

MTC 1 Basic course Medical Taping Concept













- Selling, marketing and distributing therapeutic medical tapes (innovative concepts).
- Core focus market: Middle East region
- Different nationalities within the company
- Company based in Cyprus (EU) and The Netherlands
- Technical and commercial department.
- Network of local/country distributors.
- Main target group: professionals related to the Health industry (physiotherapists, nurses, doctors, sports physician, physiatrist)

Introduction Instructor Team

Ahmad Musabeh Amal Al-Shareef Esther de Ru Harry Pijnappel Jochem van der Hoeven Lilian Akiki Maher Al Farhan Mahmoud Saad **Omar Al-Tamimi** Saif Said Al-Riyami Semir Bakija Dr. Wael Shendy Yousef Al Bukhari

TapeConcept



TapeConcept What makes TC courses stand out?

Versatility is our strength. Diversity of courses in the TC Education System through incorporation of science and new evidence into all TC courses.

- MTC 1: 2 day course basic taping skills
- MTC 2: 2 day course for participants with MTC 1. Includes new taping techniques and applications.
- MTC Specialist courses: MTC 1 + 1 day courses for specialists
- MTC Custom-made courses: 1 or 2 day(s) courses on specific topics.

Certification programme:

After having followed a minimum of 3 course days an exam is taken to become a certified MTC practitioner (CMTC).





MTC	Specialist	Customized
Program	Program	Program
MTC-2	MTC-2	
	MTC-L	
	MTC-N	
MTC-1	MTC-S	
	MTC-P	
	MTC-1	





Contents Day 1

Theory:

Introduction, history Hypothesis- the original and the new The evidence Tape properties, reasons to tape Skin, fascia and dermatomes <u>Clinic:</u>

Tape properties, shapes, applications Indications-contra-indications Test patch and Skin care Muscle application technique





Contents Day 2

Clinic:

Ligament application technique

- Specific applications for haematomas & scars
- Specific applications: star (space technique), TAtape

Lymph application technique: inflammatory oedema

- lymph tape after surgery
- repetitive chronic ankle sprain





The participants will have acquired knowledge on the available research and evidence regarding the effects of this tape.

Participants will leave with a working knowledge of the tape properties, its practical possibilities and the various applications.

Participants will feel confident to start using this tape in the clinic.





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.

In 2007, TapeConcept Ltd started with their Operations in the Middle East.





Basic principles MTC

Body's own healing processes

Kinesiology

Only used by Professionals



Medical Taping Concept has become known all over the world.

- Scientific studies and background knowledge is expanding and with it the course diversity
- Instructor groups in various countries

peConcept

- Great variety of input and ideas of current instructors
- Possibilities vary per country (example in Spain courses only for physiotherapists)



TapeConcept Hypotheses original and new

- What do we know so far?
- Original hypothesis
- New hypotheses
- Original hypothesis 'adapted'
- Research into the effects of elastic therapeutic tape.
- Translation research to clinic





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







TapeConcept

Theoretical models: the new

I. Fascia model

Fascia/ biotensegrity /

H. Langevin http://www.uvm.edu/annb/faculty/langevin/

Anatomy trains Tom Myers http://www.anatomytrains.com

Biotensegrity model 'captured' in work of plastic surgeon dr.J.C.GUIMBERTEAU Paris. Specialized in hand & wrist problem Thanking him for his permission to use this image.



"Strolling under the skin" - @ Dr. J.C. Guimberteau



Model: Tensegrity is a type of structure with an integrity based on a balance between tension and compression components. In a tensegrity model the compressive members are connected to each other by tensile members. **Biotensegrity** is in living body















TapeConcept

Theoretical models: the new

II. Skin model

DermoNeuroModulation (DNM) Diana Jacobs (entrapment cunateous nerves) <u>http://humanantigravitysuit.blogspot.com/</u>

Dermatomes/segmental taping

Organzones (skin technique Teilrich- Leube) bindweefselmassage/ CTM)

Fukui T. Physiological skin movement WCPT 2011

Blow D. Mayor Elastiscity Lines (MEL's)

Neuromuscular taping 2012





Connective tissue/organzones Dickel/Teilrich Leube 1950's







Theoretical models: new

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).





Research is made difficult because of many names for similar tapes and methods

English:

Elastic Taping, Elastic Therapeutic Taping, Elastic Rehabilitative Taping, Fascia Taping method, Flexible Taping, Kinaesthetic taping, Kinematic Taping, Kineotaping, KinesioTaping, Kinesiologic Taping, Kinesiology Taping, Kinetic Taping, K-active taping, K-taping, KT-taping, Medical Taping, Memory Taping, NeuroMuscular Taping, Neuro-Proprioceptic Taping and Neuro Structural Taping.



Lot of evidence regarding non-elastic taping Growing amount on elastic therapeutic taping Big disadvantage = most research on healthy adult volunteers or athletes Systematic Reviews 13 **PEDro** 14 articles Pedro scoring 5-9 10 articles Pedro scoring 2-4 4 reviews (not rated) and 2 articles being rated. (search: kinesio and kinesiology and taping)

eConcept





- Akio Mori, Masaki. Activation of Cerebral Cortex (2005)
- Yuh-Hwan Liu et al. Ultrasonic Imaging UE (2007)
- Tibaud et al Skin stimulation and muscle fatigue (2011)
- Callaghan MJ (2012) knee tape and fMRI

Research skin

 Fukui T. Physiological skin movement [Vicon Motion Systems] 64 markers trunk WCPT (2011)





Activation of Cerebral Cortex in Various Regions After Using Kinesio Tape. control Akio Mori, Masaki Takasaki, Professor, Nihon University



Figure 4. Distribution of brain potential in the β wave band after repeated stretching of the wrist before and after the use of Kinesio Tape and without the use of Kinesio Tape. The white region shows high activity.

without kinesio



with kinesio



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

Yuh-Hwan Liu, Shu-Min Chen, Chi-Yi Lin, Chung-I Huang, Yung-Nien Sun

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.





- **Tibaud T. et al.** Postural performance after muscle fatigue compensated bij skin stimulation. **Tape ankles adds new** sensory information.
- **Todd Hargrove** described two possible neurological mechanisms why tape might relieve pain. Taping will cause ruffini's to send continuous information to the brain the whole time the tape is there. Two benefits to this flood of mechanoreception? **'sensory gating'** (rubbing) and **'movement illusion**.'
- **Callaghan M.** Onderzoek knie hypafix/fixomull. "Despite there being no directional tension or compressive force, we were able to show that proprioception was still improved.
- It is likely that it is the sensory input that is important and not the biomechanical effects of taping".





What does proprioception testing tell us about patellofemoral pain?

- This study demonstrated that patellar taping modulates brain activity in several areas of the brain during a proprioception knee movement task'.
- These results give the impression that this tape with a subtle, non-mechanical effect on the knee is sufficient to influence various areas of the brain associated with decision making, coordination and motor control.

Effects of Patellar Taping on Brain Activity During Knee Joint Proprioception Tests Using Functional Magnetic Resonance Imaging January 26, 2012 PHYS THER. 2012; 92:821-830. Jacqueline A. Oldham Michael J. Callaghan, Shane McKie, Paul Richardson





Reasons to use tape Tape shapes and names Tape properties Handling the tape Tape stretching Tape colour Skin care Test patch Tape removal





- Facilitate posture
- Assist function (joint and muscles)
- Guide direction of movement
- Improving blood and lymph-flow
- Influence proprioception (segmental influence)
- Relieve pain





Variety in applications

- Translating knowledge science into clinic
- **Expert** opinion
- Intrinsic & extrinsic factors ?
- Assessment and identifying problem
- Treatment goal ?
- Treatment model?
- Tape use: long or short period?
- **Different brands**
- Practitioners skills

Results: many applications possible





Tape shapes and names





- 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





Handling the tape

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 tape or skin

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)




Consider size application

*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





Tape colours

Curetape [®] is currently available in :

- Red; Blue; Black; Beige; Orange; Yellow; Green
- Colours have specific properties and not all individuals react the same
- Recommended test
- Punch tape







Colour Testing

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)





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





Contra-indications

- 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





- 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

(Waard de –Spek van der et alF.B. (Spiewak) (2013) Allergic contact dermatitis in children: which factors are relevant? (review of the literature)









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



Safe tape removal

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





Brachioradialis

Action:

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







Extensor carpi radialis brevis

Action:

- Extends and abducts wrist Origin: lateral epicondyle via common extensor tendon
- Insertion: base of 3rd metacarpal (posterior surface)







Gastrocnemius & Soleus









Peroneus longus & brevis

Action: everts and plantarflexes ankle Origin: fibula & intermuscular septa Insertion brevis: lateral side base metatarsal V **Insertion longus:** lateral base metatarsal I & medial cuneiform





Tibialis anterior

Action: dorsiflexes and inverts foot Origin: lat. tibial condyl and upper 2/3 tibia surface interros. membraan Insertion: medial cuneiform, base metatarsal I.



TapeConcept Whole muscle tape necessary?





Contents Day 2

Clinic:

Ligament technique

- Applications for haematomas & contusions
- Specific applications: Barbapapa, star (space technique), TAtape
- 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
- 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





Ligament tape on ligament









Ligament tape on other areas











Fractures & contusions









Hematoma

grid & basket-weave or web application









TapeConcept Barbapapa Tape Thieu Berkhout









Space technique (star)

Osgood Slatter's disease







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).

eConcept

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** 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.

Read more: <u>http://www.woundcarecenters.org/wound-types/dehisced-wounds.html#ixzz2d4xxoQ00</u>





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





Example scar tape









TapeConcept Taping hypertrophic scars & adhesions

Tape needs to pull in direction found through palpation to stretch and strain the scar 24h/day







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.

eConcept

- 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





Lymph flow





- 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.


TapeConcept Mechanism behind activation lymphflow

- 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)

TapeConcept Contraindications for lymph taping

- 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









Effusion 2 mo post total knee





TapeConcept Applying tape in circular fashion

Circular taping can be standardized (tape size & tape free area) and is now favoured.









Question time







Many thanks go to

- TapeConcept for the organisation and management of this course
- Patients: for the permission to use their images
- Virginia Cantarella and dr.J.C. Guimberteau for use of images
- Colleague instructors and the AEVNM for their assistance and permission to use their images,

slides and cite manuals.

• Every participant for your attention and input



Extra slides: tape examples

Trunk:

- Internal & external obliques
- Diaphragm
- Levator scapula

Lower extremity:

- Quadriceps applications I, II, III & IV
- Hamstrings
- Tibialis anterior
- Tibialis posterior

Spine & Upper Extremity:

- Supraspinatus
- Trapezius
- Supinator

Examples disorders:

- Cervical erector spinae / whiplash
- Ankle sprain





Internal & external obliques







Diaphragm







Levator scapulae

Origin:

Transverse processes C1-C4 Insertion: Scapula medial border Action: Elevation, medial rotation of the scapula









Quadriceps appl. I





Quadriceps appl. II, II & IV





Hamstrings







Tibialis anterior

Action:

Dorsiflexion and supination of the foot (sustains the medial arch)

Origin:

Lat. tibial condyle, lateral surface of tibia (2/3)

Insertion:

Med. cuneiform & base of first metatarsal











Tibialis posterior







Supraspinatus







Trapezius muscle



















Supinator

Action:

Forearm supination Origin:

Lateral epicondyle humerus, radial collateral ligament, annular ligament supinator crest Insertion:

Lateral surface of radius (prox. 1/3)







TapeConcept Cervical erector spinae (whiplash application)







Ankle Sprain

