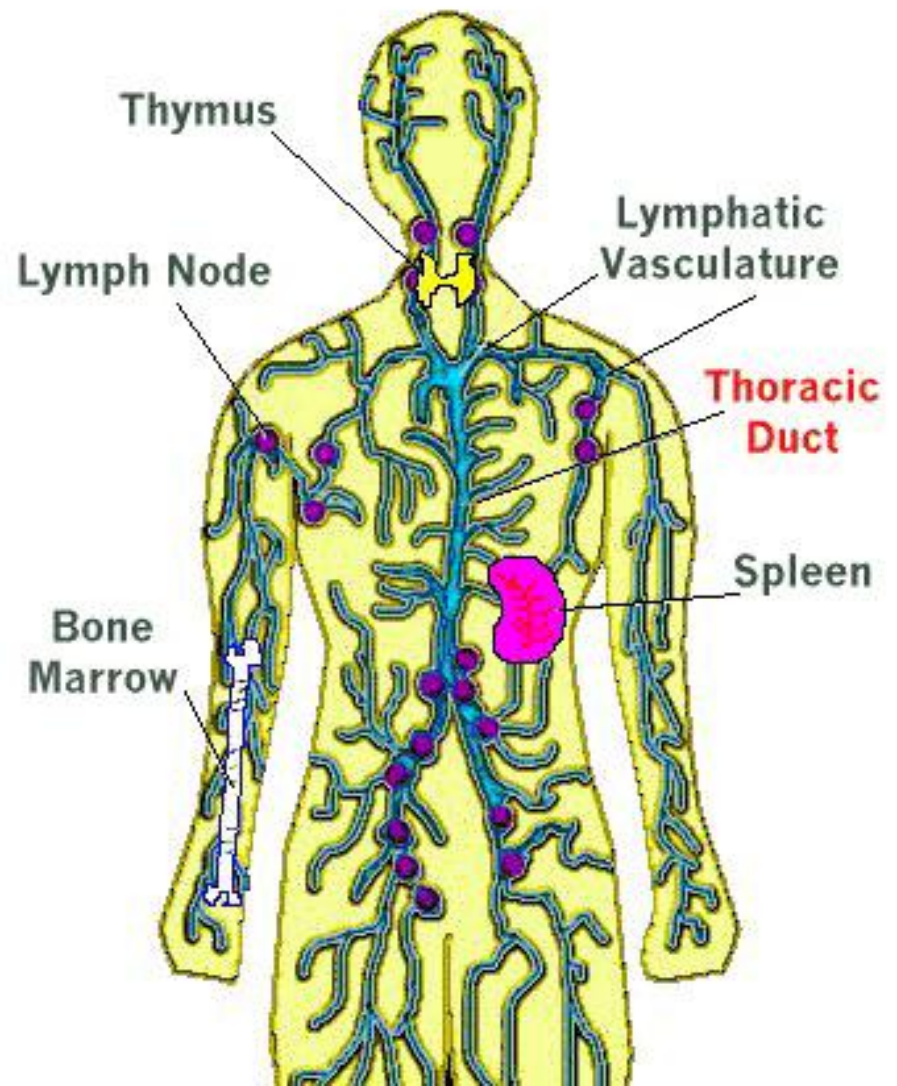
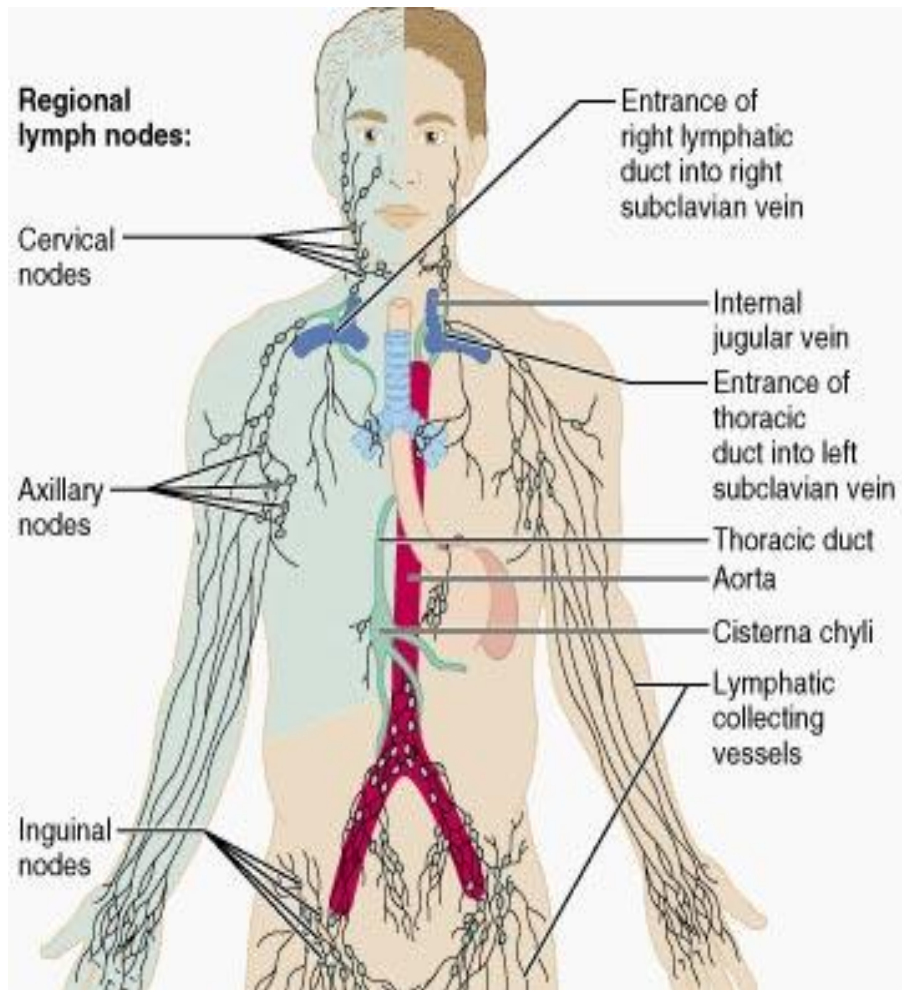
CLINIC: LYMPH TAPE

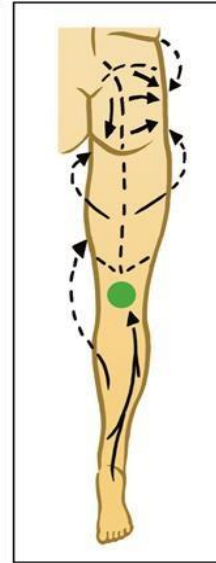
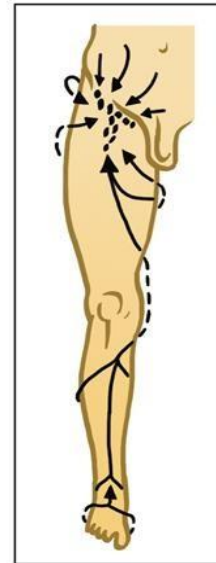
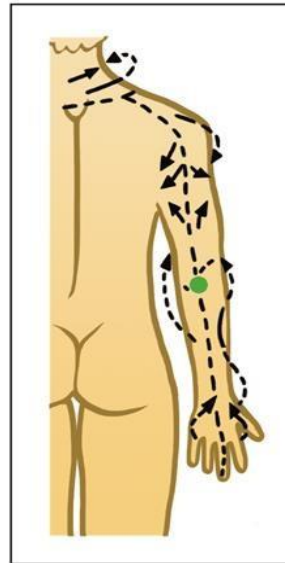
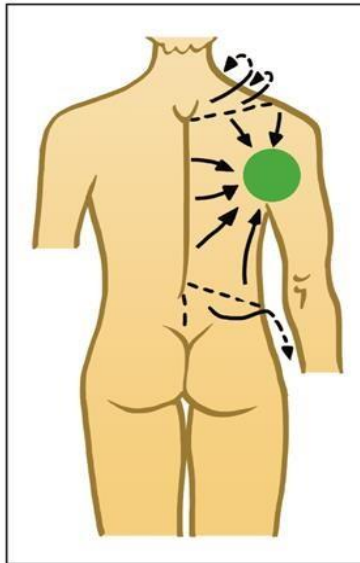
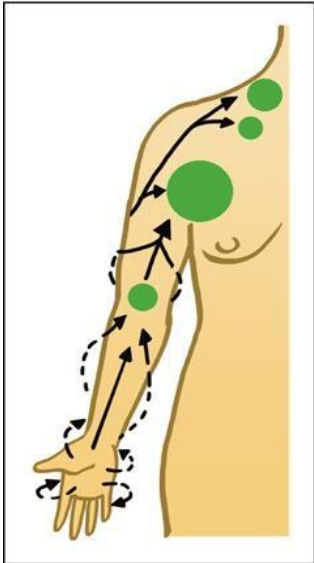
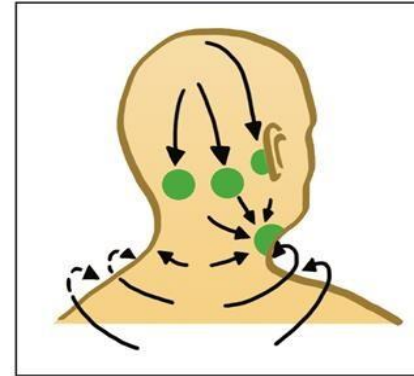
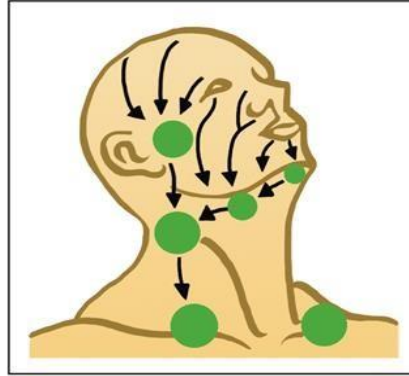
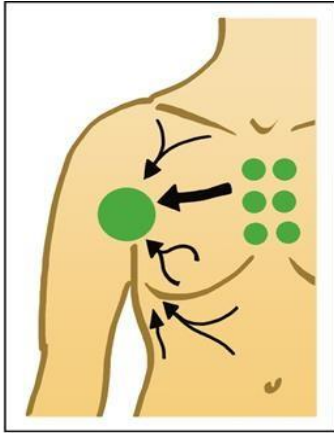
- ⦿ Anatomy lymph pathways Oedema and lymphoedema Tape application:
- ⦿ the skin stimulus has to be extremely light
- ⦿ Lymph application use:
- ⦿ **0% to 10% maximum** stretch.

- Lymphatic system represents an accessory route by which
 - ◉ fluid can flow from the interstitial spaces into the blood.
- Most important, the lymphatic can carry proteins and large particulate matter away from the tissue spaces, neither of which can be removed by absorption directly into the blood capillaries.
- (Guyton & Hall, Textbook of Medical Physiology 10th edition)

- Lymph capillaries drain excess fluid from interstitial spaces
- Thoracic duct drains lower body & left side of head, left arm, part of chest
- Right lymph duct drains right side of head, neck, right arm and part of chest
- System consists of: capillaries, pre-collectors, collectors, trunks & lymph nodes

THORACIC DUCT





- Inflammatory oedema is one of the body's most immediate reaction to trauma or injury to tissues. **Oedema is the abnormal pooling of fluid in tissues and can occur locally or throughout the whole body.**
- Not all swelling is LE; some oedema is caused by an underlying medical condition.
- Infections can be a complication of both oedema and lymphoedema. The oedema may be caused by infection whereas in LE infections are a direct complication of the condition itself.

- One **hypothesis** is that the compression and decompression caused by the strips of tape crossing many
 - ◉ lymphatic capillaries and pre-collectors is the main reason
 - ◉ that the lymph flow is activated.
- Another **hypothesis** is that stretched skin always endeavours to return to its original size and shape. The tape stops this happening and skin and tape form convolutions. These could possibly be the reason that the lumen is opened through the anchoring filaments resulting in more lymph flow.
- Nodules cannot be activated by the tape. Tape is still sometimes led to the nodule to make the reabsorption area as large as possible. Variation in pressure is essential for a good lymph flow. (manual ETTPed)

- ⦿ Acute infection Cardiac Edema
- ⦿ Renal failure / edema Acute vein problems Acute arterial problems Acute skin disorders

EXAMPLES TAPES LE



EXAMPLES TAPES UE



EXAMPLES TAPE TRUNK



LATERAL ANKLE SPRAIN

SWOLLEN FEET

BEDRIDDEN

PATIENT



CIRCULAR TAPING CAN BE
STANDARDIZED (TAPE SIZE & TAPE
FREE AREA) AND IS NOW FAVOURED.



INTERNAL & EXTERNAL OBLIQUES



DIAPHRAGM

Abdominals - Diaphragm Support



LEVATOR SCAPULAE



QUADRICEPS APPL.



HAMSTRINGS



TIBIALIS POSTERIOR



SUPRASPINATUS





TRAPEZIUS MUSCLE



SUPINATOR

