

# KINESIOTEIPPAUS TUTKIMUKSIA

## KINESIOTAPING RESEARCH ABSTRACTS

### Verenkierto ja lymfologia

### (Circulation and lymphology)

#### **Changes in the Volume of the Peripheral Blood Flow by using Kinesio Taping**

Kenzo Kase, DC, CKTI and Tatsuyuki Hashimoto, PhD

Dr. Kase, Chairman/Founder of the Kinesio Taping Association, and Dr. Hashimoto, Educational Director for the Kinesio Taping Association conducted this joint study in 1997-98

#### **Purpose**

For the treatment of injuries, increasing the amount of blood flow is one of the mechanisms in the healing process. This is a clinical study based on 9 subjects using a Doppler machine to measure the volume changes of the peripheral blood flow before and after applying Kinesio Taping Methods.

#### **Procedures**

The subjects were chosen at random. Five subjects had chronic disorders and poor circulation, and four subjects were relatively healthy. There were different areas chosen where the subject's volume of the peripheral blood flow was measured by Doppler. Based on the area being measured, Kinesio Taping was applied to the areas most likely to affect blood circulation. For example, if the volume was being measured at the radial artery, the pectoralis major muscle had been taped. If the dorsal artery of the foot was measured, mainly the gastrocnemius muscle was taped with the popliteus fossa being taped as well due to the positive results seen. For the superficial temporal artery, the sternocleidomastoid muscle was taped. The volume of the peripheral blood flow was first measured before the Kinesio Tape was applied. After recording the results, Kinesio Taping was applied and the volume was measured immediately (approx. 10 min) to see if changes in the volume flow was occurring.

#### **Before Taping (A-1)**

The pectoralis major muscle was chosen for the procedure measuring the volume in the radial artery by observing the following outcome graphs. The first graph (A-1) represents measurements before Kinesio Taping was applied for subject #1, 13.2 cm/s is the peripheral blood flow volume (VPK), the average volume of the peak volume (FPK) and the lowest volume (FMN). The major muscles that are involved in the flow to the radial artery are the pectoralis major, pectoralis minor, and the anterior and medial scalenus. Blood vessels go through the scalene space between the anterior and medial scalenus. By applying Kinesio Tape over the anterior and medial scalenus, it will relieve the tension which will decrease the pressure off of the axillary artery. The pectoralis minor attaches to the upper region of the precordial which applies pressure to the axillary artery. The pectoralis major is a more superficial muscle which inserts to the greater tubercle crest of the humerus and which will also apply pressure to the axillary artery.

By applying Kinesio Tape from the insertion to the origin of these two muscles, it will help avoid the pressure which is placed to the axillary artery that is caused by isometric contraction. Results for effective Kinesio Taping can be observed when there are convulsions on the skin created by the tape.

### **Pectoralis Major (B-2)**

Comparing the results for these three muscles that were involved, the pectoralis major muscle measured 33.6cm/s (B-2), an approximate of 60% increase. The pectoralis minor muscle measured 18.9cm/s (B-3), an approximate of 30% increase. And the anterior and medial scalenus muscle measured 16.7cm/s (B-4), which is approximately 20% increase of the peripheral blood flow volume.

### **Pectoralis Minor (B-3)**

Based on these results, the most effective muscle, the pectoralis major was taped to measure the volume change of the radial artery. This same procedure was applied to the muscles that affected different arteries used for the other subjects, and Kinesio Taping was applied to the most effective muscle to measure the changes of the peripheral blood flow volume for each arteries.

### **Ant. & Med. Scalenus (B-4)**

#### **Results**

Subject # 1, was a 38 year old female who complained of constant pain, tingling and swelling in both of her upper extremities. The volume of blood flow at the right radial artery before applying Kinesio Tape was 13.2cm/s. After applying Kinesio Tape to the right pectoralis major(C-1), the volume of blood flow increased to 33.6cm/s. A 60.7% increase change was seen in the volume of the blood flow to the right radial artery.

Subject # 4, a 24-year-old female and subject # 5, a 72-year-old male both suffer from chronic patella tendinitis. Subject # 8, an 87 year old female has deformans osteoarthritis in the knee. All three subjects have difficulty in walking. For subjects #4 and #5 Kinesio Tape was applied to the right gastrocnemius muscle (C-2). For subject #4, the volume changed from 14.9cm/s to 20.9cm/s a 28.7% increase. For subject #5, the volume changed from 38.8cm/s to 46.8cm/s a 20.6% increase. For subject #8, Kinesio Tape was applied to his right popliteus fossa muscle (C-3), and the volume changed from 29.2cm/s to 46.2cm/s, for a 58.2% increase. For subject #9, a 55-year-old male who suffers with hypertension and complains of a constant headache, Kinesio Tape was applied to the sternocleidomastoid (C-4). The volume changed from 13.3cm/s to 19.9cm/s a 45.8% increase at the superficial temporal artery. As one can observe from the results from the chart (D-1), subjects that suffer with disorders have an extremely high increase in their volume of peripheral blood flow after applying Kinesio Taping. Though as seen in subjects like #2, a 24 year old healthy female that has no complaints of any existing physical disorders, the volume of blood flow at the right radial artery before applying Kinesio Tape was 25.5cm/s.

After applying Kinesio Tape to the right pectoralis major, the volume of blood flow decreases to 24.1cm/s. There is a -5.4% decrease in the volume of blood flow, which means there are hardly any relative changes in the volume of blood flow. The same type of results are seen in every healthy patient, such as subject #3, #6, and #7. There were no significant changes in the peripheral blood flow after Kinesio Tape was applied to healthy subjects

#### **Conclusions**

Based on the results, applying Kinesio Tape was effective in changing the volume of the peripheral blood flow for subjects that had physical disorders. The result of this research suggests that Kinesio Taping causes the alternation of the blood flow. By applying Kinesio Taping techniques, an immediate effect is seen since the blood flow has been changed immediately (within 10 min.) after taping. Probably more importantly, the result that we were able to gather from this study was that, since the Doppler indicated no major changes in the healthy subject's blood flow after taping, we can say with some confidence that Kinesio Taping has no major adverse effects.

## **Kinesio Taping for Lymphedema**

By the Kinesio Taping Association

Lymphedema is basically caused by a back up or congestion of lymphatic fluid. This is caused either when the lymphatic system is unable to transport large proteins and other molecules to be reabsorbed by the

venous system, or when surgical procedures require the removal of lymph nodes and in turn lymph fluid can not drain and process normally.

### **How Does Kinesio Taping Help?**

When the Kinesio Tex Tape is applied, small convolutions in the tape cause the skin to be lifted and this helps to give more space and take pressure off the interstitial fluid. This allows for greater drain of the lymph, and as the body moves, the tape acts as a pump continually stimulating the lymph circulation on a 24hr/day basis.

**NOTE:** The Kinesio Tex Tape is designed to the same thickness of the epidermis of the skin.

### **Technique Development**

\*\*\* Correction techniques for lymphatic drainage were developed from traditional Kinesio Taping applications for acute clinical conditions. These techniques have been developed and tested in clinical trails and patient case studies. Additional research is currently underway.

By spreading the application to cover a larger area, it was discovered that the overall effectiveness in reducing edema was greater than with traditional techniques for acute rehab. In development, it was also discovered that not only area coverage was important, but also the placement of the tape. By positioning the tape, the tape was able to help facilitate and channel the lymph in a specific direction. To cover this larger area, and to help channel the lymph drainage more effectively, a cut known as a “fan” shape cut of tape was adopted. Then, other considerations in treating lymphatic disorders were taken into account. As is often recognized, in order to drain specific areas of the body, it is necessary to first open up areas that the lymph will be draining towards. In other words, clear out one section to be able to clear out another. Therefore, applications for lymph drainage often include applications to facilitate circulation of other areas of lymph as well.

### **Taping Procedure**

First, the length of tape will vary depending on how large the area of edema, and how far away the closest and next closest (secondary) lymph nodes are, but in general, a 6 to 8 inch strip is used. Then, a fan cut (left top picture) is performed. Next, with the skin or area of edema in a stretched position, the base of the Kinesio Tape is placed towards the closest lymph nodes and the fingers of the fan cut are applied with little to no stretch around and over the edema area. The next application is placed from a different angle and direction to draw the lymph towards the secondary lymph nodes or the heart using the same technique as the first application. Lastly, an additional strip is placed to draw lymph away from the secondary lymph nodes, in order to open up and facilitate lymphatic flow in the general region as a whole. The same technique is used to channel the flow of lymph away and towards the heart.

**Notice:** The following techniques have been developed by trained medical and lymphatic practitioners. This is a lymph correction technique that evolved from traditional Kinesio Taping applications in which facilitation of circulatory and lymphatic flow was the result. It is recommended that only practitioners trained in treating lymphatic disorders and application of the Kinesio Taping Method apply this technique as a treatment. It is also recommended that any use of the techniques be in cooperation with your physician and/or with patient consent. In addition, the Kinesio Taping Association and individuals involved in comprising this information assume no responsibility for implementation of the techniques discussed.

## **The influence of kinesiostaping applications on lymphoedema of an upper limb in women after mastectomy**

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 FP 2007; 7(3):258-269

**Background.** Doctor Kenzo Kase is a creator of the method Kinesio Taping. In the course of years-lasting experiences he worked out a plaster called Kinesio Tex, which applied during therapy in the form of application affects a patient not only during a visit, but also after its finishing supporting auto-therapy of an organism. The usage of the method of kinesiointaping at women after mastectomy influences on the decrease of oedema lymphatic and normalization of muscular tension.

**Material and methods.** Researches were conducted in Rehabilitation Ward of Świętokrzyskie Oncology Centre in the period from November 2006 to February 2007. The group consisted of 25 women at the age of 40 to 70 years old (the average of their age 55,16 years) treated because of breast cancer with oedema lymphatic. Every woman taking part in the experiment was subjected to kinesiointaping therapy. The research of measurement of oedema lymphatic, the muscular strength of indicated muscular structures as well as the range of movement in a humeral joint, elbow joint, wrist-radial joint were carried out in four series: before the first application (research I), before every next (research II, III) and after the last application (research IV). In the break between researches a patient was obliged to follow rules referring to behaviour after mastectomy.

**Results.** Assessment of the efficiency of an upper limb at women after mastectomy shows that a 20 - day cycle of improving with the use of lymphatic applications of the kinesiointaping method considerably reduced oedema lymphatic which 24%, increases range of motion 20 % and normalization of muscular tension brings satisfactory therapeutic effects.

**Conclusions.** Lymphatic applications accelerate lymphatic and venous microcirculation, reduces the stasis of lymph in intercellular spaces. Decrease of oedema contributes to the improvement of movement range in all joints of an upper limb and normalization of muscular tension contributing to the increase of muscular strength.

[Ortop Traumatol Rehabil.](#) 2009 Jan-Feb;11(1):46-54.

### **Clinical efficacy of kinesiointaping in reducing edema of the lower limbs in patients treated with the ilizarov method--preliminary report.**

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**INTRODUCTION:** Postoperative edema of predominantly lymphatic origin is a significant hindrance to physiotherapy in patients subjected to limb lengthening by the Ilizarov method. New treatment methods are being sought, and Kinesiointaping is one of them.

**MATERIAL AND METHODS:** The study involved 24 patients of both sexes subjected to lower limb lengthening using the Ilizarov method who had developed edema of the thigh or crus of the lengthened extremity. The mean age of the patients was 21 years. The patients were randomized into two groups of twelve, which were then subjected to 10 days of standard physiotherapy. The study group was additionally treated with Kinesiointaping (lymphatic application), while the control group received standard lymphatic drainage. Treatment results were assessed by comparing the linear circumferences of the lower limbs before and after the treatment.

**RESULTS:** The application of Kinesiointaping in the study group produced a decrease in the circumference of the thigh and crus statistically more significant than that following lymphatic drainage.

**CONCLUSIONS:** 1. Both standard edema-reducing treatment in the form of lymphatic massage and Kinesiointaping significantly reduced lower limb edema in patients treated by the Ilizarov method. 2. The application of Kinesiointaping in the study group produced a significantly faster reduction of the edema compared to standard lymphatic massage.

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## Could Kinesio tape replace the bandage in decongestive lymphatic therapy for breast-cancer-related lymphedema? A pilot study

<http://www.kinesiotaping.com/kta/research/2008-1.pdf>

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Chiun-Sheng Huang & Jau-Yih Tsauo  
Received: 14 November 2008 / Accepted: 26 January 2009  
# Springer-Verlag 2009

### Goals of work:

The purpose of this study is to compare the treatment and retention effects between standard decongestive lymphatic therapy (DLT) combined with pneumatic compression (PC) and modified DLT, in which the use of a short-stretch bandage is replaced with the use of Kinesio tape (K-tape) combined with PC.

**Materials and methods:** Forty-one patients with unilateral breast-cancer-related lymphedema for at least 3 months were randomly grouped into the DLT group (bandage group, N=21) or the modified DLT group (K-tape group, N=20). Skin care, 30-min manual lymphatic drainage, 1-h pneumatic compression therapy, application of a short-stretch bandage or K-tape for each group, and a 20-min physical therapy exercise were given during every treatment session. Patient evaluation items included physical therapy assessment, limb size, water composition of the upper extremity, lymphedema-related symptoms, quality of life, and patients' acceptance to the bandage or tape.

**Main results:** There was no significant difference between groups in all outcome variables ( $P > 0.05$ ) through the whole study period. Excess limb size (circumference and water displacement) and excess water composition were reduced significantly in the bandage group; excess circumference and excess water composition were reduced significantly in the tape group. The acceptance of K-tape was better than the bandage, and benefits included longer wearing time, less difficulty in usage, and increased comfort and convenience ( $P < 0.05$ ).

**Conclusions:** The study results suggest that K-tape could replace the bandage in DLT, and it could be an alternative choice for the breast-cancer-related lymphedema patient with poor short-stretch bandage compliance after 1-month intervention. If the intervention period was prolonged, we might get different conclusion. Moreover, these two treatment protocols are inefficient and cost time in application. More efficient treatment protocol is needed for clinical practice.

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## The Use of Elastic Adhesive Tape to Promote Flow in the Rabbit Hind Leg

Jae-Yong Shim • Hye-Ree Lee • Duk-Chul Lee

<http://www.kinesiotaping.com/kta/research/2003-2.pdf>

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## Treatment of Lymphedema: Application of the Kinesio Taping

<http://www.kactive.se/pdf/of%20Lymphedema-%20Application%20of%20the%20Kinesio%20Taping.pdf>

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# Lasten fysioterapia ja lasten neurologia

## (Pediatrics, neurology included)

### **Use of Kinesio Tape in Pediatrics to Improve Oral Motor Control**

Trish Martin, PT, CKTI with Audrey Yasukawa, MOT, OTR/L, CKTI

Martin, P. (2003). 18th Annual Kinesio Taping International Symposium Review. Tokyo, Japan: Kinesio Taping Association.

The use of Kinesio Tape in pediatrics has become more widespread over the past year. As a result of input from several therapists, we have begun taping trials with a few select children at Cleveland Clinic Children's Hospital for Rehabilitation. As a result of these trials, we hope to initiate research or case studies in this area.

Dr. Kase in the Kinesio Taping Perfect Manual has outlined taping techniques for TMJ pain. These include techniques for pain with chewing and difficulty opening the mouth due to pain. Children with neurological disorders, developmental delay and dysarthria often present with difficulty with mouth closure, resulting in increased drooling, poor articulation, and hypermobility in the TMJ.

Trials of Kinesio Tape have been used with children who present with decreased oral motor control using the following techniques for TMJ stabilization, jaw stability to decrease drooling, and jaw stabilization for better lip closure.

About one year ago, I began working with a few therapists, including a speech therapist at City Kids, in Chicago, taping TMJ (temporomandibular joints) for stability. On one child with asymmetrical TMJ mobility, the hypermobile joint was taped to limit hypermobility and more symmetrical jaw movement was observed. Two 1" pieces were cut and used in an "X" as a corrective technique over the TMJ.

Another child was taped to provide jaw stability in the hope of decreasing drooling. His mouth was held open at rest and drooling was excessive and continuous, often causing wetness down the front of his shirt. Tape was applied over the TMJ joint and extended in a "Y" to the upper and lower jaw. A 2" piece of tape was cut in a "Y", anchored at the TMJ with one tail laid down toward the mouth and the other toward the lower jaw. After four months, this therapist noted an improvement in mouth position at rest and a significant decrease in drooling. Per therapist, clothes no longer became moist from saliva.

The orbicularis oris is the major muscle responsible for lip closure. This is generally a weakened muscle, due to overstretch from poor closure, head and neck position and poor alignment, and muscle imbalances. Children with varying diagnoses, including cerebral palsy, developmental delay, and dysarthria have been taped. Two 1" strips of tape, about three to four inches long are cut. The child is asked to open the mouth all the way. Tape is applied from the center of the upper lip (tearing the center of the tape) with paper-off tension only, above and outlining the upper lip. The same is done below the lower lip.

#### **Examples of taping for lip closure:**

One four-year-old boy with cerebral palsy drooled a great deal, requiring wiping of his mouth a minimum of 12 times a session. With tape applied to the orbicularis oris, drooling during the session decreased, with minimal drooling, requiring wiping of his mouth only once a session. After 45 to 60 minutes, he seemed to tire and tolerance of tape decreased. Time in tape was gradually increased to a few hours, to include mealtimes at home. Awareness of drool also improved in a four-year-old girl with cerebral palsy and increased lip closure to capture drool was observed.

Taping for lip closure may not only decrease drooling, but may improve tongue lateralization as evidenced by the production of bilabial sounds. A nine-year-old girl with cerebral palsy and dysarthria had a significant decrease in drooling at rest, and during eating she showed improved tongue lateralization as well. She was also able to produce bilabial sounds, including "b", "m", and "t" much more accurately. A four-year-old boy

with developmental delay with a tongue thrust was able to keep his lips closed for two minutes without a tongue thrust, much longer than without tape.

In general, the use of Kinesio Taping to improve lip closure needs to be further explored. The mechanism of impact may be primarily sensory, or may involve facilitation of the orbicularis oris. I believe Kinesio Tape provides another tool for use in the therapeutic treatment of children with oral motor concerns. I would like to thank the staff at Cleveland Clinic Children's rehab, as well as the staff at City Kids, Inc. in Chicago, for their input, interest and support. Cleveland Clinic children's Rehab therapists involved in this informal study include: Stefanie Orkin, MACCC-SLP, Tracy Biller, MACCC-SLP, Carolyn Leitch, OTR/L, Laurie Williams, OTR/L, and Kathy Chippi, PT.

## **Kinesio Taping® with Aqua-Therapy for Pediatric Disability involving Neurological Impairment**

Kayoko Maruko, Director of Potential Development Support Center, Hokkaido Japan  
 Maruko, K. (1999). Kinesio Taping® with Aqua Therapy for Pediatric Disability Involving Neurological Impairment. 15th Annual Kinesio Taping International Symposium Review. (pp. 70-73) Tokyo, Japan: Kinesio Taping Association.

<http://www.kinesiotaping.com/kinesio-taping-with-aqua-therapy-for-pediatric-disability-involving-neurological-impairment.php>

## **Kinesio Taping in Pediatrics**

<http://www.kinesiotaping.com/kinesio-taping-in-pediatrics.php>

## **The Functional Effects of Kinesio Taping in an Acute Pediatric Rehabilitation Setting**

<http://www.kinesiotaping.com/functional-effects-of-kt-in-an-acute-ped-rehab-setting.php>

[Am J Occup Ther](#). 2006 Jan-Feb;60(1):104-10.

### **Pilot study: investigating the effects of Kinesio Taping in an acute pediatric rehabilitation setting.**

[Yasukawa A](#), [Patel P](#), [Sisung C](#).

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**OBJECTIVES:** The purpose of this pilot study is to describe the use of the Kinesio Taping method for the upper extremity in enhancing functional motor skills in children admitted into an acute rehabilitation program.

**METHOD:** Fifteen children (10 females and 5 males; 4 to 16 years of age), who were receiving rehabilitation services at the Rehabilitation Institute of Chicago participated in this study. For 13 of the inpatients, this was the initial rehabilitation following an acquired disability, which included encephalitis, brain tumor, cerebral vascular accident, traumatic brain injury, and spinal cord injury. The Melbourne Assessment of Unilateral Upper Limb Function (Melbourne Assessment) was used to measure upper-limb functional change prior to

use of Kinesio Tape, immediately after application of the tape, and 3 days after wearing tape. Children's upper-limb function was compared over the three assessments using analysis of variance.

**RESULTS:** The improvement from pre- to posttaping was statistically significant,  $F(1, 14) = 18.9$ ;  $p < .02$ .

**CONCLUSION:** These results suggest that Kinesio Tape may be associated with improvement in upper-extremity control and function in the acute pediatric rehabilitation setting. The use of Kinesio Tape as an adjunct to treatment may assist with the goal-focused occupational therapy treatment during the child's inpatient stay. Further study is recommended to test the effectiveness of this method and to determine the lasting effects on motor skills and functional performance once the tape is removed.

PMID: 16541989 [PubMed - indexed for MEDLINE]

## KINESIOTAPING APPLICATION IN CHILDREN WITH SCOLIOSIS

Zbigniew Śliwiński, Wojciech Kufel, Bartłomiej Halat, Beata Michalak, Jan Szczeiśniak, Wojciech Kiebzak, Tomasz Senderek

FP 2007; 7(3):370-375

ICID: 511052 Article type: Short communicationIC™ Value: 3.53

**Background:** Scoliosis is still a serious problem, despite numerous therapeutic methods. Kinesiotapping (KT) is one of the methods, which can prove helpful in scoliosis treatment. Using proper applications, we can affect alteration of stability line and achieve balance of the spine.

**Material and methods:** The studies were conducted in Zgorzelec Rehabilitation Centre. The participants were 18 children, who stayed there for rehabilitation, including 16 girls and 2 boys. The mean age was 12 years in this group. Changes in the waist angle were evaluated before and after KT application.

**Results:** The obtained results indicate that application of KT in the examined group results in waist angle change, on average by 4 degrees. For left waist angle this mean value is 5.27 degrees, while for the right waist angle it is 2.58 degrees. The highest value for correction was 11.2 degrees.

**Conclusions:** Selected KT techniques result in changes in stability line course, which is also manifested by waist angle change. Due to muscular and fascial tone normalization, the posture of a child with scoliosis changes in the frontal and sagittal plane. KT as a new method, using multiple forms and techniques, seems helpful in carrying out rehabilitation programme for children with scoliosis.

## Does Kinesio® Taping of the Abdominal Muscles Improve the Supine-to-Sit Transition in Children with Hypotonia?

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Michael Gleeson, PT, DPT, Susan Greenwood, PT, DPT, and Carol Motyka-Miller, MA, PT

<http://www.kinesiotaping.com/kinesio-taping-for-abdominal-muscles-to-improve-the-supine-to-sit-transition-in-children.php>

## Management of Abnormal Tone of the Upper Extremity in Children and Young Adults

Audrey Yasukawa

<http://www.kinesiotaping.com/kta/research/2002-2.pdf>

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## **Kinesioiteippauksen käyttö reumalasten hamstring-lihaskireyden hoidossa**

### **Kinesio Taping and Hamstring Strain of Children with Juvenile Idiopathic Arthritis**

Fysioterapian koulutusohjelma

Fysioterapeutti AMK

Opinnäytetyö

31.5.2010

Maarit Haltia

Metropolia Ammattikorkeakoulu

Hyvinvointi ja toimintakyky

#### Tiivistelmä

Opinnäytetyön tavoitteena oli saada kokemuksia kinesioiteippauksen käytöstä lasten fysioterapiassa. Opinnäytetyön tarkoituksena oli selvittää, mitä muutoksia kinesioiteippauksella voidaan saada reumalasten hamstring-lihaskireyteen ja miten lapset kokevat kinesioiteippauksen. Opinnäytetyö oli tapaustutkimus, koska tutkimusjoukko oli hyvin pieni. Tutkimusjoukkona oli 8 reumalasta, iältään 6-14-vuotiaita. Työssä käytettiin sekä laadullisen että määrällisen tutkimuksen menetelmiä. Kyselylomakkeella kerättiin lasten taustatiedot, goniometrillä mitattiin hamstringlihaskireyttä ja teemahaastattelulla kartoitettiin lasten kokemukset. Tutkimus toteutettiin kevään 2010 aikana.

Hamstring-lihaskireyttä arvioitiin sekä passiivisella suoran jalan nostotestillä että aktiivisella polven ojennustestillä. Passiivisessa testissä mitattiin lonkan koukistuskulma yleisgoniometrillä. Aktiivisessa testissä polven ojennuskulmaa mitattiin Myrin-mittarilla. Mittaukset tehtiin ennen teippausta, heti teippauksen jälkeen ja kolme päivää teippauksesta. Teippaukset valokuvattiin. Työssä päädyttiin teippaamaan ulompi vino vatsalihas, lonkan koukistaja ja hamstring-lihakset.

Kinesioiteippaus lisäsi lonkan koukistuskulmaa kaikilla lapsilla passiivisessa suoran jalan nostossa. Teippauksen myötä lasten kokema lihaskireyskipu väheni, jolloin oli mahdollisuus nostaa suoraa jalkaa ylemmäksi. Aktiivinen polven ojennus ei lisääntynyt kaikilla lapsilla. Voisiko polven ojentajien voima selittää eroa aktiivisen ja passiivisen testin välillä?

Lasten kokemukset kinesioiteippauksen käytöstä olivat positiivisia. Teipin laittamista ei juuri huomannut. Teippi ei haitannut liikkumis- eikä toimintakykyä. Kun teipin päät alkoivat irrota, ne ärsyttivät lapsia. Teipin poisottaminen sujui hyvin, jos lapsi sai itse ottaa omalla tavalla ja ajalla teipit irti.

Johtopäätöksenä voidaan todeta, että kinesioiteippaus soveltuu hyvin lasten fysioterapiaan, mutta lisänäyttöä ja -tutkimusta tarvitaan kinesioiteippauksen käytöstä.

<https://publications.theseus.fi/bitstream/handle/10024/16394/Kinesiot.pdf?sequence=1>

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[Disabil Rehabil.](#) 2011 Mar 14. [Epub ahead of print]

### **The effects of Kinesio® taping on sitting posture, functional independence and gross motor function in children with cerebral palsy.**

[Simşek TT](#), [Türkücüoğlu B](#), [Cokal N](#), [Ustünbaş G](#), [Simşek IE](#).

**Source**

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**Abstract**

**Purpose:** The aim of this study was to investigate the effects of Kinesio® tape (KT) application on sitting posture, gross motor function and the level of functional independence. The study included 31 cerebral palsy children.

**Method:** Children scored as level III, IV or V according to gross motor functional classification system (GMFCS). Children were randomly separated into two groups as study (n=15, receiving KT and physiotherapy) and control (n=15, receiving only physiotherapy). KT application was carried out for 12 weeks. Gross motor function measure (GMFM), functional independence measure for children (WeeFIM) and Sitting Assessment Scale (SAS) were used to evaluate gross motor function, independency in the activities of daily living and sitting posture. Compared to initial assessments, both groups showed improvements in sitting posture, respectively.

**Results:** Both groups showed a significant difference in parameters of GMFCS sitting subscale, GMFCS total score and SAS scores ( $p < 0.05$ ). At the end of 12 weeks, only SAS scores were significantly different in favour of the study group when the groups were compared ( $p < 0.05$ ). Also, post-intervention WeeFIM scores of the study group were significantly higher compared to initial assessment ( $p < 0.05$ ), however, no difference was detected in the control group ( $p > 0.05$ ). No direct effects of KT were observed on gross motor

**Conclusions:** Sitting posture, gross motor function and functional independence, though sitting posture (head, neck, foot position and arm, hand function) was affected positively. These results may imply that in clinical settings KT may be a beneficial assistive treatment approach when combined with physiotherapy.

## Neurologia

### (Neurology)

[Top Stroke Rehabil.](#) 2006 Summer;13(3):31-42.

### **Kinesio taping in stroke: improving functional use of the upper extremity in hemiplegia.**

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The purpose of this article is to present the Kinesio taping method used to improve the upper extremity function in the adult with hemiplegia. The article discusses various therapeutic methods used in the treatment of stroke patients to achieve a functional upper extremity. The only taping technique for various upper extremity conditions that has been described in the literature is the athletic taping technique. In this article, some interpretation is offered on proper assessment of the nonfunctional upper extremity, including the emphasis on postural alignment, trunk control, and scapula alignment.

The Kinesio taping method in conjunction with other therapeutic interventions may facilitate or inhibit muscle function, support joint structure, reduce pain, and provide proprioceptive feedback to achieve and maintain

preferred body alignment. Restoring trunk and scapula alignment after the stroke is critical in an effective treatment program for the upper extremity in hemiplegia.

PMID: 16987790 [PubMed - indexed for MEDLINE]

## Kinesio Taping for Erbs Palsy

### Pediatric Case using Kinesio Tex® Tape

A 10 year old girl with Erb's Palsy was referred to occupational therapy (OT). Initially, she reported 8 to 9 out of 10 pain level at the left anterior shoulder and left lateral ribcage. She had forward head, rounded shoulder posture. After 4 months of OT 2 times a week for stretching and strengthening, her pain decreased to 6 out of 10. Then, a trial of Kinesio Tex® Tape was started.

One "I" strip of tape was used to relax the left pectoralis major muscle. Another "X" strip of tape was placed on her back to facilitate scapular retraction (left rhomboids). By night time, her pain decreased to 0 out of 10. She remained pain free until the Kinesio Tex® Tape was removed 2 days later. Without the Kinesio Tex® Tape, her pain returned to 6 out of 10. Her mother was trained in applying the Kinesio Tex® Tape and she continues to use it as part of a home exercise program.

Kinesio Tex® Tape has been highly effective in eliminating this patient's pain. She and her mother are very happy!

## KT & Hypotonia

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 Susan Greenwood, PT, DPT  
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<http://www.kinesiotaping.com/kt-hypotonia.php>

[Top Stroke Rehabil.](#) 2010 Jul-Aug;17(4):318-22.

## The role of kinesiotaping combined with botulinum toxin to reduce plantar flexors spasticity after stroke.

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### Abstract

**Purpose:** To evaluate the effect of kinesiotaping as an adjuvant therapy to botulinum toxin A (BTX-A) injection in lower extremity spasticity.

**Methods:** This is a single-center, randomized, and double-blind study. Twenty hemiplegic patients with spastic equinus foot were enrolled into the study and randomized into 2 groups. The first group (n=10)

received BTX-A injection and kinesiotaping, and the second group (n=10) received BTX-A injection and sham-taping. Clinical assessment was done before injection and at 2 weeks and 1, 3, and 6 months. Outcome measures were modified Ashworth scale (MAS), passive ankle dorsiflexion, gait velocity, and step length.

**Results:** Improvement was recorded in both kinesiotaping and sham groups for all outcome variables. No significant difference was found between groups other than passive range of motion (ROM), which was found to have increased more in the kinesiotaping group at 2 weeks.

**Conclusion:** There is no clear benefit in adjuvant kinesiotaping application with botulinum toxin for correction of spastic equinus in stroke.

## Relieving symptoms of meralgia paresthetica using Kinesio taping: a pilot study.

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### Abstract

**OBJECTIVE:** To assess the effect of the novel Kinesio taping treatment approach on meralgia paresthetica (MP) symptoms.

**DESIGN:** Repeated measurements, feasibility study of 1 intervention.

**SETTING:** Referral private physical therapy clinic.

**PARTICIPANTS:** Men (n=6) and women (n=4) with clinically and electromyographically diagnosed MP.

**INTERVENTION:** Application of Kinesio tape, twice a week for 4 weeks (8 treatment sessions in total).

**MAIN OUTCOME MEASURES:** Visual analog scale (VAS) of MP symptoms (pain/burning sensation/paresthesia), VAS global quality of life (QOL), and the longest and broadest parts of the symptom area were measured.

**RESULTS:** All outcome measures significantly improved after 4 weeks of treatment. Mean VAS QOL +/- SD decreased from 69.0+/-23.4 to 35.3+/-25.2 (t=4.3; P=.002). Mean VAS of MP symptoms +/- SD decreased from 60.5+/-20.8 to 31.4+/-26.6 (t=5.9; P>.001). Length and width of affected area decreased from 25.5+/-5.5 to 13.7+/-6.7 (t=5.1; P>.001) and 15.3+/-2.1 to 7.4+/-4.3 (t=5.3; P>.001), respectively.

**CONCLUSIONS:** Kinesio taping can be used in the treatment of MP. Future randomized placebo-controlled trials should be designed with patients and assessors blind to the type of intervention.

# Tuki- ja liikuntaelimistö

## (Musculoskeletal physiotherapy)

## Clinician's Overview & Case Study: Post Operative Neuroma & RSD

**Amy Stahl, MS, PT, CKTI**

Stahl, A. (1999). Clinician's Overview & Case Study: Post Operative Neuroma and RSD. 15th Annual Kinesio Taping International Symposium Review. (pp. 99-102) Tokyo, Japan: Kinesio Taping Association.

### Part I. Overview and Background

I have been working as a master's level physical therapist for the past 2 ½ years. My story, however, dates back to my birth. I have been raised in a loving and competitive family that includes my father, my mother, two sisters, many horses, dogs, cats, and rabbits. In addition, however, I have grown up the surrogate daughter of five very close family friends as well. Thus in many ways, I have had six fathers, six mothers and numerous brothers and sisters. Our families have collected for games and fun every holiday, and for two weeks each summer, we live in harmony and competition on a sandy beach among beautiful canyons at Lake Powell, which is a spectacular lake, situate in Arizona and Utah. All of "my" six fathers, some of their wives, and all of the kids are athletes. Although now middle aged, the Dads continue to push us to compete in various athletic endeavors ranging from barefoot water-skiing, to cliff jumping, to volleyball, to rigorous hikes. As a result, we have endured some frightening but exhilarating experiences as we grew up. We are all wiser and tougher because of it.

I have spent the time to introduce you to my extended family, because they have become "tape believers!" When I tried to tell "my" six tough fathers about the wonders of Kinesio Taping this summer, the reception was anything but encouraging. These tough men weren't about to be fooled by the hocus pocus of some "miracle" tape that one of the kids - i.e. "me" - said would really help them through the inevitable injuries that I knew would come their way before this year's trip was complete. It was inevitable, when "aging warriors" try to do what was difficult for them twenty-five years earlier, something is going to give. In a nutshell, I was at the lake for one week, and I taped everything from large hematomas, to stone bruises of the feet, sprained ankles and knees, wrenched backs and necks, and strained muscles and ligaments in forearms and hands. In every case, within 24 hours "my" tape and I drew the raves of the "victims," than the manual therapy I also was called upon to provide. My skeptical warriors were won over. Although they kept their anti-inflammatories handy, Kinesio Tape and my taping applications, turned disdainful skeptics into believers. In fact, this beleaguered crew was begging for me to leave some tape and instructions with them when I left the campsite for a return to civilization and "saner" people.

My success at the lake was not a surprise. I knew what the tape could do, because of the remarkable successes I have had using it in my clinical practice. I have taped and helped victims of RSD (reflex sympathetic dystrophy), torn muscles, sprained necks, backs, elbows, knees, and shoulders. I estimate that I use Kinesio Tape on 85% to 90% of my patient population and have very positive responses from my patients and their doctors. I even use it myself to manage a chronic low back pain.

My confidence in Kinesio dates from the very first patient I taped. Her story follows.

### Part II. Post Operative Neuroma and RSD - Case Study:

**Subject:** Patient was an active 20-year-old female who worked as an athletic trainer and enjoyed playing ice hockey, hiking, and horseback riding, and exercised regularly.

**Diagnosis:** Post-operative Neuroma extraction and RSD Reflex Sympathetic Dystrophy (RSD): RSD is an uncommon and poorly understood condition wherein the autonomic nervous system malfunctions. The initiating factor, may be trauma, surgery, or may result from a remote disease of the viscera. Doctors can't predict who is at risk or why some individuals will fall victim to it and others with similar injuries or exposure do not. It is extremely painful. It can be difficult to diagnose, and treatment is often ineffective. The patient often experiences severe and bizarre pains, which they describe as "burning." They have extreme "hypersensitivity" of the skin. The condition is often associated with excessive sweating, coolness, and edema. The skin becomes glossy and very sensitive to temperature changes. Many of its victims cannot even stand to have a sheet laid across their skin, or to stand under a shower. It is truly a miserable affliction.

**Past Medical History:** Patient had a soft tissue lesion excised in May 1996 from the dorsal aspect of her left foot, which subsequently became infected. Following the closure of the wound in September 1996 she continued to complain of persistent nerve-like pain of the dorsum of her left foot and first and second toes. In March 1998, she was diagnosed with a neuroma and an entrapment of the deep peroneal nerve and she opted for elective surgery to release the nerve and resect it above the ankle joint in hopes of decreasing her pain. Pain complaints include a deep ache throbbing pain, as well a sharp and stabbing pain. Patient had pain with temperature changes, weight bearing activities, range of motion, had difficulty sleeping, had an analgesic gait pattern, and was often unable to wear a closed toe shoe. As a result of her symptoms, she had to give up her job as an athletic trainer and work as a receptionist in order to be non-weight bearing for the majority of her day. Following her second surgery, she had numbness to the touch of the first and second toe, as well as severe burning pain with palpation, which later was diagnosed as RSD (reflex sympathetic dystrophy).

**Treatments:** Physical therapy for 6 months from August 1998 to January 1999 which included: joint mobilization of the foot, myofascial release for scar adhesions, trans-friction massage of her extensor tendons, gentle ROM, aquatic therapy, ultrasound 3.3mHz @ 20% 1.0w/cm, interferential electrical stimulation for pain (80-150 mHz), TENS unit trial, moist heat, silicon pads for scar adhesions, walking boot, therapeutic exercise, nerve blocks.

**Assessment:** Patient did not respond well to palpation or myofascial release. She could not tolerate any of the modalities except for ultrasound and moist heat. Her scars remained immobile and her nerve-like pain did not resolve. Patient was still in a walking boot on occasion and was not able to return to her ice-skating and other athletic activities because she could not tolerate a shoe. At the time of her physical therapy discharge in January 1999, her physician suspected that she had some arthritis in the foot and was at a loss as to what else he could do for her.

**Kinesio Taping:** Following an incident in January 1999, when the patient had banged her foot on a box and caused a significant flare up, she was back on her walking boot and experiencing increased pain. I asked her permission to let me try this new taping method I had just learned about the previous weekend (three days prior). She agreed, so I applied Kinesio with her foot plantar flexed and inverted to stretch the skin on the dorsum of her foot. The tape was "Y" around her great toe and then "I" across the dorsum of her foot medial to lateral at an angle over her scars to the lateral aspect of her lower leg (superficial peroneal nerve pattern: SEE Pic. A.1 Below). Within 24 hours, the patient called me to report that she was pain free and the hypersensitivity of the skin of her foot is at a minimum and that she wished to learn how to tape her own foot for self management. She was instructed how to tape her foot and she has been able to control her symptoms independently for the past nine months. She has returned to ice-skating, running and working out, rock climbing, taken swing dance lessons, and been able to put her feet in the ocean and tolerate the surf and sand.

**Conclusion:** Kinesio Taping has been a true compliment to my work as a physical therapist and I support the use of it 100%. As a result of the tremendous results that I have been able to achieve, I have seen a decrease in healing time and increased patient satisfaction following treatments. Since becoming a Certified Kinesio Taping Instructor, I have had the opportunity to host several seminars for physicians, chiropractors, massage therapists, acupuncturists, nurses, athletic trainers, and other physical therapists. There has been a very positive response towards Kinesio Taping. I am looking forward to continuing to educate people about Kinesio Taping and learning more about it as a treatment adjunct.

## **Kinesio Taping, Muscle Strength and ROM after ACL Repair**

Heather M. Murray, PhD, PT, University of New Mexico

Murray, H. (2000). *Journal of Orthopedic and Sports Physical Therapy*, 30, 1.

Improvement in strength in the anterior and posterior thigh muscles following anterior cruciate ligament (ACL) reconstruction is a major focus for physical therapists, athletic trainers and other rehabilitation specialists. In general, there is a significant decrease in both extensor and hamstring muscle strength, with

significant morbidity due to extensor lag. Efforts to increase quadriceps femoris and hamstring muscle strength may be hampered by the pre-surgical muscle atrophy commonly noted in ACL injured individuals, as well as post-surgical pain and swelling. Undesirable outcomes for soft tissue structures surrounding the knee after ACL-reconstruction can be correlated with restricted muscle contraction or limitation of knee motion. Although the techniques of cutaneous stimulation to enhance muscle contraction are widely used in rehabilitation settings, the effect is not long-lasting, with most overflow continuing only about 15-30 minutes after cessation of treatment. No modalities or externally applied dressings have been described that prolong the treatment effects.

It may be that an elastic tape might cause proprioceptive stimulation while at the same time not limiting the enhancement of improved joint range of motion and thigh muscle function during rehabilitation. One such elastic tape is called Kinesio Tape, long used for rehabilitation and during athletic competition in countries such as Japan, but not introduced into the United States until 1995. Kinesio Tape is a relatively unique tape that is capable of stretching up to 130-140% of its resting state, may either be used as a compressive or non-compressive external adjunct to rehabilitation, is approximately the same weight and thickness of skin, and has no medicinal qualities. In addition, Kinesio Tape is reported to be hypoallergenic and, due to its construction, allows the skin to breathe.

Little is known of the proprioceptive effects of elastic tape, but it may be anticipated that there will be a facilitatory effect of cutaneous mechanoreceptors as has been noted in the case of athletic tape. This mechanism may be an underlying component in the return of muscle function after injury. The purpose of this study is to compare the effects of Kinesio Taping versus athletic tape on muscle strength in the quadriceps femoris, hamstring and anterior tibialis muscles of the lower extremity in individuals with recent ACL reconstruction.

### **Methods**

In this study, 2 healthy adults, volunteered to perform an active knee extension as completely as possible. Each subject was positioned on a chair with an elevated seat such that their involved lower extremity did not touch the floor. Electromyographic (EMG) surface recording electrodes were placed on the skin over the muscles of the anterior and posterior thigh, and anterior leg compartment muscles. Each subject was asked to perform a single full knee extension with the involved side, and measurement of the active joint range of motion was made with a hand goniometer. EMG recordings were taken as the subjects then performed four full knee extensions. The goniometric and electromyographic measurements were made for the following conditions: no tape, athletic tape and Kinesio Tape, with the latter applied to the method of Kase (1994).

### **Results**

In both subjects, no difference was noted in extensor lag between the no tape and the athletic tape conditions. However, under the Kinesio Tape condition, there was a significant improvement in the active joint range of motion. EMG measurements revealed similar results with little to no difference between the no tape and athletic tape conditions, whereas under the Kinesio Tape condition there was an immediate increase of approximately 1½ times in amplitude compared to the prior conditions. In addition, each subject commented that they felt the muscle contraction was stronger when Kinesio Tape was applied compared to either no tape or with athletic tape.

### **Conclusions**

In this preliminary study, it was found that Kinesio Tape applied to the anterior aspect of the thigh could significantly enhance the joint active range of motion and that this increase is correlated with an increase in surface EMG of the muscles of the anterior compartment of the thigh, the quadriceps femoris muscle. It is not known as this time if the effects demonstrated in this study are mediated by skin mechanoreceptors. Nor is it known if the enhanced muscular contraction noted shortly after application of Kinesio Tape would be sustained after a prolonged period. These and other questions need to be addressed in further research efforts.

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## **The Effect of Kinesio Taping on Muscular Micro-Damage Following Eccentric Exercises**

Nosaka, K. (1999). The Effect of Kinesio Taping on Muscular Micro-Damage Following Eccentric Exercises. 15th Annual Kinesio Taping International Symposium Review. (pp. 70-73) Tokyo, Japan: Kinesio Taping Association.

### **Introduction**

Recently, Kinesio Taping has been used for reducing pain related to musculo-skeletal injuries, this has led to its frequent use in many exercises and sport related scenes. It has also been thought that Kinesio Taping could improve sports performance based on muscular functions.

If you do an inexperienced or unpracticed exercise, a few hours after doing that exercise you will experience a severe muscular pain (Delay Onset of Muscle Soreness = DOMS) and lowering of the muscle function. If Kinesio Taping were effective, it would prevent and efficiently improve pain relief, strength loss, and enzymatic activities.

The purpose of this study was to apply an eccentric exercise to the brachium flexor group in order to cause a delay onset of muscle soreness (DOMS). The study would compare the difference of the DOMS effect, with and without Kinesio Tape applied to the skin.

### **Subjects**

Twelve male students who had never been involved in any resistance training program were used as subjects (The mean age, height and weight were  $20 \pm 1.8$  years old,  $169.9 \pm 6.0$  cm,  $58.8 \pm 6.3$  kg.)

### **Procedure**

The subjects performed an eccentric resistance exercise on a modified arm curl machine. Subjects had their elbow joint in a 90 degree angle where they could maximally resist. From there, the subject's elbow was forcibly extended to a position where the elbow joint angle was approximately 180 degrees. Each eccentric resistant exercise lasted 3 seconds in duration, and was repeated every 15 seconds with a total of 24 maximal eccentric resistant exercises being performed. The study was divided into two sessions of testing with each session lasting five consecutive days and with two weeks in-between each session. In the first session, the subjects were randomly selected in equal numbers to be tested with Kinesio Tape applied to the biceps and the brachium during the exercise, and without Kinesio Tape applied during the exercise. In the second session, the group of subjects that had Kinesio Tape applied during the first session, were tested without tape, and vice-versa for the non-taped subjects during the first session. During both session the subjects same arm was tested and no information on what Kinesio Tape would do as an effect was given to the subjects.

The difference of the maximal isometric force (MIF) for the elbow in a 90 degree angle, range of motion (ROM) of the elbow joint, the pain scale (during extension, flexion, and pressure), circumference of the brachium (4 areas in length from the elbow joint 5, 7, 9, & 11cm were measured), plasma levels of creatin kinase (CK) from the blood, and an ultrasound diagnoses (using a B mode ultrasound device to measure muscle thickness and signal intensity of the brachium flexor group) was compared between the two groups. The changes of measurement based on time (in days) were recorded onto a dual disperse graph with the tape on (T = Treatment with tape) and without the tape (C = Control). An acceptable standard for each measurement was based on a variance of 5% or less.

### **Results**

All the measurements had an acceptable variance between the exercises (graph 1 to 5). However, the only measurement that met the acceptable standard was the muscle strength test (graph 1). However, all the measurements demonstrated a tendency that T (Treatment with tape) controlled the muscle damage and assisted in the recovery.

### **Discussion**

Based on this study, why there was an improvement only to MIF is still unclear. Also for the measurements that did not achieve an acceptable standard, one of the largest cause of error may be based on the individuality of the subjects. Therefore, we will still need to do further research based on this topic using a larger amount of subjects in order to conclude further effects.

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## Effect of Kinesio Taping on Proprioception in the Ankle

Heather M. Murray, PhD, PT and Laura J. Husk, PT

Murray, H. (2001). The Effects of Kinesio Taping on Proprioception in the Ankle and in the Knee. *Journal of Orthopedic and Sports Physical Therapy*, 31, 1.

Determine if strips of elastic tape across the ankle enhance proprioception compared to no tape or white athletic tape. A decrease in ankle proprioception has been linked to injury such as ankle sprain. Previous research has produced mixed results concerning effect of tape/braces on proprioception. White athletic tape is used primarily for mechanical support/stability, but may enhance proprioception via mechanoreceptors (Simoneau et al., 1997). Twenty-six subjects, 11 female and 8 male, ages 20-49 participated. Normal ligamentous stability of dormant ankle. Exclusion criteria: current ankle injury, significant foot deformity.

### Methods

Single group, repeated measures design; random presentation of conditions and target angles. Tape application according to the Kinesio Taping Method for ankle sprain; 2" wide strip of Kinesio Tex Tape applied to skin over anterior and lateral leg compartments. Testing apparatus: Lido Active isokinetic machine with electrogoniometer as part of equipment, dynamometer set at 300°/sec, axis of rotation just inferior to lateral malleolus. Target joint angle replication: 260 and 100 of plantar flexion, and 80 of dorsiflexion. Three minute rest interval between each test condition to reduce possibility of carry-over and practice effect. Condition: No tape, Athletic tape, Kinesio Tex Tape. Data Analysis: Absolute differences between target/reference angle and each replication for each condition. Values added to form deviation scores for each condition at each of the test angles. Scores compared using repeated measures ANOVA for each of the 3 angles.

### Results

No significant differences in ankle joint replication at 260 plantar flexion or 80 dorsiflexion. Kinesio Tex Tape condition significantly different at 100 plantar flexion,  $p < 0.05$ . No significant differences between tape conditions, previous dominant lower extremity injury or current activity level for any joint position tested,  $p > 0.05$ .

## The use of Kinesio Tape in patients diagnosed with Patellofemoral pain

Rob Brandon, MPT, ATC, CKTI and Lisa Paradiso, PT (2005)

Patellofemoral pain (PFP) is a common clinical finding in a wide variety of individuals. (1, 2, 3) Treatment guidelines and underlying rationales remain vague and controversial. (4) Understanding this information, the purpose of this case study presentation is to present how the Kinesio Taping Method was utilized to address patients diagnosed with PFP.

### Case Descriptions

#### Patient 1:

91 year old female who presented to physical therapy post- op Left Hip ORIF and a secondary diagnosis of PFP. Her onset of knee pain was two weeks prior to the Kinesio Taping treatment. Significant physical therapy findings included: 1. 5 degree lag with a straight leg raise (SLR); 2. MMT of Rectus femoris = 3/5, Hip Abductors and Adductors = 3/5; 3. Positive excessive knee valgus with single leg squat; 4. VMO atrophy.

#### Patient 2:

56 year old female who presented to physical therapy for PFP. Her onset of knee pain was 3-4 years prior to the Kinesio Taping treatment. Significant physical therapy findings included: 1. MMT Rectus femoris = 4-/5, Quads = 4/5, Hip Adductors/ Abductors = 4/5; Pain with ascending and descending stairs.

#### Patient 3:

12 year old female who presented to physical therapy for PFP. Her onset of knee pain was 1 year prior to the

Kinesio Taping treatment. Significant physical therapy findings included: 1. MMT Rectus Femoris = 3+/5, Quads = 3+/5, Hip Abductors = 4/5, SLR with 5 degree lag; 2. Pain with walking, running, snowboarding, and sitting.

### **Kinesio Taping Method Technique**

We used a 2 inch "I" strip with a split to a "Y" proximal to the superior patellar boarder. The strip started at the origin of the Rectus Femoris with a 2" base which had zero tension; 50% of available tension was used through the "I" strip. The lateral tail of the "Y" portion was applied as a Mechanical Correction with 75% of available tension used over the lateral patellar border with the final 2" with zero tension. The medial tail was applied with 10% (paper off tension) along the medial patellar border and then zero tension for the last 2". (see figure 1,2, and 3)

### **Outcomes**

Patient 1 = no pain with gait; no night pain, knee pain was immediately resolved following the application.

Patient 2 = no pain with normal walking, no pain with ascend or descend stairs, patient reported less pain at the end of her day.

Patient 3 = no pain with running or during ADL's

### **Conclusion**

This case study simply demonstrates that the Kinesio Taping Method has been used in cases of patellofemoral pain with positive effects on pain and function. Clearly, further research is necessary to show the benefits of the Kinesio Taping Method.

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[Ortop Traumatol Rehabil. 2007 Nov-Dec;9\(6\):634-43.](#)

## **Effect of Kinesio Taping on bioelectrical activity of vastus medialis muscle Preliminary report**

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Zakład Rehabilitacji Oddziału Fizjoterapii II WL, Akademia Medyczna, Warszawa.

**Introduction:** Kinesio Taping is currently regarded by physiotherapists as a method supporting rehabilitation and modulating some physiological processes. It is employed e.g. in orthopaedics and sport medicine. This sensory method supports joint function by exerting an effect on muscle function, enhancing activity of the lymphatic system and endogenous analgesic mechanisms as well as improving microcirculation. The aim of the study was to determine the effect of Kinesio Taping on changes in the tone of the vastus medialis muscle during isometric contractions.

**Material and method:** The study group included 27 healthy persons. A Kinesio Tape was placed to support the function of the medial head of the quadriceps muscle of thigh. Transdermal EMG was used to assess bioelectrical activity of the muscle. A standardised protocol was employed for measurement of muscle tone, recorded as the peak torque of the muscle.

**Results:** An examination performed 24 hours after the placement of the Kinesio Tape revealed significantly increased recruitment of the muscle's motor units, as expressed by peak torque. An examination performed after 72 hours of kinesio taping showed a statistically significant increase in bioelectrical activity of the

muscle. However, this was lower than the effect at 24 hours. In the group where the tapes were removed after 24 hours, high torque was still maintained.

**Conclusions:** 1. Clinically significant effects of Kinesio Taping in this study included an increase in the bioelectrical activity of the muscle after 24 hours of kinesio taping and the maintenance of this effect for another 48 hours following removal of the tape. 2. The decrease in muscle tone to the baseline value, which was observed during the fourth day of Kinesio Taping use, may have resulted from the time of effective use of the KT tape being shorter than previously believed and may restrict Kinesio Taping use. 3. Kinesio Taping used shortly before the motor activity it is supposed to support may fail to fulfil its function.

[Conf Proc IEEE Eng Med Biol Soc.](#) 2007;2007:95-8.

### **Motion tracking on elbow tissue from ultrasonic image sequence for patients with lateral epicondylitis.**

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In this study, Kinesio Tape(R) is used in patients with lateral epicondylitis. The ultrasonic image sequences of elbow are recorded dynamically, and then motion tracking is applied to assist in understanding the effect of the therapy. Motion tracking, based on optical flow method, is used to track certain landmark on the ultrasound image, which is very ambiguous, for estimating the motion of muscle. Hierarchical block tracking technique is proposed to perform this task. The motions with and without Kinesio Taping are compared and can be used as quantitative indicators for the treatment. 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.

PMID: 18001897 [PubMed - indexed for MEDLINE]

[J Sci Med Sport.](#) 2008 Apr;11(2):198-201. Epub 2007 Jun 27.

### **Effect of Kinesio taping on muscle strength in athletes-a pilot study.**

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Department of Physical Medicine and Rehabilitation, Chang Gung University, Taiwan.

Muscle strength is a key component of an athlete's performance and may be influenced by taping. This study examined the possible immediate and delayed effects of Kinesio taping on muscle strength in quadriceps and hamstring when taping is applied to the anterior thigh of healthy young athletes. Fourteen healthy young athletes (seven males and seven females) free of knee problems were enrolled in this study. Muscle strength of the subject was assessed by the isokinetic dynamometer under three conditions: (1) without taping; (2) immediately after taping; (3) 12h after taping with the tape remaining in situ.

The result revealed no significant difference in muscle power among the three conditions. Kinesio taping on the anterior thigh neither decreased nor increased muscle strength in healthy non-injured young athletes.

PMID: 17588814 [PubMed - in process]

[Res Sports Med.](#) 2007 Apr-Jun;15(2):103-12.

## The effect of kinesio taping on lower trunk range of motions

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The purpose of the study was to determine the effects of kinesio taping (KT) on trunk flexion, extension, and lateral flexion. Thirty healthy subjects with no history of lower trunk or back issues participated in the study. Subjects performed two experimental measurements of range of motion (with and without the application of KT) in trunk flexion, extension, and right lateral flexion. A dependent t test was used to compare the range of motion measurements before and after the application of KT.

Through evaluation of the sum of all scores, KT in flexion produced a gain of 17.8 cm compared with the non-kinesiotape group ( $t(29)=2.51$ ,  $p<0.05$ ). No significant difference was identified for extension (-2.9 cm;  $t(29)=-0.55$ ,  $p>0.05$ ) or lateral flexion (3 cm;  $t(29)=-1.25$ ,  $p>0.05$ ). Based on the findings, we determined that KT applied over the lower trunk may increase active lower trunk flexion range of motion. Further investigation on the effects of KT is warranted.

PMID: 17578750 [PubMed - indexed for MEDLINE]

## The Clinical Efficacy of Kinesio Tape for Shoulder Pain: A Randomized, Double-Blinded, Clinical Trial

[Mark D. Thelen](#), [James A. Dauber](#), [Paul D. Stoneman](#)

DOI: 10.2519/jospt.2008.2791

**STUDY DESIGN:** Prospective, randomized, double-blinded, clinical trial using a repeated-measures design.

**OBJECTIVES:** To determine the short-term clinical efficacy of Kinesio Tape (KT) when applied to college students with shoulder pain, as compared to a sham tape application.

**BACKGROUND:** Tape is commonly used as an adjunct for treatment and prevention of musculoskeletal injuries. A majority of tape applications that are reported in the literature involve nonstretch tape. The KT method has gained significant popularity in recent years, but there is a paucity of evidence on its use.

**METHODS AND MEASURES:** Forty-two subjects clinically diagnosed with rotator cuff tendonitis/impingement were randomly assigned to 1 of 2 groups: therapeutic KT group or sham KT group. Subjects wore the tape for 2 consecutive 3-day intervals. Self-reported pain and disability and pain-free active ranges of motion (ROM) were measured at multiple intervals to assess for differences between groups.

**RESULTS:** The therapeutic KT group showed immediate improvement in pain-free shoulder abduction (mean  $\pm$  SD increase,  $16.9^\circ \pm 23.2^\circ$ ;  $P = .005$ ) after tape application. No other differences between groups regarding ROM, pain, or disability scores at any time interval were found.

**CONCLUSION:** KT may be of some assistance to clinicians in improving pain-free active ROM immediately after tape application for patients with shoulder pain. Utilization of KT for decreasing pain intensity or disability for young patients with suspected shoulder tendonitis/impingement is not supported.

**LEVEL OF EVIDENCE:** Therapy, level 1b-.

*J Orthop Sports Phys Ther.* 2008;38(7):389-395, published online 29 May 2008.  
doi:10.2519/jospt.2008.2791

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## THE USE OF KINESIO TAPING IN IMPROVEMENT OF FACE MOBILITY IN PATIENT AFTER FACIAL NERVE RECONSTRUCTION

Ireneusz Hałas, Tomasz Senderek, Lucyna Krupa  
FP 2005; 5(2):272-276  
ICID: 443616 Article type: Case reportIC™ Value: 3.38

**Background.** The purpose of this study was to present the possibility of using Kinesio Taping method as a complementary therapy in patients with peripheral nervous system damage.

**Material and methods.** The paper presents a case study of female patient who was treated in the Rehabilitation Centre of Neuropsychiatric Hospital in Lublin. In addition to various kinds of physiotherapy procedures, the Kinesio® Tex tape and Kinesio Taping methods were implemented in treatment.

**Results.** We noted improvement in face symmetry, tongue muscles movements and in some elements determining quality of life of the patient.

**Conclusions.** The use of Kinesio Taping method in physiotherapy of peripheral nervous system damage is new and effective therapeutic option.

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[J Electromyogr Kinesiol.](#) 2009 Dec;19(6):1092-9. Epub 2009 Jan 14.

## The effects of taping on scapular kinematics and muscle performance in baseball players with shoulder impingement syndrome.

[Hsu YH](#), [Chen WY](#), [Lin HC](#), [Wang WT](#), [Shih YF](#).

Department of Physical Therapy and Assistive Technology, National Yang-Ming University, Taipei, Taiwan.

**PURPOSE:** This study aimed to investigate the effect of elastic taping on kinematics, muscle activity and strength of the scapular region in baseball players with shoulder impingement.

**SCOPE:** Seventeen baseball players with shoulder impingement were recruited from three amateur baseball teams. All subjects received both the elastic taping (Kinesio Tex) and the placebo taping (3M Micropore tape) over the lower trapezius muscle. We measured the 3-dimensional scapular motion, electromyographic (EMG) activities of the upper and lower trapezius, and the serratus anterior muscles during arm elevation. Strength of the lower trapezius was tested prior to and after each taping application. The results of the analyses of variance (ANOVA) with repeated measures showed that the elastic taping significantly increased the scapular posterior tilt at 30 degrees and 60 degrees during arm raising and increased the lower trapezius muscle activity in the 60-30 degrees arm lowering phase ( $p < 0.05$ ) in comparison to the placebo taping.

**CONCLUSIONS:** The elastic taping resulted in positive changes in scapular motion and muscle performance. The results supported its use as a treatment aid in managing shoulder impingement problems.

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[J Orthop Sports Phys Ther.](#) 2009 Jul;39(7):515-21.

## Short-term effects of cervical kinesio taping on pain and cervical range of motion in patients with acute whiplash injury: a randomized clinical trial.

[González-Iglesias J](#), [Fernández-de-Las-Peñas C](#), [Cleland JA](#), [Huijbregts P](#), [Del Rosario Gutiérrez-Vega M](#).

Centor de Fisioterapia Integral, Candas, Asturias, Spain.

**DESIGN:** Randomized clinical trial.

**OBJECTIVES:** To determine the short-term effects of Kinesio Taping, applied to the cervical spine, on neck pain and cervical range of motion in individuals with acute whiplash-associated disorders (WADs).

**BACKGROUND:** Researchers have begun to investigate the effects of Kinesio Taping on different musculoskeletal conditions (eg, shoulder and trunk pain). Considering the demonstrated short-term effectiveness of Kinesio Tape for the management of shoulder pain, it is suggested that Kinesio Tape may also be beneficial in reducing pain associated with WAD.

**METHODS AND MEASURES:** Forty-one patients (21 females) were randomly assigned to 1 of 2 groups: the experimental group received Kinesio Taping to the cervical spine (applied with tension) and the placebo group received a sham Kinesio Taping application (applied without tension). Both neck pain (11-point numerical pain rating scale) and cervical range-of-motion data were collected at baseline, immediately after the Kinesio Tape application, and at a 24-hour follow-up by an assessor blinded to the treatment allocation of the patients. Mixed-model analyses of variance (ANOVAs) were used to examine the effects of the treatment on each outcome variable, with group as the between-subjects variable and time as the within-subjects variable. The primary analysis was the group-by-time interaction.

**RESULTS:** The group-by-time interaction for the 2-by-3 mixed-model ANOVA was statistically significant for pain as the dependent variable ( $F = 64.8$ ;  $P < .001$ ), indicating that patients receiving Kinesio Taping experienced a greater decrease in pain immediately postapplication and at the 24-hour follow-up (both,  $P < .001$ ). The group-by-time interaction was also significant for all directions of cervical range of motion: flexion ( $F = 50.8$ ;  $P < .001$ ), extension ( $F = 50.7$ ;  $P < .001$ ), right ( $F = 39.5$ ;  $P < .001$ ) and left ( $F = 3.8$ ,  $P < .05$ ) lateral flexion, and right ( $F = 33.9$ ,  $P < .001$ ) and left ( $F = 39.5$ ,  $P < .001$ ) rotation. Patients in the experimental group obtained a greater improvement in range of motion than those in the control group (all,  $P < .001$ ).

**CONCLUSIONS:** Patients with acute WAD receiving an application of Kinesio Taping, applied with proper tension, exhibited statistically significant improvements immediately following application of the Kinesio Tape and at a 24-hour follow-up. However, the improvements in pain and cervical range of motion were small and may not be clinically meaningful. Future studies should investigate if Kinesio Taping provides enhanced outcomes when added to physical therapy interventions with proven efficacy or when applied over a longer period.

**LEVEL OF EVIDENCE:** Therapy, level 1b. *J Orthop Sports Phys Ther* 2009;39(7):515-521, Epub 24 February 2009. doi:10.2519/jospt.2009.3072.

## Biomechanics Effects of Kinesio Taping for Persons with Patellofemoral Pain Syndrome During Stair Climbing

P.L. Chen<sup>1</sup>, W.H. Hong<sup>1\*</sup>, C.H. Lin<sup>1</sup> and W.C. Chen<sup>1</sup>

<sup>1</sup> China Medical University /Department of Sports Medicine, Taichung, Taiwan

**Purpose:** The purpose of this study was to examine the biomechanical effects of kinesiotaping for persons with patellofemoral pain syndrome during stair climbing.

**Methods:** Fifteen women diagnosed with PFPS by an experienced musculoskeletal physiotherapist were recruited and exclusion criteria were based on previous studies. Ten normal subjects were recruited as

control group in this study. The ground reaction forces (GRFs) and the EMG activity timing and ratio of VMO and VL were calculated for no tape, placebo tape, and kinesio taping conditions for PFFS and control groups during ascending and descending stair.

**Result:** The results showed there was significant difference between no tape and Kinesio tape conditions for PFFP group during descending stair ( $p < 0.05$ ). And there was significant difference between no tape and Kinesio taping conditions for PFFP group ( $p < 0.05$ ).

**Conclusion:** The results showed Kinesio taping can reduce pain and improve the ratio of VMO/VL for the mechanism of patellar stability.

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## The efficacy of Kinesio taping in patients with a low back pain

Cheol Hwan Kim, Ae Ran Kim, Myeong Il Kim, Se Hyeon Kim, Hee Jeong Yoo, Sang Hyeon Lee

**Background:** Kinesio taping is a treatment for pain and dysfunction of musculoskeletal system, using tapes which have a similar elasticity to skin. This study was done to find out about the efficacy of kinesio taping on patients with a low back pain.

**Methods:** This study was performed in patients with a non-specific low back pain who had visited the Incheon International Airport Construction Authority Clinic from January 2000 to April 2000. We performed taping to a randomized case group and a placebo to control group during the first 3 days. After the first 3 days, we assessed the changes of improvement in low back pain with visual-analogue pain scale (VAS). From the second visit on, we also started carrying out kinesio taping in the control group.

**Results:** The total number of patients participating in this study was 43, but 4 patients did not complete the study stopped. After the first 3 days, control group showed just 0.93 of the VAS score improvement, while randomized case group showed 2.55 ( $p = 0.003$ ). The VAS score of case and control group were 3.18 and 3.03 respectively, which showed improvement at the end point of treatment compared with the first score.

**Conclusion:** Kinesio taping was more efficacious than placebo in patients with a nonspecific low back pain.

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## Effects of kinesio taping on the timing and ratio of vastus medialis obliquus and vastus lateralis muscle for person with patellofemoral pain

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### INTRODUCTION

Person with patellofemoral pain syndrome (PFFS) may be due to inadequate medial control from the vastus medialis obliquus muscle (VMO). This inadequate control could be due to a reduction in the tension-producing capacity of the VMO or a problem with the timing of VMO activity in persons with PFFS (Voight and Weider, 1991). The PFFS manifest as anterior knee pain aggravated by activities such as squatting and stair climbing. The patellar taping has been used to treat the PFFS, but there were the inconsistent findings in previous studies (Ng and Cheng, 2002; Salsich et al., 1999). Kinesio taping, created by Kenzo Kase in 1996, is a specialized tape which is thin, elastic and can be stretched up to 120%~140% of its original length, making it quite elastic, compared with the conventional taping. It allows a partial to full range of motion for the applied muscles and joints with different pulling forces to the skin. However, only few researches have measured the effectiveness of Kinesio taping and, however, these revealed inconsistent results (Murray and Husk, 2001; Robbins, 1995), and no study assessed the effects of tape in person with PFFS. Therefore, the

purpose of this study was to examine The effects of Kinesio taping on the timing and ratio of VMO and vastus lateralis (VL) for person with PFPS.

## METHODS

Fifteen women diagnosed with PFPS by an experienced musculoskeletal physiotherapist were recruited and exclusion criteria were based on previous studies. Ten normal subjects were recruited as control group in this study. Subjects were taped for pulling VMO up and pulling VL down in accordance to Kinesio taping manual (Kase et al., 1996), and white athletic tapes were in same position as the placebo condition. Taping procedures were applied by the principal investigator (a certified athletic trainer) to ensure consistency throughout this study. A MA-300EMG system (Motion Lab System, LA, USA) was used to record the EMG activity of VMO and VL. The stair included a 60 cm platform with two steps of 25 height and was placed in the center of walkway. Subjects completed a stair stepping task during ascent and descent for five consecutive trials. The timing and EMG activity ratio of VMO and VL were calculated for no tape, placebo tape, and tape conditions for PFPS and control groups. A repeated measures ANOVA were used to compare the effect of taping. The level of significance was set at  $p < 0.05$ .

## RESULTS AND DISCUSSION

The results showed that the onset of VMO activity occurred earlier movement in Kinesio tape compared with no tape condition ( $p < 0.05$ ), but there was no difference between placebo tape and no tape condition. The earlier activation of the VMO should allow for a more optimal positioning of the patella into the trochlea (Fulkerson and Hungerford, 1990). It may help to improve the timing of force distribution and decrease the pressure placed on a particular portion of the articular cartilage. Fig 1 shows the EMG activity ratio (VMO/VL) in the three taping conditions for control and PFPS groups. The results showed there were significant differences Kinesio taping compared to no taping condition in the PFPS group ( $p < 0.05$ ), and no differences between taping conditions in the control group. The Kinesio taping applied to the skin surface apparently provided tactile input, which interact with motor control by altered the excitability of the central neuron system (Simonea et al., 1997). The tactile input generated by Kinesio taping might be strong enough to modulate muscle power.

## CONCLUSIONS

The results showed Kinesio tape would change in timing of VMO and improve the ratio of VMO/VL for the mechanism of efficacy.

## The Effects of Kinesio Taping on Quadriceps Strength During Isokinetic Exercise in Healthy Non-Athlete Women

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<sup>a</sup>*Polyklinik Olympic Village, Acharnes, Greece*

<sup>b</sup>*Department of Physical Education and Sports, Democritus University of Thrace, Komotini, Greece*

**Purpose:** The purpose of the study was to investigate the effect of Kinesio Taping on quadriceps strength at maximum concentric and eccentric isokinetic exercise mode in healthy non-athlete women in order to examine the Kinesio Taping effect in increasing or decreasing the muscular quadriceps strength.

**Methods:** Three different quadriceps taping modes have been used (no taping, placebo taping, Kinesio Taping) for the study and isokinetic concentric and eccentric strength assessments have been done for both knee extensors and flexors.

**Results:** One-way ANOVA for repeated measures revealed no significant differences in max concentric torque between the three different taping modes but significant differences in max eccentric torque during both the concentric and eccentric mode of the quadriceps muscle.

**Conclusion:** The results suggest that application of Kinesio Taping on the anterior surface of the thigh, in the direction of vastus medialis, lateralis and rectus femoris fascia, could increase the eccentric muscle strength (isokinetic eccentric peak torque), in healthy adults.

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## **Kinesio taping compared to physical therapy modalities for the treatment of shoulder impingement syndrome.**

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Department of Physical Medicine and Rehabilitation, Bursa Military Hospital, Bursa, Turkey.

### **Abstract**

The purpose of this study was to determine and compare the efficacy of kinesio tape and physical therapy modalities in patients with shoulder impingement syndrome.

Patients (n = 55) were treated with kinesio tape (n = 30) three times by intervals of 3 days or a daily program of local modalities (n = 25) for 2 weeks. Response to treatment was evaluated with the Disability of Arm, Shoulder, and Hand scale. Patients were questioned for the night pain, daily pain, and pain with motion. Outcome measures except for the Disability of Arm, Shoulder, and Hand scale were assessed at baseline, first, and second weeks of the treatment. Disability of Arm, Shoulder, and Hand scale was evaluated only before and after the treatment. Disability of Arm, Shoulder, and Hand scale and visual analog scale scores decreased significantly in both treatment groups as compared with the baseline levels.

The rest, night, and movement median pain scores of the kinesio taping (20, 40, and 50, respectively) group were statistically significantly lower (p values were 0.001, 0.01, and 0.001, respectively) at the first week examination as compared with the physical therapy group (50, 70, and 70, respectively). However, there was no significant difference in the same parameters between two groups at the second week (0.109, 0.07, and 0.218 for rest, night, and movement median pain scores, respectively). Disability of Arm, Shoulder, and Hand scale scores of the kinesio taping group were significantly lower at the second week as compared with the physical therapy group. No side effects were observed. Kinesio tape has been found to be more effective than the local modalities at the first week and was similarly effective at the second week of the treatment. Kinesio taping may be an alternative treatment option in the treatment of shoulder impingement syndrome especially when an immediate effect is needed.

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## **Treatment of myofascial pain in the shoulder with Kinesio Taping®. A case report**

### **Authors**

Francisco Garcia-Muro • Angel L. Rodriguez-Fernandez • Angel Herrero-de-Lucas

### **Published**

16 September 2009 Manual Therapy xxx (2009) 1–4

### **Summary**

Kinesio Taping® was a technique developed by Dr. Kenzo Kase in the 70s. The adhesive pliable material, directly applied to the skin, differs from classical tape in its physical characteristics. Furthermore, its clinical application departs from the usual restriction of mobility. This technique claims four effects: to normalize muscular function, to increase lymphatic and vascular flow, to diminish pain and aid in the correction of possible articular malalignments (Kase et al., 1996). This taping technique is frequently applied for pathologies in the musculoskeletal system, especially in the field of sports injuries (Yasukawa et al., 2006; Zajt-Kwiatkowska et al., 2007). Myofascial pain has been studied by several authors (Simons, 1996; Hong and Simons, 1998; Travell and Simons, 1999; Niddam et al., 2007) and among the manual therapy techniques applied are massage (Gam et al., 1998; Travell and Simons, 1999), compression techniques (Hanten et al., 2000), stretching (Travell and Simons, 1999; Hanten et al., 2000), injection of different substances (De Andres et al., 2003; Kamanli et al., 2005) and dry needling (Edwards and Knowles, 2003). Notwithstanding the above, there is an absence of references documenting the application of Kinesio Taping® in the treatment of pain arising from myofascial trigger points (MTPs). This case report documents

the results achieved with Kinesio Taping® as the exclusive therapeutic procedure for the treatment of a patient with shoulder pain of myofascial origin.

### **Conclusions**

Data on pain, joint motion and shoulder function obtained from this study may suggest that treatment with Kinesio Taping contributed to the resolution of the patient's pathology, producing an immediate improvement and resolving the problem in the following days. The results therefore suggest that Kinesio Taping® might well be a technique highly appropriate in the treatment of MTPs.

## **The Effect of Kinesio Tex Tape on Muscular Strength of the Forearm Extensors on Collegiate Tennis Athletes**

Melissa Schneider, ATC, LAT, CSCS, Matthew Rhea, PhD, Curtus Bay, PhD

[http://www.kinesiotaping.com/kta/research/2010-3.pdf?\\_ob=ArticleURL&\\_udi=B6WB6-507DJXG-3&\\_user=10&\\_origUdi=B6WPB50P47PN1&\\_fmt=high&\\_coverDate=07/31/2010&\\_rdoc=1&\\_orig=article&\\_origin=article&\\_zone=related\\_art&\\_acct=C000050221&\\_version=1&\\_urlVersion=0&\\_userid=10&md5=806239a9569493846a22fd22d789c26a](http://www.kinesiotaping.com/kta/research/2010-3.pdf?_ob=ArticleURL&_udi=B6WB6-507DJXG-3&_user=10&_origUdi=B6WPB50P47PN1&_fmt=high&_coverDate=07/31/2010&_rdoc=1&_orig=article&_origin=article&_zone=related_art&_acct=C000050221&_version=1&_urlVersion=0&_userid=10&md5=806239a9569493846a22fd22d789c26a)

**Context:** Tennis players, as a group, exhibit a 40% to 50% chance of being diagnosed with lateral epicondylitis at some point in their career. Kinesio Tape (KT) is a popular therapeutic application that is used by athletic trainers, physical therapists and physicians to increase stimulation of mechanoreceptors in order to facilitate muscular power/strength and decrease pain, edema, and inflammation. However, there is minimal research to support the therapeutic benefit of KT.

**Objective:** To determine if KT used in healthy collegiate tennis athletes is effective at decreasing fatigue by maintaining strength of the forearm extensors, which are commonly associated with lateral epicondylitis.

**Design:** Repeated-measures, counterbalanced design.

**Setting:** University Tennis Facility.

**Patients or Other Participants:** Fourteen (8 females, 6 males) healthy Division I tennis athletes.

**Intervention(s):** KT using a Y strip and no tape intervention.

**Main Outcome Measure(s):** The MicroFET2 was used to test the strength of the forearm extensors at pretest, mid-test, and post-test of 65 slice backhands and 75 forehands performed by each athlete.

**Results:** RM ANOVA for the interaction of measurement period by group showed that strength in the control condition was significantly decreased when compared to strength in the KT condition ( $F=5.79$ ,  $p=.032$ ). Percent change in strength between groups across measurement periods, using a Bonferonni correction, did not yield statistically significant differences: pre- to mid-test ( $p=.094$ ), mid- to post-test ( $p=.210$ ), or pre- to post-test ( $p=.019$ ).

**Conclusion:** Our research indicates that KT, when applied to healthy collegiate tennis athletes, is associated with less of a decrease in muscular strength than that seen in a "no tape" condition. More research must be done to test if KT has a therapeutic benefit for athletes with chronic lateral epicondylitis.

## **Immediate effect of forearm Kinesio taping on maximal grip strength and force sense in healthy collegiate athletes**

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Received 2 February 2010;  
revised 7 June 2010;  
accepted 29 June 2010.  
Available online 3 August 2010.

**Objectives:** To determine the immediate effects of applied forearm Kinesio taping on maximal grip strength and force sense of healthy collegiate athletes.

**Design:** Single group, repeated measures study.

**Setting:** Clinical sports medicine laboratory at a university hospital.

**Participants:** Twenty-one healthy collegiate athletes voluntarily participated in this study. All subjects were male (average height:  $181.24 \pm 7.60$  cm; average body weight:  $72.86 \pm 7.03$  kg; average age:  $20.86 \pm 2.59$  years).

**Main Outcome Measures:** First, maximal grip strength of the dominant hand was assessed by hand-held dynamometer. Then, 50% of maximal grip strength was established as the reference value of force sense. Absolute and related force sense errors and maximal grip strength were measured under three conditions: (1) without taping; (2) with placebo taping; and (3) with Kinesio taping.

**Results:** Results revealed no significant differences in maximal grip strength between the three conditions ( $p = 0.936$ ). Both related and absolute force sense errors in grip strength measurements significantly increased the accuracy of the results under the three conditions (related force sense errors:  $p < 0.05$ ; absolute force sense errors:  $p < 0.05$ ).

**Conclusion:** Forearm Kinesio taping may enhance either related or absolute force sense in healthy collegiate athletes. However, Kinesio taping did not result in changes in maximal grip strength in healthy subjects.

## Treatment with Kinesio Taping® on the shoulder injuries in water polo players: pilot study

### Authors

Stefano Frassine • Michela Colombo

### Summary

Ten water polo players with shoulder injury were evaluated before starting a rehabilitation program using Kinesio® tape. They were also evaluated after KT application, after the first training with KT, after 1 and 2-months rehabilitation program consisted on stretching, strengthening of the shoulder and scapular muscle and kinesio taping. In evaluation we considered pain with VAS pain scale and the level of function with the Constant shoulder score.

### Results

The athletes exhibited significantly lower pain and greater level of function and they were able to train and to play without activities modification or using anti-inflammatory.

## **Treatment for Sore Knees**

### **Author**

Rick Rosa, D.C.,D.A.A.P.M

### **Published**

28-Sep-2007 PezCycling News

### **Summary**

The knee is a complex biomechanical piece of machinery and a common site for injuries for cyclist. When not functioning properly, it will let you know with a nice dose of pain. There are many conditions and outside factors that can affect the knee. This article looks at two cases with similar complaints, with a functional problem called Patellar Tendonitis. We used Kinesio Tape to take some of the pressure off the tendon and also to aid in speeding up the healing process.

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## **“Treatment for the Disorders for Dancers” Analysis of the Effects of Kinesio Taping on the movement of Dancers**

Atsushi Futakawa

<http://www.kinesiotaping.com/kta/research/2005-2.pdf>

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## **The effects of Kinesio Taping on pain from Patellar and Achilles Tendonitis for Bicyclists**

Wendy S. Burke

<http://www.kinesiotaping.com/kta/research/2005-4.pdf>

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## **Injuries in Golf**

Kristinn Heinrichs

<http://www.kinesiotaping.com/kta/research/2003-4.pdf>

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## **Kinesio Taping® therapy in Sciatic Patients in Pregnancy Due To Lumbar Disc Herniation**

Koh Doyle

<http://www.kinesiotaping.com/kta/research/2003-5.pdf>

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## **Effects of Kinesio® and Traditional Tape on Motor Perception and Basic Soccer Skills**

Ming-Yao Lou

<http://www.kinesiotaping.com/kta/research/2003-6.pdf>

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### **The Effects of the Kinesio Taping® Method in Treatment of Congenital Torticollis**

Frances Powell

<http://www.kinesiotaping.com/kta/research/2002-1.pdf>

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### **Treatment of 2nd Degree Ankle Sprains using Modalities including Kinesio Taping®**

Jayson Goo

<http://www.kinesiotaping.com/kta/research/2001-1.pdf>

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### **Balance Awareness and Kinesio Taping® of the Ankle**

David Garcia

<http://www.kinesiotaping.com/kta/research/2001-2.pdf>

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### **Effects of Kinesio Taping® on Posture and Presence of Upper Extremity Pain**

Heather Murray

<http://www.kinesiotaping.com/kta/research/2001-3.pdf>

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### **Balance Awareness and Kinesio Taping® of the Ankle**

Laura Jo Husk

<http://www.kinesiotaping.com/kta/research/2001-4.pdf>

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### **Kinesio Taping® Therapy in Degenerative Cervical Disorders**

Koh Doyle

<http://www.kinesiotaping.com/kta/research/2000-1.pdf>

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## The effect of tape on glenohumeral rotation range of motion in elite junior tennis players.

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**OBJECTIVE:** The purpose of this study was to establish if, in elite junior tennis players, there is a difference between the dominant and nondominant shoulders in the internal and external range of motion (ROM) of the shoulder and to examine the effect of taping the dominant shoulder on glenohumeral internal and external rotation ROM.

**DESIGN:** Measurement of glenohumeral rotational ROM was performed on the dominant and nondominant shoulders in supine with the humerus abducted to 90 degrees. **SETTING:** Training room at the New South Wales Institute of Sport tennis center, Homebush, New South Wales, Australia.

**PARTICIPANTS:** Eleven asymptomatic male subjects and 10 asymptomatic female subjects from an elite junior training squad participated in the study.

**INTERVENTION:** Humeral head repositioning with tape.

**MAIN OUTCOME MEASURE:** Glenohumeral ROM.

**RESULTS:** A statistically significant decrease in internal rotation for both the male and female groups between the dominant and nondominant shoulders, but only the female group had a significant increase in external rotation in the dominant compared with the nondominant shoulder. There was also a statistically significant increase in range between the tape and no tape conditions for each rotation condition.

**CONCLUSIONS:** The specific application of tape to the glenohumeral joint can immediately increase rotational ROM in the dominant arm of tennis players.

[Rev Hosp Clin Fac Med Sao Paulo.](#) 1991 Mar-Apr;46(2):78-81.

## Functional rehabilitation of degenerative tendinous injuries of the shoulder

[Article in Portuguese]

[Greve JM](#), [Rossi JD](#), [Cossermelli W](#), [Ferreira Filho AA](#).

Divisão de Medicina Física e Reabilitação do IOT, Universidade de São Paulo.

We studied 60 shoulders in a group of 58 patients, with injuries of shoulder tendons. Thirty-one patients presented impingement syndrome, eighteen patients calcareous tendinitis, five patients rotator cuff rupture, three patients bicipital tendinitis and three patients multiple lesions. All of them were submitted to physical therapy: ultra-sound and kinesio-therapy. Good results were obtained in 55% of the patients. Bad results were recorded in women, young people and in patients with calcareous tendinitis.

[Actual Odontostomatol \(Paris\).](#) 1991 Jun;45(174):171-90.

## **Kinesio therapy in maxillofacial practice**

[Article in French]

[Psaume-Vandebeek D.](#)

Hôpital de la Salpêtrière, Paris.

The importance taken on by Maxillo-Facial kinesitherapy and the constant increase of its application possibilities have led to increased mention of this new treatment. Its efficacy is obvious, it should no longer be ignored by physicians, surgeons and specialists in the oro-cervico-facial field. Hardly explored twenty years ago, this field today constitutes a new discipline. The patients should now to benefit from this therapy, in order to ensure a total recovery of their functions following a traumatising pathology or the onset of a TMJ syndrome.

## **The treatment of chronic cervical pain of different origin by K-Active Therapy**

[http://www.kactive.se/pdf/Chronic%20cervical%20pain%20of%20different%20origin%20by%20Kinez-jav%C3%ADt%C3%A1s%20\\_2\\_.pdf](http://www.kactive.se/pdf/Chronic%20cervical%20pain%20of%20different%20origin%20by%20Kinez-jav%C3%ADt%C3%A1s%20_2_.pdf)

## **Der Einfluss von Kinesio-Tape® auf die Muskelaktivität des M. vastus medialis und M. vastus lateralis**

<http://www.kactive.se/pdf/Der%20Einfluss%20von%20Kinesio-Tape%C2%AE%20auf%20die%20Muskelaktivit%C3%A4t%20des%20M.%20vastus%20medialis%20und%20M.%20vastus%20lateralis%20-%20abstract.pdf>

## **Differences in ankle range of motion before and after exercise in 2 tape conditions**

<http://www.kactive.se/pdf/Differences%20in%20ankle%20range%20of%20motion%20before%20and%20after%20exercise%20in%202%20tape%20conditions.pdf>

## **Kinesiology Taping –a evidence based method?**

[http://www.kactive.se/pdf/Kinesiogy%20Taping%20a%20evidence%20based%20method\\_04.pdf](http://www.kactive.se/pdf/Kinesiogy%20Taping%20a%20evidence%20based%20method_04.pdf)

[Eur J Phys Rehabil Med.](#) 2011 Jun;47(2):237-43. Epub 2011 Mar 24.

## **Kinesio Taping applied to lumbar muscles influences clinical and electromyographic characteristics in chronic low back pain patients.**

[Paoloni M](#), [Bernetti A](#), [Fratocchi G](#), [Mangone M](#), [Parrinello L](#), [Del Pilar Cooper M](#), [Sesto L](#), [Di Sante L](#), [Santilli V](#).

**Source**

Physical Medicine and Rehabilitation Unit, Azienda Policlinico Umberto I, Rome, Italy - paolonim@tin.it.

**Abstract****BACKGROUND:**

Kinesio Taping (KT) has proved to be effective in various musculoskeletal conditions. Although its precise working mechanism has yet to be fully understood, it is believed to interact with neuromuscular function through mechanoreceptor activation. No studies designed to assess the effects of KT in chronic low back pain (CLBP) patients have yet been conducted.

**AIM:**

The aim of this study was to determine the effects of KT on pain, disability and lumbar muscle function in sufferers of CLBP, both immediately and at a one-month follow-up examination.

**DESIGN:**

The study consisted of two phases: phase I was based on an intra-subject pre-test/post-test procedure; phase II was based on a randomized, single-blinded controlled trial.

**SETTING:**

Outpatient facility.

**POPULATION:**

Thirty-nine CLBP patients were enrolled.

**METHODS:**

KT plus exercise, KT alone or exercise alone have been used for four weeks. Pain, disability and lumbar muscle function were evaluated before and after the treatment period. **RESULTS;** The patients in all three groups displayed a significant reduction in pain after treatment, though only the exercise-alone group displayed reduced disability. A return to normal lumbar muscle function was observed in 28% of patients, but was not related to a reduction in pain.

**CONCLUSION:**

When applied to CLBP patients, KT leads to pain relief and lumbar muscle function normalization shortly after its application; these effects persist over a short follow-up period. **CLINICAL REHABILITATION IMPACT:** KT may represent an effective adjunct therapy in the physical rehabilitation program of CLBP patients for immediate and acute pain control.

[J Orthop Sports Phys Ther](#). 2011 May;41(5):328-35. Epub 2011 Jan 5.

### **Effects of kinesio tape compared with nonelastic sports tape and the untaped ankle during a sudden inversion perturbation in male athletes.**

[Briem K](#), [Eythörsdóttir H](#), [Magnúsdóttir RG](#), [Pálmarrsson R](#), [Rúnarsdóttir T](#), [Sveinsson T](#).

**Abstract****STUDY DESIGN:**

Controlled laboratory study.

**OBJECTIVES:**

To examine the effect of 2 adhesive tape conditions compared to a no-tape condition on muscle activity of the fibularis longus during a sudden inversion perturbation in male athletes (soccer, team handball, basketball).

**BACKGROUND:**

Ankle sprains are common in sports, and the fibularis muscles play a role in providing functional stability of the ankle. Prophylactic ankle taping with nonelastic sports tape has been used to restrict ankle inversion. Kinesio Tape, an elastic sports tape, has not been studied for that purpose.

**METHODS:**

Fifty-one male premier-league athletes were tested for functional stability of both ankles with the Star Excursion Balance Test. Based on the results, those with the 15 highest and those with the 15 lowest stability scores were selected for further testing. Muscle activity of the fibularis longus was recorded with surface electromyography during a sudden inversion perturbation. Each participant was tested under 3 conditions: ankle taped with nonelastic white sports tape, ankle taped with Kinesio Tape, and no ankle taping. Differences in mean muscle activity were evaluated with a 3-way mixed-model analysis of variance (ANOVA) for the 3 conditions, across four 500-millisecond time frames, and between the 2 groups of stable versus unstable participants. Differences in peak muscle activity and in the time to peak muscle activity were evaluated with a 2-way mixed-model ANOVA.

**RESULTS:**

Significantly greater mean muscle activity was found when ankles were taped with nonelastic tape compared to no tape, while Kinesio Tape had no significant effect on mean or maximum muscle activity compared to the no-tape condition. Neither stability level nor taping condition had a significant effect on the amount of time from perturbation to maximum activity of the fibularis longus muscle.

**CONCLUSION:**

Nonelastic sports tape may enhance dynamic muscle support of the ankle. The efficacy of Kinesio Tape in preventing ankle sprains via the same mechanism is unlikely, as it had no effect on muscle activation of the fibularis longus. *J Orthop Sports Phys Ther* 2011;41(5):328-335, Epub 5 January 2011. doi:10.2519/jospt.2011.3501.

## **Kinesio taping effects of the supraspinatus syndrome**

**Efectos del vendaje neuromuscular (*kinesiotaping*) en el síndrome del supraespinoso**  
Espejo Antúnez, L. / Cardero Durán, M.A., *Rehabilitación*, In Press, Corrected Proof, May 2011

**Abstract**

The main objective of this work is to determine the effectiveness of kinesio taping in an elite athlete with supraspinatus syndrome compared to other conservative treatments in which this Taping was not used. An initial assessment (pretest) and final assessment (posttest) were carried out in which the variables studied were pain, shoulder range of motion, muscle strength and the Perceived Exertion Index. The treatments were applied for three weeks and were divided into two phases: Phase 1, high frequency thermotherapy, ultrasound and massage therapy and phase 2, previous treatment combined with the kinesio taping technique. The results indicate a reduction in pain in both phases (higher in phase 2) and an increase as well as stabilization in quantity and/or quality of glenohumeral mobility in phase 2. Kinesio taping can be considered a complementary technique to the conservative treatment as it may reduce pain and improve joint mobility.

## **Role and place of color-active adhesive tape: practical application for rotator cuff impingement**

**Rôle et place des bandages adhésifs (*tape*) actifs de couleurs: Application pratique dans la pathologie du conflit de la coiffe des rotateurs**

Khelaf, Kerkour, *Kinésithérapie*, la Revue, 10 (104-105), p.29, Aug 2010

### Summary

The new approach of the taping, come from Japan, with coloured sticking adhesive bands, allows another approach in the control and the improvement of the pain and the function among sporting patients or not. The sticking bands have the properties of the skin (weight, thickness, elasticity) and will influence the articular, muscular but especially circulatory function (venous, lymphatic) and the nociceptors (neuroproprioceptive action). Various techniques (muscular, ligament, aponevrotic, lymphatic, neural of correction.) are used. The choice of the colours, of the direction of the bands, their tension is a function of the therapeutic objectives. As for any technique a formation is essential before any use.

**Level of evidence** : not applicable

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## Immediate effects of Kinesio Taping on trunk flexion

### Efectos inmediatos del kinesio taping en la flexión lumbar

Salvat Salvat, I. / Alonso Salvat, A., Fisioterapia, 32 (2), p.57, Mar 2010

#### Aims

This study has aimed to analyze whether the application of Kinesio taping increases trunk flexion compared with the application of placebo bandages and conventional adhesive bandages and to study in which segments this possible increase occurs.

#### Materials and methods

Experimental, double-blind study. The 33 subjects were randomly distributed into three groups: Kinesio taping was used in group A, conventional bandages in group B, and placebo bandages in group C. An identical protocol was followed, evaluating trunk flexion in all of the subjects with the set-and-reach test before and after the treatment. The software e-Ruler<sup>®</sup> was then used to evaluate increase in trunk flexion in the Kinesio taping group.

#### Results

The average increase in trunk flexion in the Kinesio taping group was greater than that of the other groups. However, the difference was not statistically significant (ANOVA,  $p=0.67$ ). Trunk flexion increased in all the subjects in the Kinesio taping group whereas it increased in 77% of the subjects in the other two groups. However, this result is not statistically significant (Chi square  $p=0.06$ ). A correlation was found between the increase in the Kinesio taping group and the decrease in the coxofemoral angle ( $r=-0.712$ ;  $p<0.05$ ).

#### Conclusions

It could not be demonstrated that the application of Kinesio taping increases trunk flexion. The gain achieved is more closely related to the decrease in the coxofemoral angle than to the greater extensibility of the rachis.

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## Immediate effect of kinesio tape on the reflex response of the vastus medialis regarding the use of two different application techniques: facilitation and inhibition of muscle

### Efecto inmediato del kinesio tape sobre la respuesta refleja del vasto interno ante la utilización de dos técnicas diferentes de aplicación: facilitación e inhibición muscular

Martínez-Gramage, J. / Ibáñez Segarra, M. / López Ridaura, A. / Merelló Peñalver, M. / Tolsá Gil, F.J., Fisioterapia, 33 (1), p.13, Jan 2011

#### Objective

To analyze the immediate effect of Kinesio Tape (KT) with two techniques (inhibition and facilitation) on reflex response of vastus medialis.

#### Methods

Thirty healthy individuals volunteered to take part in this study ( $25.9 \pm 6.2$  years,  $67.1 \pm 12.9$  kg; and  $171.1 \pm 9.5$  cm). An electrogoniometer was used to determine the onset of the imbalance and superficial

electromyography was recorded to compare intensity and latency of the reflex response of the vastus medialis under three different conditions: without KT, with KT origin-insertion and with KT insertion-origin. In order to assess the inter-observer reliability, two groups of researchers independently calculated the response intensity (maximum peak of the normalized electromyography) and latency (the time it takes between the start of the imbalance and the onset of reflex response).

### Results

High correlations between groups were found for the variables ( $0.773 \leq \text{ICC} \leq 0.883$ ). With regards to the effect of the KT, significant differences between the three conditions, without KT, with KT origin-insertion and with KT insertion-origin, were not found ( $P \geq .05$ ).

### Conclusions

The results suggest that the application of KT origin-insertion and KT insertion-origin does not have an immediate effect on the reflex response of the analyzed muscle.

[Clin J Sport Med.](#) 2010 Nov;20(6):416-21.

## The effect of kinesiotape on function, pain, and motoneuronal excitability in healthy people and people with Achilles tendinopathy

[Firth BL](#), [Dingley P](#), [Davies ER](#), [Lewis JS](#), [Alexander CM](#).

### Source

Department of Physiotherapy, Charing Cross Hospital, Imperial College Healthcare NHS Trust, London, England, UK.

### Abstract

#### OBJECTIVE:

To investigate the effect of kinesiotape on hop distance, pain, and motoneuronal excitability in healthy people and people with Achilles tendinopathy (AT).

#### DESIGN:

Within-subject design.

#### SETTING:

An academic health science center, which is an acute London National Health Service trust.

#### PARTICIPANTS:

With ethical approval and informed consent, a convenience sample of 26 healthy people and 29 people with AT were recruited. Seven participants were lost after functional testing, leaving 24 participants in each group.

#### INTERVENTIONS:

Kinesiotape applied over the Achilles tendon.

#### MAIN OUTCOME MEASURES:

The single-leg hop test and visual analog scale were measured with and without the tape. Using the Hoffman (H) reflex, change in motoneuronal excitability of calf muscles was measured before tape application, with the tape on and after its removal.

#### RESULTS:

There were no changes to hop distance when tape was applied ( $P = 0.55$ ). Additionally, there were no changes to pain ( $P = 0.74$ ). The H reflex amplitude of soleus and gastrocnemius increased in the healthy group after its removal ( $P = 0.01$  and  $P = 0.03$ , respectively), whereas the H reflex remained unchanged in people with AT ( $P = 0.43$  and  $0.16$ , respectively).

**CONCLUSIONS:**

Calf muscles were facilitated by kinesiotape in healthy participants. Despite this, there was no change to hop distance. Kinesiotape had no effect on hop distance, pain, or motoneuronal excitability in people with AT. These results do not support the use of kinesiotape applied in this way for this condition.

[Physiother Theory Pract.](#) 2010 Oct;26(7):490-6.

**Treatment of a brachial plexus injury using kinesiotape and exercise**

[Walsh SF](#)

**Source**

The University of Findlay, Physical Therapy, Findlay, Ohio, USA. [walsh@findlay.edu](mailto:walsh@findlay.edu)

**Abstract****PURPOSE:**

This describes a child whose neonatal brachial plexus injury was treated with kinesiotape and exercise.

**DESCRIPTION:**

The subject was a two-year-old female whose X-rays demonstrated severe inferior subluxation of the humeral head and winging of the scapula on the left. She was fitted with a shoulder brace with surgery scheduled in six months. The initial PT exam noted 80 degrees of shoulder abduction (trumpet sign), significant asymmetry, and nonuse. Mallet score was 15/25. Treatment consisted of d/c of the brace and E-stimulation, parent education on exercise and taping, and kinesiotape to facilitate rotator cuff and scapular stabilizers. Typical wear time was 2-3 days on, 1-2 days off.

**OUTCOMES:**

After 2 weeks, there was prominent deltoid definition. The shoulder was in 20 degrees of abduction, shoulders level with less scapular winging. Scapular stabilizers were then taped. At 4 weeks, her arm was held to her side displaying a stable symmetrical scapula. The arm displayed increased fine motor use and initiation of activities. At 10 weeks there was a forced d/c, and a decline toward baseline levels. After 2 weeks of reinstatement, function returned to prior level. At 20 weeks (12 total visits) she displayed full ROM, symmetrical shoulders, Mallet score of 20/25, rare trumpet sign, and was hanging by arms during play. X-rays displayed significant improvement in humeral head position, rib cage rotation, angle of scapula and clavicle, and size and mineralization of humerus. Reconstructive surgery was cancelled.

**DISCUSSION:**

Kinesiotape and parent education made a significant difference in this child's function.

**Effekten av kinesio-tejning på aktivitetsförmåga och smärta hos gravida med pelvic girdle pain – en pilotstudie**

Lind, Karin / Trång, Maria , Jan 2010

**Abstract(sv) :**

Syftet var att undersöka om kinesio-tejning kunde påverka aktivitetsförmåga och smärta hos gravida kvinnor med pelvic girdle pain. Studien var en single subjekt experimentell AB-design. Fyra kvinnor inkluderades i pilotstudien för behandling av pelvic girdle pain. Smärtan skattades och mättes med visuell analog skala.

Aktivitetsförmågan mättes med Roland & Morris disability questionnaire.

Resultatet visade att gällande aktivitetsförmåga kunde det med 95 % säkerhet ses en förbättring hos tre av kvinnorna. Gällande smärtskattningen kunde endast hos en kvinna på kvällen och hos en annan kvinna på morgonen och kvällen ses en kliniskt signifikant minskad smärta. Resultaten i studien ger underlag för att en mer omfattande randomiserad och kontrollerad klinisk studie bör genomföras.

<http://uu.diva-portal.org/smash/record.jsf?pid=diva2:326288>

## Effects of the application of kinesio taping on the diaphragm on the cycloergospirometric test outcome and 6 minute walk test

Efectos de la aplicación del *Kinesio taping*<sup>TM</sup> en el diafragma en el resultado la cicloergoespirometría y la prueba marcha de 6 minutos

Hombrados-Hernández, R. / Segura-Ortí, E. / Buil-Bellver, M.A., Fisioterapia, 33 (2), p.64, Mar 2011

### Abstract

#### Objective

The aim of the study was to verify whether the application of the anterior diaphragmatic technique of Kinesio<sup>TM</sup> taping (KT) improves the performance in sports in healthy subjects.

#### Design

Repeated measures with randomization in order of tests, with or without KT.

#### Material and methods

The study sample included 17 subjects, 10 men and 7 women, 21 to 38 years old. A cycloergospirometric or graded exercise test (bike test with spirometry) and 6 minute walk test were performed. The subjects came on two separate days, 7 days apart, performing the KT tests on one of the days and the tests without the KT on the other. In the first place, muscle weight was calculated through anthropometry and bioimpedance. During the cycloergospirometric test, variables that included the maximal oxygen consumption per kg of muscle achieved on the graded exercise test were measured. The results analyzed from the 6 minute walk test included distance covered and work performed (distance per kg of muscle mass).

#### Results

The KT did not produce any significant changes in the variables measured during the graded exercise test or the 6 minute walk test. A significant learning effect was observed only for the 6 minute walking test results, both for the distance covered (Distance 1st test =  $834.69 \pm 107.03$  m; 2nd test =  $891.12 \pm 93.91$  m;  $p = .007$ ) and for the work achieved ( $P = .008$ ).

#### Conclusions

There was no significant effect of diaphragmatic KT on results of the graded exercise test and 6 minute walk test. There is a learning effect for the 6 minute walk test.

## Effects of short-term treatment with kinesiotaping for plantar fasciitis

Tsai C-T, Chang W-D, Lee J-P Source: Journal of Musculoskeletal Pain 2010 Mar;18(1):71-80

**Method:** clinical trial Method Score: 5/10 [Eligibility criteria: Yes; Random allocation: Yes; Concealed allocation: Yes; Baseline comparability: No; Blind subjects: No; Blind therapists: No; Blind assessors: Yes; Adequate follow-up: No; Intention-to-treat analysis: No; Between-group comparisons: Yes; Point estimates and variability: Yes. Note: Eligibility criteria item does not contribute to total score] \*This score has been confirmed\*

### Abstract:

**OBJECTIVES:** The purpose of this study was to investigate the therapeutic effects of kinesiotaping on plantar fasciitis.

**METHODS:** A total of 52 patients with plantar fasciitis were randomly and equally divided into two groups. The patients in the control group received only a traditional physical therapy program daily, including ultrasound thermotherapy and low-frequency electrotherapy. The patients in the experimental group received kinesiotaping in addition to the same physical therapy program as the control group. The tape for kinesiotaping was applied on the gastrocnemius and the plantar fascia continuously for one week. For each patient, the therapeutic effects were measured with subjective pain assessment pain description scores and foot function scores and ultrasonographic assessment measuring plantar fascia thickness and structural

change. The investigators who performed the assessment were blinded as to the group assignment of the subject.

**RESULTS:** The reduced pain scores pain description scores and foot function scores and the reduced thickness of plantar fascia at the insertion site ultrasound assessment after treatment were significantly  $p < 0.05$  more in the experimental group than in the control group. However, there were no significant  $p > 0.05$  differences in the changes of plantar fascia thickness at the site 0.5 cm distal to the insertion site and hypoechoic phenomena.

**CONCLUSIONS:** It was concluded that the additional treatment with continuous kinesiotaping for one week might alleviate the pain of plantar fasciitis better than a traditional physical therapy program only.

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## Comparison of the instant effects of kinesio and McConnell patellar taping on performance in patellofemoral pain syndrome

**Patellofemoral ağrı sendromunda kinezyo ve McConnell patellar bantlama tekniklerinin performans üzerine anlık etkilerinin karşılaştırılması**

[TUNAY, Volga, Bayrakci](#); [AKYÜZ, Asude](#); [ÖNAL, Sercan](#); [USGU, Günseli, Güder](#); [DOĞAN, Güler](#); [TEKER, Buket](#); [ÇINAR, Özge](#)

[Fizyoterapi Rehabilitasyon](#), 2008,19(3):104-109

**Purpose:** To determine differences between the effects of kinesio and McConnell patellar taping in patients with patellofemoral pain syndrome (PFPS) and age-matched healthy subjects.

**Material and method:** Fifteen female patients who came to our clinic with the diagnosis of unilateral PFAS and 15 volunteered age-matched healthy females participated in our study. McConnell and Kinesio patellar positioning techniques were applied to both groups by the same physiotherapists. The order of the techniques was randomized. Taping side in the healthy subjects was randomized. Evaluations were repeated three times before taping and after each taping and the mean was used. Timed get up and go (TUG), 10 meter walking and ten stairs up-down tests were used for the evaluation.

**Results:** McConnell taping reduced performance in the TUG test of the PFPS patients significantly ( $p < 0.05$ ). No statistically significant differences were found in the 10 meter walking and 10 stairs up-down tests ( $p < 0.05$ ). No statistically significant differences were found in healthy subjects TUG test results after kinesio taping and McConnell taping ( $p > 0.05$ ). It was observed that kinesio taping increased the performance significantly in 10 meter walking test and 10 stairs up-down test. When we compared healthy subjects results with PFPS patients no statistically significant differences were found between performance alterations after kinesio and McConnell taping ( $p > 0.05$ ).

**Conclusion:** Although positive effects of kinesiotaping on performance in healthy subjects was seen, no positive effect of taping was seen on performance in patients with PFPS.

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## Systemaattinen kirjallisuuskatsaus kinesioiteippauksen käytöstä kivun hoidossa

### Systematic review of kinesio taping in pain

Hyyppä J, Rovaniemen Ammattikorkeakoulu/Fysioterapian koulutusohjelma 2011

Opinnäytetyön tiivistelmä

Opinnäytetyön tavoitteena on kerätä tieteellistä näyttöä kinesioiteippauksen käytöstä kivun hoidossa. Tutkimusongelmana tässä työssä oli, millaisia tutkimustuloksia kinesioiteippauksen käytöstä kivunhoidossa on saatu.

Tutkimus tehtiin systemaattisen kirjallisuuskatsauksen periaatteiden mukaisesti. Ensin määritettiin tutkimusongelma ja kriteerit, joiden mukaan kerättiin aineistoa tutkimukseen. Tiedonhaku suoritettiin terveysalan tietokannoista tarkoin valituilla hakusanoilla. Kriteereiden jälkeen aineisto pisteytettiin vielä vanTulderin laadun arvioinnin kriteereiden mukaan, minkä jälkeen lopullinen aineisto valikoitui tutkimukseen. Systemaattiseen kirjallisuuskatsaukseen kelpuutettiin lopulta 7 tutkimusartikkelia, joiden haku suoritettiin huhtikuun 19 päivä. Valitut tutkimusartikkelit käytiin läpi ja kirjoitettiin auki. Lopuksi analysoitiin niiden tieteellinen näyttö. Kirjallisuuskatsaukseen valikoiduissa tutkimuksissa oli tutkittu pääasiassa kinesioteippauksen käyttöä kivunhoitona olkapään ja polven alueen ongelmassa. Lopuissa kolmessa tutkimuksissa tutkittiin kinesioteippauksen vaikutusta alaselkäkkipuisilla potilailla, kinesioteippauksen vaikutusta niskan retkahdusvamman jälkeisessä kuntoutuksessa ja meralgia pharestetican hoidossa.

Kinesioteippaus oli tutkimusten mukaan vaikuttava menetelmä kivun hoidossa. Erityisesti lyhytaikaisen ja akuutin kivun hoitoon saatiin kinesioteippauksella edistystä. Vaikka kaikissa tutkimuksissa saatiin hyvää näyttöä kinesioteipin käytöstä kivunhoidossa, oli näyttö useassa tutkimuksessa liian vähäistä. Tutkimuksissa kehoitettiin tutkimaan lisää aihetta, koska nämä tutkimukset antoivat kuitenkin näyttöä menetelmän vaikuttavuudesta.

[http://publications.theseus.fi/bitstream/handle/10024/30919/Hyyppa\\_Johanna.pdf?sequence=1](http://publications.theseus.fi/bitstream/handle/10024/30919/Hyyppa_Johanna.pdf?sequence=1)

## **The use of Kinesio Taping in the management of traumatic patella dislocation. A case study**

Diana J. Osterhues

Physiotherapy Theory and Practice, 20: 267\_270, 2004

<http://www.kinesiobrasil.com/15642813.pdf>

## **EFFECT OF KINESIO TAPING ON PERFORMANCE IN COUNTER-MOVEMENT JUMP**

Vilas-Boas, Machado, Kim, Veloso (eds.)

*Biomechanics in Sports* 29

Portuguese Journal of Sport Sciences

11 (Suppl. 2), 2011

Jakob Kümmel, Danica Mauz, Florian Blab and Manfred Vieten  
Department of Sports Science, University of Konstanz, Germany

The purpose of this study was to identify the influence of taping with a flexible tape on jumping performance and its effects on the impulse in a stretch-shortening cycle movement.

23 subjects were divided in control group and intervention group. The subjects participated in two trials of vertical counter-movement jumps. In the trial, the knee extensors of the subjects in the intervention group were taped with an activating taping technique. Reaction forces of the jump were measured with an AMTI-force plate.

Results showed no significant differences (ANOVA,  $p < 0.05$ ) between the two groups in both trials. Mean jumping height in Trial 1 was  $0.38 \pm 0.11$  m (control) and  $0.33 \pm 0.05$  m (intervention) compared to  $0.35 \pm 0.10$  m (control) and  $0.33 \pm 0.05$  m (intervention) in Trial 2.

No improvements in jumping performance could be detected.

<http://w4.ub.uni-konstanz.de/cpa/article/viewFile/4907/4550>

## Muut (Miscellaneous.)

### THE USE OF KINESIO TAPING IN PATIENTS WITH ACUTE STAGES OF BRONCHIAL ASTHMA

Jan Szczegielniak, Jacek Łuniewski, Andrzej Bunio, Katarzyna Bogacz, Zbigniew Śliwiński

Polish Journal of Sports Medicine 2007; 23(6):337-341

ICID: 846709 Article type: Short communicationIC™ Value: 3.40

**Background:** Bronchial asthma is a chronic inflammatory condition of the airways with periods of shortness of breath, coughing and chest tightness. An infection in pulmonary tracts, caused by atopy and allergic reaction to pollen allergens, leads to bronchial spasm and bronchial mucosa swelling, excessive secretion, and remodeling of bronchial wall. The topic of this research is the influence of Kinesio Taping application on particular lung volume and dynamic capacity parameters, as well as quality of life of patients with acute stage of asthma.

**Material and methods:** 10 patients (6 women, 4 men) with acute stages of asthma were tested during research carried out in Public Hospital in Kup. The average age of patients researched was 56.5 years. Apart from pharmacological treatment in Pulmonology Department of the hospital, the patients were also subjected to standard pulmonary physiotherapy, which included: breathing exercises, chest percussion and efficient coughing training. Additionally, Kinesio Tex tape was used for all patients to increase efficiency, normalize additional breathing muscles' tone, and correct inspiratory chest positioning. Applications were preceded by spirometry carried out with the use of Lungtest 1000 apparatus, produced by MES, which meets programming requirements set at European Respiratory Society (ERS) Conference in Copenhagen in 2005. FVC, FEV1, MEF25, MEF50, MEF75 and PEF parameters were used to assess lung activity. Tests were carried out 1 hour after Kinesio Taping application, 24 hours after, and on the day following the application. Modified Borg scale was used to assess dyspnea. Patients' ability to climb levels of staircase was used to assess functional efficiency.

**Results:** Cough reflex and secretion increased 1 hour of Kinesio Tex application, which caused difficulty in carrying out spirometry. 24 hours after applications, an improvement in patients' condition was observed. All spirometric parameters improved in relation to initial values. The ability to cover even surface distance increased, and 3 out of 10 patients were able to climb one level of staircase. The value of the parameters slightly decreased the following day, and the MEF25 parameter fell to the initial value. Patients' feeling of dyspnea decreased, on average, from 9 to 5.5 on modified Borg scale 24 hours after Kinesio Tex application and on the following day.

**Conclusions:** The results, therefore, suggest the usefulness of Kinesio Taping in physiotherapy for patients with acute stages of Asthma.

### KINESIOTAPING - NEW OPPORTUNITIES IN PHYSIOTHERAPEUTIC TREATMENT OF PREGNANT WOMEN

Tomasz Senderek, Siegfried Breitenbach, Ireneusz Hałas

FP 2005; 5(2):266-271

ICID: 443615 Article type: Original articleIC™ Value: 5.63

**Background.** The purpose of this study was to present the possibility of using Kinesio Taping as the most appropriate therapeutic method in treatment of pregnant woman.

**Material and methods.** The paper presents common problems experienced during pregnancy and some possible uses of kinesiotaping in this group of women. Forty eight pregnant woman between 5th and 9th month of pregnancy were examined. The most common complaints were oedema of legs, low back pain and sacroiliac joint problems. Effectiveness of kinesiotaping in relieving pain was assessed with subjective pain scale and degree of oedema was estimated by measurements of leg circumference.

**Results.** We noted that kinesiotaping is very safe and efficient treatment. We observed an improvement in low back pain problems, but unfortunately it is difficult to record this in an objective manner. Oedema is easy to assess but its intensity and frequency are subject to personal variability and are increasing in course of pregnancy.

**Conclusions.** Kinesio Taping is new, effective and easily accepted therapeutic option in physiotherapy of pregnant woman.

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## **Kinesio Taping® in physiotherapy after abdominal surgery**

### **Authors**

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### **Published**

28-Mar-2007 Fizjoterapia Polska, 3(4); Vol. 7

### **Summary**

This research paper investigates the use of Kinesio Taping® to reduce pain for patients following post abdominal surgical operations. In order to prove efficiency of Kinesio Taping® applications in therapy, research was carried out on a group of 22 patients (8 male, 14 female) treated in Surgery Unit of the Municipal Hospital in Nysa in January and February 2007. The patients were randomly divided into two groups: the test group (4 males, 7 females), in which Kinesio Taping® applications were employed, and the control group (4 males, 7 females) in which standard methods of treatment were used. Circumference of the abdomen was measured in lying position. Linear regression model was used for the results analysis. The results of the research showed that Kinesio Taping® method is highly effective in treating patients after abdominal surgery.

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## **Kinesio taping for skin wounds**

Kiyotaka Oka

<http://www.kinesiotaping.com/kta/research/2005-1.pdf>

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## **Diaphragmatic tape for the whole abdomen**

Shosaku Yoshikawa

<http://www.kinesiotaping.com/kta/research/2005-3.pdf>

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## Kinesio Tape Application on Hypertrophic Scar Formation

Sheryl Goodridge

<http://www.kinesiotaping.com/kta/research/2005-5.pdf>

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## Diastasis Recti - A solution

Myrna Parmentier

<http://www.kinesiotaping.com/kta/research/2003-1.pdf>

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## The effectiveness of kinesiotaping applications in physiotherapy of post-cholecystectomy patients. Preliminary report

**Key words:** Surgery, Physiotherapy, kinesiotaping

### SUMMARY

**Introduction.** Biliary tract surgery belongs to key issues of general surgery. In Poland, like in many other countries, biliary tract operations outnumber hernia correction or appendectomy. The interventions are being made in every surgical unit in Poland. Usually, abdominal surgery causes variety of dysfunctions, including post-operative paralysis of the alimentary tract, water-electrolyte imbalance and other, related to the underlying disease, anesthesia and co-existing diseases. Post-operative pain, respiratory complications as well as impaired exercise tolerance remain a serious problem for post-abdominal surgery patients.

**Material and methods.** In order to confirm clinical effects of kinesiotaping method, a study was performed on a group of 17 patients (8 men, 9 women) with recent openmethod cholecystectomy performed in the General Surgery Unit of Nysa Public Hospital, between March 2007 and February 2008. The patients were randomized to treatment group (5 women, 3 men) receiving kinesiotaping and control group (3 women, 6 men) receiving standard treatment.

The following parameters were evaluated during the study:

- subjective pain (evaluated with VAS),
- abdomen circumference,
- lungs ventilation based on spirometry,
- exercise tolerance based on 100 meter march test,
- intestine atony period based on the time to first bowel movement and post-operative defecation.

The parameters were measured at baseline, day 1, 3 and 8 after the surgery.

**Results.** Post- cholecystectomy patients who received kinesiotaping showed:

- decreased subjective pain levels,
- faster abdomen circumference reduction,
- lower consumption of analgesics,
- increasing exercise tolerance,
- improved lungs ventilation,

- shorter post-operative intestine atony period.

[http://de.k-active.com/media/2/D1103090/0112065404/Cholecystektomia\\_otwarta\\_ENG.pdf](http://de.k-active.com/media/2/D1103090/0112065404/Cholecystektomia_otwarta_ENG.pdf)

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## **Pregnancy and Kinesio Tape**

<http://www.kactive.se/pdf/Pregnancy%20and%20Kinesio%C2%AE%20Tape.pdf>

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## **Bibliographic review of the effectiveness of kinesio taping**

### **[Revisión bibliográfica de la efectividad del kinesiotaping](#)**

Espejo, L. / Apolo, M.D., Rehabilitación, 45 (2), p.148, Apr 2011

#### **Abstract**

##### **Objective**

The aim of this paper is to review the effects achieved by the kinesio taping (KT) in scientific studies published in the last decade and their methodological quality.

##### **Search strategy**

An exhaustive search in the main scientific databases using keywords such as KinesioTaping, Kinesio tape, Kinesiotaping, Musculoskeletal tape, taping medical concept, athletic tape was carried out. Citations of selected articles and scientific papers published on the website of the Spanish Association of Neuromuscular Bandage were analyzed.

##### **Inclusion criteria**

Experimental, quasi-experimental, clinical trials or case studies published between 2000-2010, in which the main objective was to analyze the effect of KT, and provide conclusive results, were used.

##### **Results**

Of the 84 articles analyzed, 37 scientific articles have met the inclusion criteria. There are studies that examine the effect of KT on pain, flexibility and joint mobility, in proprioception, strength, on the venous and lymphatic circulation, on the improvement of capacity, and neurological benefits.

##### **Conclusions**

The KT can be a complementary technique that empirically provides benefits. However, better methodological quality studies demonstrating the effects attributed to him are still needed.

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