

More kinesio taping research abstracts:

<http://www.kinesiopiste.fi/palvelut/fysioterapia/kinesio>

KINESIO TAPING RESEARCH ABSTRACTS

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.

http://www.sportmedicine.ru/articles/changes_in_the_volume_of_the_peripheral_blood_flow_by_using_kinesio_taping.htm

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.

<http://dr.vinod.tripod.com/id54.html>

The influence of kinesiotaping applications on lymphoedema of an upper limb in women after mastectomy

Anna Lipińska, Zbigniew Śliwiński, Wojciech Kiebzak, Tomasz Senderek, Janusz Kirenko
 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 kinesiotaping 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 kinesiotaping 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 kinesiotaping 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.

<http://www.theratape.com/education-center/wp-content/uploads/2012/11/Kinesio-Study-Post-Mastectomy-Lymphedema.pdf>

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

Clinical efficacy of kinesiology taping in reducing edema of the lower limbs in patients treated with the ilizarov method--preliminary report

[Białoszewski D.](#), [Woźniak W.](#), [Zarek S.](#)

Division of Rehabilitation, Department of Physiotherapy, 2nd Medical Faculty, Medical University of Warsaw.
 bialoszewski@wum.edu.pl

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 Kinesiology Taping 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 Kinesiology Taping (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 Kinesiology Taping 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 Kinesiology Taping significantly reduced lower limb edema in patients treated by the Ilizarov method. 2. The application of Kinesiology Taping in the study group produced a significantly faster reduction of the edema compared to standard lymphatic massage.

<http://www.ncbi.nlm.nih.gov/pubmed/19240683>

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

Han-Ju Tsai & Hsiu-Chuan Hung & Jing-Lan Yang &
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.

<http://www.google.fi/url?sa=t&rct=j&q=could%20kinesio%20tape%20replace%20the%20bandage%20in%20decongestive%20lymphatic%20therapy%20for%20breast-cancer-related%20lymphedema%3F%20a%20pilot%20study&source=web&cd=2&cad=rja&ved=0CDQQFjAB&url=http%3A%2F%2Fwww.kinesiotaping.com%2Fimages%2Fkinesio-association%2Fpdf%2Fresearch%2F2008-1.pdf&ei=qZsIUuypDob14QSK4YQCQA&usq=AFQjCNHATN1BR9UTwEMluZJ2m8IcTeDOiA&bvm=bv.50500085,d.bGE>

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.sportheart.ru/articles/the_use_of_elastic_adhesive_tape_to_promote_lymphatic_flow_in_the_rabbit_hind_leg.pdf

[Journal of Palliative Medicine](#)

Volume 15, Issue 7, 1 July 2012, Pages 821-827

Palliative care for cancer-related lymphedema: A systematic review

[Beck, M.](#)^a, [Wanchai, A.](#)^{bd}, [Stewart, B.R.](#)^b, [Cormier, J.N.](#)^c, [Armer, J.M.](#)^b

^a Women's Health Breast Center Coordinator, Truman Medical Centers, Kansas City, MO, United States

^b University of Missouri Sinclair School of Nursing, 115 Business Loop 70 West, Columbia, MO 65203, United States

^c University of Texas M.D. Anderson Cancer Center, Houston, TX, United States

^d Boromarajonani College of Nursing, Buddhachinaraj, Phitsanulok, Thailand

Abstract

Introduction: Cancer-related lymphedema management in palliative care remains a challenge for health care professionals. We conducted a systematic review of the published literature related to the effectiveness of cancer-related lymphedema management in the palliative care setting.

Methods: Eleven major medical databases were searched. Manuscripts were selected for articles published from January 2004 to October 30, 2011, using search terms for lymphedema and palliative care. Eleven articles were selected based on defined eligibility criteria for final review and were categorized as lymphedema management in palliative care by topic experts. Articles were also rated for quality according to the Oncology Nursing Society Putting Evidence into Practice[®] classification.

Results: Five case studies were identified addressing closed-controlled subcutaneous drainage; one retrospective study on manual lymphatic drainage (MLD); two case studies on compression therapy; and three case studies on complete decongestive therapy (CDT). All studies were rated in the category of "effectiveness not established" due to study limitations in design and sample size. Few studies included objective measures of outcomes, and there were no randomized controlled trials. There is a need for larger, well-designed research studies to test the effectiveness of management of cancer-related lymphedema in palliative care. © Copyright 2012, Mary Ann Liebert, Inc.

<http://www.ncbi.nlm.nih.gov/pubmed/22662959>

[J Athl Train.](#) 2012;47(6):635-42. doi: 10.4085/1062-6050-47.5.15.

Kinesio taping and the circulation and endurance ratio of the gastrocnemius muscle

[Stedje HL](#), [Kroskie RM](#), [Docherty CL](#).

Source

Cedarville University, OH, USA.

Abstract

CONTEXT:

Kinesio Tex tape is a therapeutic tape that is applied with the Kinesio-taping (KT) method and is theorized to increase circulation and subsequently improve muscle function. However, little research has been conducted to determine how KT affects performance.

OBJECTIVE:

To determine the effect of KT on muscular endurance ratio, blood flow, circumference, and volume of the gastrocnemius muscle.

DESIGN:

Randomized controlled clinical trial.

SETTING:

Research laboratory. Patients or Other Participants: Sixty-one healthy, active people (23 men, 38 women; age = 19.99 ± 8.01 years, height = 169.42 ± 23.62 cm, mass = 71.53 ± 36.77 kg) volunteered to participate. They were assigned randomly to 1 of 3 groups: treatment KT, sham KT, and control. Intervention(s): Tape was applied based on group assignment. The treatment KT group received the ankle-tape technique as described in the KT manual. The sham KT group received 1 strip of Kinesio Tex tape around the circumference of the proximal gastrocnemius muscle. The control group did not receive tape application. Main Outcome Measure(s): The dependent variables were blood flow in blood perfusion units, volume of water displacement in milliliters, circumference of the gastrocnemius muscle in centimeters, and endurance ratio in joules measured before, 24 hours after, and 72 hours after the intervention. Separate repeated-measures analyses of variance were conducted for each dependent variable.

RESULTS:

We found no group-by-test day interaction for endurance ratios ($F(4,116) = 1.99, P = .10$). Blood flow, circumference, and volume measurements also yielded no differences among groups ($F(2,58)$ range, 0.02-0.51; $P > .05$) or test days ($F(2,116)$ range, 0.05-2.33; $P > .05$).

CONCLUSIONS:

We found KT does not enhance anaerobic muscle function measured by endurance ratio. The KT also did not affect circulation or volume of the gastrocnemius muscle in a healthy population.

<http://www.ncbi.nlm.nih.gov/pubmed/23182011>

[Am J Hosp Palliat Care](#). 2012 Aug 9. [Epub ahead of print]

Case Report: Manual Lymphatic Drainage and Kinesio Taping in the Secondary Malignant Breast Cancer-Related Lymphedema in an Arm With Arteriovenous (A-V) Fistula for Hemodialysis

[Chou YH](#), [Li SH](#), [Liao SF](#), [Tang HW](#).

Abstract

Lymphedema is a dreaded complication of breast cancer treatment. The standard care for lymphedema is complex decongestive physiotherapy, which includes manual lymphatic drainage (MLD), short stretch bandaging, exercise, and skin care. The Kinesio Taping could help to improve lymphatic uptake. We reported a patient with unilateral secondary malignant breast cancer-related lymphedema and arteriovenous (A-V) fistula for hemodialysis happened in the same arm, and used kinesio taping, MLD, and exercise to treat this patient because no pressure could be applied to the A-V fistula. The 12-session therapy created an excellent effect. We do not think the kinesio taping could replace short stretch bandaging, but it could be another choice for contraindicating pressure therapy patients, and we should pay attention to wounds induced by kinesio tape.

<http://www.ncbi.nlm.nih.gov/pubmed/22879520>

Clin Rehabil February 20, 2013 0269215512469120

A randomized controlled trial of a mixed Kinesio taping–compression technique on venous symptoms, pain, peripheral venous flow, clinical severity and overall health status in postmenopausal women with chronic venous insufficiency

1. [M^a Encarnación Aguilar-Ferrández¹](#)
2. [Adelaida María Castro-Sánchez²](#)
3. [Guillermo A Matarán-Peñarocha³](#)

4. [Rafael Guisado-Barrilao⁴](#)
5. [M^a Carmen García-Ríos¹](#)
6. [Carmen Moreno-Lorenzo¹](#)
 1. ¹*Department of Physical Therapy, University of Granada (UGR), Spain*
 2. ²*Department of Nursing and Physical Therapy, University of Almería (UAL), Spain*
 3. ³*Andalusian Health Service, Primary Health Medical, Granada, Spain*
 4. ⁴*Department of Nursing, University of Granada (UGR), Spain*
1. Adelaida María Castro Sánchez, Carretera de Sacramento s/n, Departamento de Enfermería y Fisioterapia, Universidad de Almería, 04120 Almería, Spain. Email: adelaid@ual.es

Abstract

Objectives:

To investigate the effect of a mixed Kinesio taping treatment in women with chronic venous insufficiency.

Design:

A double-blinded randomized clinical trial.

Setting:

Clinical setting.

Participants:

One hundred and twenty postmenopausal women with mild–moderate chronic venous insufficiency were randomly assigned to an experimental group receiving standardized Kinesio taping treatment for gastrocnemius muscle enhancement and ankle functional correction, or to a placebo control group for simulated Kinesio taping.

Main outcomes variables:

Venous symptoms, pain, photoplethysmographic measurements, bioelectrical impedance, temperature, severity and overall health were recorded at baseline and after four weeks of treatment.

Results:

The 2 × 2 mixed model ANCOVA with repeated measurements showed statistically significant group × time interaction for heaviness ($F = 22.99$, $p = 0.002$), claudication ($F = 8.57$, $p = 0.004$), swelling ($F = 22.58$, $p = 0.001$), muscle cramps ($F = 7.14$, $p = 0.008$), venous refill time (right: $F = 9.45$, $p = 0.023$; left: $F = 14.86$, $p = 0.001$), venous pump function (right: $F = 35.55$, $p = 0.004$; left: $F = 17.39$, $p = 0.001$), extracellular water (right: $F = 35.55$, $p = 0.004$; left: $F = 23.84$, $p = 0.001$), severity ($F = 18.47$, $p = 0.001$), physical function ($F = 9.15$, $p = 0.003$) and body pain ($F = 3.36$, $p = 0.043$). Both groups reported significant reduction in pain.

Conclusion:

Mixed Kinesio taping-compression therapy improves symptoms, peripheral venous flow and severity and slightly increases overall health status in females with mild chronic venous insufficiency. Kinesio taping may have a placebo effect on pain.

<http://cre.sagepub.com/content/early/2013/02/14/0269215512469120.abstract>

Journal of Strength & Conditioning Research: [March 2011](#)

A Preliminary Investigation Into the Effect of Kinesio and Athletic Tape on Skin Blood Flow Changes

Miller, M G; Klawon, R; Lininger, M; Cheatham, C; Michael, T

PURPOSE:

The use of Kinesio Tape (KT) is gaining popularity throughout the allied health professions and claims to have several benefits such as increasing blood and lymphatic flow, strengthening of weak muscles, decreasing pain, increasing proprioception and repositioning of subluxed joints. However, little to no scientific research has been performed to validate any of these claims. One claim is that KT increases blood flow to

the taped area in order to help expedite the healing process. Thus, the purpose of this study was to determine if blood flow changes occurred in the upper arm with KT application compared to regular athletic tape (AT).

METHODS:

Ten healthy subjects (age: 21.1 +/- 1.6 yrs; height: 172.2 +/- 13.4 cm; mass: 72.3 +/- 24.0 kg) volunteered for the study. All subjects completed two experimental trials (KT or AT) on separate days performed in a counter-balanced order. Each experimental trial consisted of three sessions and an exercise regimen. The first session was a 20 minute baseline period (seated-rest, no tape), the second session consisted of a 20 minute period after the application of tape (seated-rest, AT or KT). A submaximal exercise regimen (standing bicep curls, 3 sets x 10 reps with a pre-determined dumbbell weight with a one-minute rest between sets) followed session two. Each subject's dumbbell weight was determined in an orientation visit, where they chose a weight in which they could perform 3 sets x 10 reps with fatigue occurring at the end of the third set. Finally, the third session consisted of a 20 minute recovery period following the exercise regimen (seated-rest, AT or KT). During the experimental sessions, skin blood flow was measured continuously via a LASER Doppler probe adhered over the biceps brachii. Skin blood flow data were expressed as a percent change from the baseline value and were not reported during the exercise session due to motion artifacts. A two-way (condition x time) ANOVA with repeated measures on both factors was used to test for statistical significance.

RESULTS:

There was no condition X time interaction or main effect for condition; however there was a main effect for time ($F(1.3,9.3) = 4.34$, $P = 0.05$). Pairwise comparisons using a LSD adjustment showed that skin blood flow was significantly lower (-4.9%) after tape application compared to baseline ($P = 0.05$). In addition, there was a tendency for skin blood flow to be greater (36.0 %) during the post-exercise recovery period compared to baseline ($P = 0.06$) (See Figure 1). Conclusion: Our results show that there was no difference in blood flow with either tape or conditions. Practical Application: Using KT for increasing blood flow for rehabilitating or strengthening muscles of athletes may not be more beneficial than regular AT. It appears that the application of either tape may change blood flow to the targeted area, but most likely as a result of prior exercise.

http://journals.lww.com/nscajscr/Abstract/2011/03001/A_Preliminary_Investigation_Into_the_Effect_of.88.aspx

Lymph taping and seroma formation post breast cancer

J Bosman, N Piller - Journal of Lymphoedema, 2010

Joyce Bosman is an oedematherapist at Medisch Centrum Zuid, Groningen, the Netherlands; Neil Piller is a Professor and Director of the Lymphoedema Assessment Clinic, Department of Surgery, Flinders University and Medical Centre, South Australia

Abstract

Background:

The most common complication of breast cancer treatment is seroma formation. Lymph taping has the potential to prevent or reduce seroma formation, but currently its potential benefits have not been fully investigated.

Aims:

To investigate the potential of lymph taping to combat seroma formation.

Methods:

Nine women treated for breast cancer were recruited to this randomised clinical trial; four developed seromas requiring aspiration. Bioimpedance spectroscopy of the breast was used to assess intra and extracellular fluid levels in each of the four quadrants of the breast. From day one postoperatively, lymph taping was applied over the watershed between skin territories on the posterior thorax between the spine

and axilla on those allocated to the treatment group. Measurements were repeated at five, nine and 16 days.

Results:

The extracellular fluid value at t16 was 0.1037 ± 0.0324 (15.3 % decrease) over t1 in the lymph taping group and 0.1066 ± 0.0227 (4.6 % decrease) in the current best practice group (n=4 in each group). After 16 days of treatment, substantial changes were found in burning sensations, tightness and heaviness in favour of the lymph taping group. In particular, pain perception in the lymph taping group improved.

Conclusions:

This study has demonstrated that lymph taping has the ability to reduce extracellular fluid accumulation and improve a range of quality of life measures.

http://www.lymphormation.org/journal/content/0502_taping.pdf

Top Stroke Rehabil 2013;20(3):283–288 © 2013 Thomas Land Publishers, Inc.
www.strokejournal.com doi: 10.1310/tsr2003-283

Effects of Kinesio Tape to Reduce Hand Edema in Acute Stroke

Authors

Alison Bell, MOT, OTR/L¹, Melissa Muller, OTD, OTR/L¹
¹MossRehab Hospital, Elkins Park, Pennsylvania

Abstract

Objective:

The purpose of the study was to evaluate the efficacy of Kinesio Tape (Kinesio USA, Albuquerque, NM) for reducing hand edema in individuals with hemiplegia post stroke.

Methods:

Seventeen individuals who experienced acute stroke were screened for visual signs of edema and were randomly assigned to experimental and control groups. The experimental group received Kinesio Tape that was applied to hand and forearm for 6 days in combination with standard therapy; the control group received standard therapy. Blinded raters assessed edema reduction via circumferential measurements.

Results:

Application of Kinesio Tape did not result in statistically significant reduction in edema. Large and medium effect sizes were seen for edema reduction at the metacarpophalangeal and wrist joints, respectively, with Kinesio Tape.

Conclusion:

Further research is warranted to investigate the utility of Kinesio Tape in edema reduction.

<http://thomasland.metapress.com/content/u22n75j88r52m203/>

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.

http://www.google.fi/url?sa=t&rct=j&q=use%20of%20kinesio%20tape%20in%20pediatrics%20to%20improve%20oral%20motor%20control&source=web&cd=1&cad=rja&ved=0CDEQFjAA&url=http%3A%2F%2Fwww.kinesiotaping.com%2Fimages%2Fkinesio-association%2Fpdf%2Fresearch%2F2003-3.pdf&ei=nJwIUtWpDeqC4ATD6YBY&usg=AFQjCNGpM4fnilbK_KCznm7KevohvOOPUg&bvm=bv.50500085,d.bGE

[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](#).

Rehabilitation Institute of Chicago, Illinois, USA. ayasukawa@larabida.org

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.

<http://www.ncbi.nlm.nih.gov/pubmed/16541989>

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 communication IC™ 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.

<http://www.tapingbase.nl/nl/kinesiotaping-application-in-children-with-scoliosis-nl>

[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

Department of Physical therapy and Rehabilitation, Abant İzzet Baysal University School of Physical Therapy and Rehabilitation, Bolu 14100, Turkey.

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: Cerebral palsy 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 sitting posture, respectively.

Results: 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: 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.

<http://www.ncbi.nlm.nih.gov/pubmed/21401336>

[Neuropediatrics.](#) 2011 Dec;42(6):249-53. doi: 10.1055/s-0031-1295478. Epub 2011 Dec 7.

Functional taping applied to upper limb of children with hemiplegic cerebral palsy: a pilot study

[Mazzone S](#), [Serafini A](#), [Iosa M](#), [Aliberti MN](#), [Gobbetti T](#), [Paolucci S](#), [Morelli D](#).

Source

Movement and BrainLaboratory, Fondazione Santa Lucia, I.R.C.C.S., Rome, Italy.

Abstract

Functional taping with elastic bandages and adhesive tapes could limit the action of upper limb spastic muscles and sustain that of weaker muscles in children with hemiplegic cerebral palsy (CP). 16 young children with CP (3±2 years old) were enrolled in this pilot study including 5 months of taping in conjunction with conventional physical therapy, followed by 7 months of physical therapy alone (taping wash-out), and other 5 months of taping plus therapy. Large improvements in the Melbourne assessment score were found in the first period in which taping was used (+15.4%, $p < 0.001$) and also in the second one despite 8 drop-outs (+8.4%, $p = 0.012$), but not during the taping wash-out (-4.6%; $p = 0.093$). These results suggest that children with CP could benefit from the continuous correction provided by taping in order to limit the development of improper upper limb motor schemas and to favour that of proper ones.

<http://www.ncbi.nlm.nih.gov/pubmed/22161724>

[Egyptian Journal of Medical Human Genetics](#)

Volume 14, Issue 2, April 2013, Pages 183–188

Efficacy of adhesive taping in controlling genu recurvatum in diplegic children: A pilot study

- [Asmaa M. Ghalwash](#),
- [Shorouk A.W. El-Shennawy](#)  ,
- [Manal S. Abd-Elwahab](#)
- Pediatrics Department, Faculty of Physical Therapy, Cairo University, Egypt
- <http://dx.doi.org/10.1016/j.ejmhg.2012.11.001>, [How to Cite or Link Using DOI](#)
- [Permissions & Reprints](#)

Abstract

Adhesive taping has been commonly used to improve the performance through supporting joint structure and reducing pain. Restoring knee alignment in diplegic children is critical in an effective treatment program. The purpose of this article is to investigate whether adhesive taping is effective in controlling genu recurvatum in diplegic cerebral palsy children. Fourteen children with diplegic cerebral palsy (8 boys and 6 girls with a mean age of 6.22 years), participated in a 12-week program. Children were assigned randomly to one of two groups: therapeutic taping + physical therapy or knee cage + physical therapy. Therapeutic taping was applied for periods of up to 60 h over knee. The effects were assessed with the Gross Motor Function Measure (GMFM-88), Auto CAD, Screen protractor at baseline and 12 weeks after treatment. The primary outcome measure was knee angulations, using Auto CAD and screen protractor software. The Gross Motor Function Measure-88 (GMFM-88) standing and walking subsections were the secondary outcome measures. No significant differences were found between groups over time. Adhesive taping does not evoke a positive change in controlling genu recurvatum in children with diplegic cerebral palsy.

<http://www.sciencedirect.com/science/article/pii/S1110863012001012>

[Dev Neurorehabil.](#) 2013;16(2):121-8. doi: 10.3109/17518423.2012.727106.

Pilot study: Investigating the effects of Kinesio Taping® on functional activities in children with cerebral palsy

[da Costa CS](#), [Rodrigues FS](#), [Leal FM](#), [Rocha NA](#).

Source

Department of Physiotherapy, Neuropediatric Research Unit, Federal University of São Carlos, Rodovia Washington Luis, São Carlos 13565-010, Brazil. costa.csn@gmail.com

Abstract

OBJECTIVE:

To investigate the immediate effects of Kinesio Taping® (KT) on sit-to-stand (STS) movement, balance and dynamic postural control in children with cerebral palsy (CP).

METHODS:

Four children diagnosed with left hemiplegic CP level I by the Gross Motor Function Classification System were evaluated under conditions without taping as control condition (CC); and with KT as kinesio condition. A motion analysis system was used to measure total duration of STS movement and angular movements of each joint. Clinical instruments such as Pediatric Balance Scale (PBS) and Timed up and Go (TUG) were also applied.

RESULTS:

Compared to CC, decreased total duration of STS, lower peak ankle flexion, higher knee extension at the end of STS, and decreased total time in TUG; but no differences were obtained on PBS score in KT.

CONCLUSION:

Neuromuscular taping seems to be beneficial on dynamic activities, but not have the same performance in predominantly static activities studied.

<http://www.google.fi/url?sa=t&rct=j&q=pilot%20study%3A%20investigating%20the%20effects%20of%20kinesio%20taping%20on%20functional%20activities%20in%20children%20with%20cerebral%20palsy&source=web&cd=1&cad=rja&ved=0CDQQFjAA&url=http%3A%2F%2Fwww.kinesiotaping.com%2Fimages%2Fkinesioassociation%2Fpdf%2Fresearch%2F20062.pdf&ei=c6IIUoWOLom54ASvoIG4Aw&usq=AFQjCNFiyMon-D7B4dE8DxfVYUeGdnR7A&bvm=bv.50500085,d.bGE>

The Effect of Kinesio Taping on Static Balance, Proprioception, and Maximum Strength of Lower Limb in Children

Ching-hui Huang
Master Program of Physical Education, 2012
Master's Thesis

Abstract

The purpose of this research was to evaluate the effect of Kinesio taping on children, and whether this method could improve the sensitivity of proprioception before exercise injury and lower the diseases of the knee joints.

Method:

Subjects were 12 students in fifth and six grades that have joined school sport training groups. Compare the knees' static balance, proprioception, and maximum strength before and after using the kinesion taping. The static balance was tested 3 times, the longest performance were recorded, in each student. Proprioception was set up 30°, 45°, 60° to evaluate the knee joint reset. Maximum strength performed at the speed of 60°/s by BIODEX.

Result:

Static balance was significant increased after kinesion taping (20.93 ± 22.25s vs. 35.51 ± 41.18s). Proprioception was significant increased after kinesion taping at 45° and 60°. Maximum strength was significant increased after kinesion taping (80.60 ± 25.51kg vs. 92.72 ± 27.29kg).

Conclusion:

Kinesion taping could apply to children to increase static balance, proprioception, and maximum muscle strength.

http://140.133.6.46/ETD-db/ETD-search/view_etd?URN=etd-0221113-092638

Usefulness of Kinesiology Taping method in inflammatory rheumatic illnesses in childhood

Beata Żuk, Krystyna Księżopolska-Orłowska

Reumatologia 2008; 46, 6: 340–347

Background

The Kinesiology Taping method in rheumatic illnesses (chronic, progressive) is applied as a helping process in both rehabilitative and pharmacological treatments. Usually three techniques of corrective application are used – loosening soft tissue with intensive tension, characterizing large pain ailments (fascia correction applications) and weak muscle strengthening techniques (ligament/tendon correction, functional correction applications) as well as local applications for occupying inflammable process, swelling ponds.

Aim of the study

In the article we present chosen clinical applications for children suffering juvenile idiopathic arthritis as well as scleroderma based on examples and case analysis.

Conclusions

Recent observations show that Kinesiology Taping is an effective supportive method of complex rehabilitation in children with inflammable diseases of connective tissue. It is a simple method and accepted by both the child and parents.

<http://www.termedia.pl/Journal/-18/Streszczenie-11708>

Chiropractic adjustments plus massage and kinesio taping in the care of an infant with gastroesophageal reflux

[J Clin Chiropr Pediatr](#). 2008 Mar;9(1):572-575

Barnes TA

OBJECTIVE:

To present a clinical case of how chiropractic adjustments supported by the application of Kinesio Taping was of benefit in a case of an infant with gastroesophageal reflux.

DESIGN:

A case study.

SETTING:

Private practice.

PATIENT:

A 3-month-old infant presented to a chiropractic office with a history of gastroesophageal reflux (GER) of one-month duration.

TREATMENT AND RESULTS:

Following two treatments of chiropractic full-spine adjustments, abdominal myofascial massage, and the application of a corrective Kinesio Taping method, the infant's incidence of regurgitation and associated symptoms decreased and later resolved.

CONCLUSION:

This combination of treatment has not been cited in previous literature. This case report highlights a protocol of care for the infant with GER and suggests the need for further investigation.

http://www.chiroindex.org/?search_page=articles&action=&articleId=20137

Neurology

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

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

[Jaraczewska E](#), [Long C](#).

Orthopedic Program, Rehabilitation Institute of Chicago, Illinois, USA.

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.

<http://www.ncbi.nlm.nih.gov/pubmed/16987790>

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!

<http://www.kinesiotaping.co.uk/research/rct/2012-10-01-Kinesio-Arm-Taping-As-Prophylaxis-Against-The-Development-Of-Erbs-Engram/index.jsp>

[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

[Karadag-Saygi E](#), [Cubukcu-Aydoseli K](#), [Kablan N](#), [Ofiuoglu D](#).

Department of Physical Medicine and Rehabilitation, Marmara University School of Medicine, Istanbul, Turkey.

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.

<http://www.ncbi.nlm.nih.gov/pubmed/20826420>

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

[Kalichman L](#), [Vered E](#), [Volchek L](#).

Department of Physical Therapy, Recanati School for Community Health Professions, Faculty of Health Sciences, Ben-Gurion University of the Negev, Beer Sheva, Israel. kalichman@hotmail.com

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.

<http://www.ncbi.nlm.nih.gov/pubmed/20537313>

Taehan Kanho Hakhoe Chi. 2003 Aug;33(5):651-8.

The effects of the taping therapy on range of motion, pain and depression in stroke patient

Kwon SS.

Office of Home Nurse in kyung gi do, Korea. seonsuk21@hanmail.net

PURPOSE:

The purpose of this study was to test the effect of Taping therapy on Range of Motion, pain, and depression in stroke patients in the home without complete recovery as a means of nursing intervention.

METHOD:

Twenty seven subjects out of fifty four people who were attending in the stroke self-help group in one community health center in S city were asked to participate in this Quai-experimental study. The Taping therapy was a method that stick to the illness area and the point of pressure pain, the elastic and cross tape without medicine treatment with domestic products. Nursing intervention was independently completed by researcher once a week over two period of 12 weeks from September 2001 to March 2002 year. Data were analyzed using the SPSS win. The homogeneity between the experimental group and control group was test by chi2 and t-test. The difference of experimental before and after were tested by the unpaired t-test.

RESULT:

The shoulder joint flexion and abduction, the elbow joint flexion and extension, the hip joint flexion, and the flexion of knee joint in the ROM of the experimental group were significantly improved over those of the control group. In difference of pain, rest and painful movement, the experimental group were significantly decreased over those of the control group. The difference of depression in experimental before and after was significantly decreased in the experimental group over those of the control group.

CONCLUSION:

The Taping therapy intervention proved effect pain relief and depression decrease as well as promote of range of motion.

<http://www.ncbi.nlm.nih.gov/pubmed/15314418>

Fizjoterapia Polska

Volume 12, Issue 1, 2012, Pages 71-75

The effect of Kinesiology Taping application on the result of 100 meter walking test in patients after cerebrovascular stroke

[Wpływ aplikacji Kinesiology Tapingu na wynik testu 100 metrowego marszu u chorych po udarze mózgu]

[Szczegielniak, J.](#)^a, [Banik, D.](#)^{ab}, [Luniewski, J.](#)^a, [Bogacz, K.](#)^a, [Śliwiński, Z.](#)^{ac}

^a Faculty of Physical Education and Physical Therapy, University of Technology, Ul. Mickiewicza 12/12, Opole, 49-300 Brzeg, Poland

^b Medical Centre, Brzeg, Poland

^c The Jan Kochanowski University, Kielce, Poland

Abstract

Foot drop is one of the most serious problems, encountered during rehabilitation of patients with the history of cerebrovascular stroke, since it significantly contributes to gait quality deterioration. Traditional orthopaedic equipment may, to some degree, compensate this defect. Alternative rehabilitation forms for patients with foot drop include corrective application of Kinesiology Taping. The goal of this paper is to evaluate the effect of corrective positioning of the foot using Kinesiology Taping on the result of 100 metre walk test in patients with the history of cerebrovascular stroke. 30 randomly selected patients (15 males and 15 females) with the history of cerebrovascular stroke participated in the study. The subjects underwent treatment at the Medical Centre in Brzeg from January to December 2009. The subjects' age ranged from 53 to 70 years (the mean age = 58.7 years). All the subjects underwent standard neurological physiotherapy. They performed a 100 metre walk test before the application, an hour after the application and 24 hours after the application of Kinesiology Tape, aimed at foot drop correction. A statistically significant ($p < 0.05$) reduction in the results obtained from the test was observed in the subjects after Kinesiology Tape application. The results suggest the usefulness of corrective application of Kinesiology Taping, supporting neurological physiotherapy in patients after cerebrovascular stroke.

<http://www.fizjoterapiapolska.pl/abstracted.php?level=5&ICID=990862>

Neurorehabil Neural Repair June 13, 2013 1545968313491010

KinesioTaping Reduces Pain and Modulates Sensory Function in Patients With Focal Dystonia A Randomized Crossover Pilot Study

1. [Elisa Pelosin](#), PhD¹
2. [Laura Avanzino](#), PhD¹
3. [Roberta Marchese](#), MD¹
4. [Paola Stramesi](#)²
5. [Martina Bilanci](#), MD¹
6. [Carlo Trompetto](#), PhD¹
7. [Giovanni Abbruzzese](#), MD¹

1. ¹University of Genoa, Genoa, Italy

2. ²IRCCS AOU San Martino-IST, Genoa, Italy

1. Giovanni Abbruzzese, Department of Neurosciences, University of Genoa, Largo Daneo 3 (ex Via De Toni 5), 16132, Genoa, Italy. Email: gjabbr@unige.it

Abstract

Background

Pain is one of the most common and disabling “nonmotor” symptoms in patients with dystonia. No recent study evaluated the pharmacological or physical therapy approaches to specifically treat dystonic pain symptoms. *Objective.* To evaluate the effectiveness of KinesioTaping in patients with cervical dystonia (CD) and focal hand dystonia (FHD) on self-reported pain (primary objective) and on sensory functions (secondary objective).

Methods

Twenty-five dystonic patients (14 with CD and 11 FHD) entered a randomized crossover pilot study. The patients were randomized to 14-day treatment with KinesioTaping or ShamTaping over neck (in CD) or forearm muscles (in FHD), and after a 30-day washout period, they received the other treatment. The main outcome measures were 3 visual analog scales (VASs) for usual pain, worst pain, and pain relief. Disease severity changes were evaluated by means of the Toronto Western Spasmodic Torticollis Rating Scale (CD) and the Writer’s Cramp Rating Scale (FHD). Furthermore, to investigate possible KinesioTaping-induced effects on sensory functions, we evaluated the somatosensory temporal discrimination threshold.

Results

Treatment with KinesioTape induced a decrease in the subjective sensation of pain and a modification in the ability of sensory discrimination, whereas ShamTaping had no effect. A significant, positive correlation was

found in both groups of patients between the improvement in the subjective sensation of pain and the reduction of somatosensory temporal discrimination threshold values induced by KinesioTaping.

Conclusions

These preliminary results suggest that KinesioTaping may be useful in treating pain in patients with dystonia.

<http://nnr.sagepub.com/content/early/2013/06/13/1545968313491010.abstract>

Korean J Rehabil Nurs. 2002 Jun;5(1):7-17. Korean.

Effect of taping method on ADL, range of motion, hand function & quality of life in post - stroke Patients for 5 weeks

Kim KS, Seo HM, Lee HD.

Abstract

The purpose of this study was to investigate the effect of taping therapy on activities of daily livings (ADL), hand function and range of motion in poststroke-hemiplegic patients. Sample were selected from 20 poststroke-hemiplegic patients at public health center in the period from September 5 to November 21, 2001. The research design was one group pretest-posttest design. The hemiplegia period of the participants was from one year to five years. The pretest and posttest included measuring activity of daily livings(ADL), instrumental activity of daily livings(IADL), hand function, range of motion, quality of life. In this research design, a treatment were to expose taping therapy who were received self-help management program. This self-help management program was consisted of five sessions and each session had health education on stroke, diet, risk factor, ROM exercise and recreation. 20 patients were treated with kinesio taping(Nippon Sigmax Co., Ltd., Benefact(r), width 50mm). Tapes were applied to the Deltoid, Supraspinatus, Infraspinatus, Brachioradialis with paralyzed upper extremity. The taping therapy was performed once a week for 5 weeks. SPSS Win 8.0 was used for the data analysis. The results of this study were as follows: 1) The score of BADL was increased from 30.5 to 33.95 after program, and that was statistically significant($p = .019$). 2) The score of IADL was increased from 11.6 to 12.75 after program, but that was statistically insignificant($p = .161$). 3) The score of hand function was increased from 17 to 20.35 after program, and that was statistically significant($p = .026$). 4) The shoulder's ROM($p=.000$) and wrist's ROM($p= .004$) were significantly increased. According to the results of this study, taping therapy is effective for improving ADL, hand function, ROM, quality of life. However, this study found no significant differences in IADL. Consequently, these findings showed that the taping therapy was effective in improvement of physical aspects(BADL, hand function, upper extremity's ROM) in poststroke-hemiplegic patients.

<http://www.koreamed.org/SearchBasic.php?RID=0116KJRN/2002.5.1.7&DT=1>

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.

<http://www.theratape.com/education-center/wp-content/uploads/2012/11/Kinesio-Study-Post-Operative-Neuroma-and-RSD.pdf>

Effects of 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.

References

Kase K. 1994. Illustrated Kinesio Taping®, 3rd Ed., Ken'I Kai, Tokyo, pp.90-91.

<http://www.theratape.com/education-center/wp-content/uploads/2012/10/Kinesio-Study-ACL-Repair.pdf>

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 ± 1.8 years old, 169.9 ± 6.0 cm, 58.8 ± 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.

<http://www.kinesiotaping.com/global/association/research/published-research-case-studies/47-category-association-case-studies-1999/112-the-effect-of-kinesio-taping-on-muscular-micro-damage-following-eccentric-exercises.html>

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, $p > 0.05$.

<http://www.vendajeneuromuscular.net/tobillo-propiocepcion>

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.

References

Brick GW, Scott RD. The patellofemoral component of total knee arthroplasty. Clin Orthop. 1988; 163-178.

Grady EP, Carpenter MT, Koenig CD, Older SA, Batafarano DF. Rheumatic findings in Gulf War veterans. Arch Intern Med. 1998; 158: 367-371.

Samilson RL, Gill KW. Patello-femoral problems in cerebral palsy. Acta Orthop Belg. 1984; 50:191-197.

Powers CM. Rehabilitation of patellofemoral joint disorders: a critical review. J Orthop Sports Phys Ther. 1998; 28: 345-354.

<http://www.kineweb.es/the-use-of-kinesio-tape-in-patients-diagnosed-with-patellofemoral-pain.pdf>

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

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

[Słupik A](#), [Dwornik M](#), [Białoszewski D](#), [Zych E](#).

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.

<http://www.ncbi.nlm.nih.gov/pubmed/18227756>

[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

[Liu YH](#), [Chen SM](#), [Lin CY](#), [Huang CI](#), [Sun YN](#).

Department of Information Management, Chia-Nan College of Pharmacy & Science, Tainan, Taiwan.
qlyh@mail.chna.edu.tw

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.

<http://www.ncbi.nlm.nih.gov/pubmed/18001897>

[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

[Fu TC](#), [Wong AM](#), [Pei YC](#), [Wu KP](#), [Chou SW](#), [Lin YC](#).

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.

<http://www.ncbi.nlm.nih.gov/pubmed/17588814>

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

The effect of kinesio taping on lower trunk range of motions

Yoshida A, Kahanov L.

Department of Kinesiology, San Jose State University, San Jose, California 95192-0054, USA.

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.

<http://www.ncbi.nlm.nih.gov/pubmed/17578750>

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

http://sportheart.ru/articles/the_clinical_efficacy_of_kinesio_tape.pdf

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.

<http://www.tapingbase.de/de/the-use-of-kinesiotaping-in-improvement-of-face-mobility-de>

[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.

<http://www.schoudernetwerk.nl/pdf/Kinesiotape.TrapAsc.Hsu.2009.pdf>

[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.

<http://www.google.fi/url?sa=t&rct=j&q=short-term%20effects%20of%20cervical%20kinesio%20taping%20on%20pain%20and%20cervical%20range%20of%20motion%20in%20patients%20with%20acute%20whiplash%20injury%3A%20a%20randomized%20clinical%20trial&source=web&cd=2&ved=0CDYQFjAB&url=http%3A%2F%2Fwww.jospt.org%2Fmembers%2Fg>

etfile.asp%3Fid%3D4489&ei=4MYHUqivGKr44QT48QE&usg=AFQjCNHhOUXne0i3XqAsudGluZvMKFLnJw&bvm=bv.50500085,d.bGE&cad=rja

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

P.L. Chen¹, W.H. Hong^{1*}, C.H. Lin¹ and W.C. Chen¹

¹ 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 PFPS and control groups during ascending and descending stair.

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

<http://med.rocktape.com/wp-content/uploads/Biomechanics-Effects-of-Kinesio-Taping-for-Persons-with-PFPS-During-Stair-Climbing.pdf>

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.

<http://www.koreamed.org/SearchBasic.php?RID=1001KJFM/2002.23.2.197&DT=1>

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

Wen-Chi Chen, Wei-Hsien Hong*, Tien Fen Huang, Horng-Chaung Hsu

Department of Sports Medicine, China Medical University, Taichung, Taiwan

*Corresponding author: Wei-Hsien Hong

INTRODUCTION

Person with patellofemoral pain syndrome (PFPS) 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 PFPS (Voight and Weider, 1991). The PFPS manifest as anterior knee pain aggravated by activities such as squatting and stair climbing. The patellar taping has been used to treat the PFPS, 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 PFPS. 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.

<http://www.kinesiotaping.com/images/kinesio-association/pdf/research/2010-2.pdf>

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

I. Vithouk^a, A. Beneka^{b,*}, P. Malliou^b, N. Aggelousis^b, K. Karatsolis^a and K. Diamantopoulos^a

^a*Polyklinik Olympic Village, Acharnes, Greece*

^b*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.

<http://www.kinesiotaping.com/images/kinesio-association/pdf/research/2010-1.pdf>

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

[Kaya E](#), [Zinnuroglu M](#), [Tugcu I](#).

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.

<http://www.ncbi.nlm.nih.gov/pubmed/20443039>

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

Authers

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.

<http://www.theratape.com/education-center/wp-content/uploads/2012/11/Kinesio-Study-Myofascial-Shoulder-Pain.pdf>

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

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.

<http://www.kinesiotaping.com/images/kinesio-association/pdf/research/2010-3.pdf>

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

Hsiao-Yun Chang^{a, b}, Kun-Yu Chou^c, Jau-Jia Lin^d, Chih-Feng Lin^{a, b} and Chun-Hou Wang^{a, b}

^a School of Physical Therapy, College of Medical Science and Technology, Chung Shan Medical University, No.110, Sec.1, Jianguo N. Road, Taichung 40201, Taiwan

^b Physical Therapy Room Chung Shan Medical University Hospital, Taichung, Taiwan

^c Institute of Physical Education, National Taichung University, Taichung, Taiwan

^d Department of Physical Medicine and Rehabilitation, Chung Shan Medical University Hospital, Taichung, Taiwan

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 ± 7.60 cm; average body weight: 72.86 ± 7.03 kg; average age: 20.86 ± 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.

<http://www.kinesiotaping.com/global/association/research/published-research-case-studies/58-category-association-case-studies-2010/166-immediate-effect-of-forearm-kinesio-tapingr-on-maximal-grip-strength.html>

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.

<http://www.kinesiotaping.com/global/association/research/published-research-case-studies/55-category-association-case-studies-2007/155-treatment-with-kinesio-tapingr-on-the-shoulder-injuries-in-water-polo-players-pilot-study.html>

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.

<http://www.kinesiotaping.com/global/association/research/published-research-case-studies/55-category-association-case-studies-2007/151-treatment-for-sore-knees.html>

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

McConnell J, McIntosh B.

McConnell & Clements Physiotherapy, Mosman, New South Wales, Australia.
jennymcconnell@bigpond.com

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.

http://www.tapingbase.eu/sites/default/files/the_effect_of_tape_on_glenohumeral_rotation_range_of_motion_in_elite_junior_tennis_players.pdf

[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.

<http://www.ncbi.nlm.nih.gov/pubmed/1843372>

[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.

<http://www.ncbi.nlm.nih.gov/pubmed/1867136>

[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.

http://www.tapingbase.net/sites/default/files/kinesio_taping_applied_to_lumbar_muscles_influences_clinical_and_electromyographic_characteristics_in_chronic_low_back_pain_patients.pdf

[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](#), [Eythörðsdóttir H](#), [Magnúsdóttir RG](#), [Pálmarsson 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.

<http://www.google.fi/url?sa=t&rct=j&q=effects%20of%20kinesio%20tape%20compared%20with%20nonelastic%20sports%20tape%20and%20the%20untaped%20ankle%20during%20a%20sudden%20inversion%20perturbation%20in%20male%20athletes&source=web&cd=2&ved=0CDcQFjAB&url=http%3A%2F%2Fwww.jos>

pt.org%2Fmembers%2Fgetfile.asp%3Fid%3D5228&ei=hnkIUov4BrD34QsqvYGIBQ&usg=AFQjCNE5SIN82ndhsNmWAtE-V8vgin8Xaw&bvm=bv.50500085,d.bGE&cad=rja

Kinesio taping effects of the supraspinatus syndrome

Efectos del vendaje neuromuscular (*kinesiotaping*) en el síndrome del supraespinoso

Espejo Antúñez, 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.

<http://www.tapingbase.com/nl/node/2467>

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

<http://www.sciencedirect.com/science/article/pii/S1779012310749044>

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[®] 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.

<http://zl.elsevier.es/en/revista/fisioterapia-146/immediate-effects-of-kinesio-taping-on-trunk-13147864-originales-2010>

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 ± 6.2 years, 67.1 ± 12.9 kg; and 171.1 ± 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 ($0.773 \leq ICC \leq 0.883$). 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.

<http://zl.elsevier.es/en/revista/fisioterapia-146/immediate-effect-of-kinesio-tape-on-the-90000161-originales-2011>

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.

<http://www.ncbi.nlm.nih.gov/pubmed/21079436>

[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

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.

<http://www.ncbi.nlm.nih.gov/pubmed/20649498>

Effekten av kinesiotejpning 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 kinesiotejpning 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://www.diva-portal.org/smash/get/diva2:326288/FULLTEXT03>

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*™ 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™ 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 ± 107.03 m; 2nd test = 891.12 ± 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.

<http://tapingbase.info/en/effects-of-the-appl-of-kinesio-taping-on-the-diaphragm-on-the-cycloergospirometric-test-outcome-and-6-minute-walk-test-en>

Effects of short-term treatment with kinesiотaping 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 kinesiотaping 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 kinesiотaping in addition to the same physical therapy program as the control group. The tape for kinesiотaping 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 kinesiотaping for one week might alleviate the pain of plantar fasciitis better than a traditional physical therapy program only.

<http://rocktape.net/downloads/plantarfasciitisstudy.pdf>

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, Bayrakçı](#); [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 kinesiotopeing on performance in healthy subjects was seen, no positive effect of taping was seen on performance in patients with PFPS.

<http://www.tapingbase.com/nl/node/2351>

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 ± 0.11 m (control) and 0.33 ± 0.05 m (intervention) compared to 0.35 ± 0.10 m (control) and 0.33 ± 0.05 m (intervention) in Trial 2.

No improvements in jumping performance could be detected.

http://www.google.fi/url?sa=t&rct=j&q=effect%20of%20kinesio%20taping%20on%20performance%20in%20counter-movement%20jump&source=web&cd=1&ved=0CC8QFjAA&url=https%3A%2F%2Fojs.ub.uni-konstanz.de%2Fcpa%2Farticle%2Fdownload%2F4907%2F4550&ei=n8IU2IB_L24QTy-ICIBg&usq=AFQjCNEC2Dmv6eHV8uXqhJC_dDLerNoC7w&bvm=bv.50500085,d.bGE&cad=rja

[Sports Med.](#) 2012 Feb 1;42(2):153-64. doi: 10.2165/11594960-000000000-00000.

Kinesio taping in treatment and prevention of sports injuries: a meta-analysis of the evidence for its effectiveness

[Williams S](#), [Whatman C](#), [Hume PA](#), [Sheerin K](#).

Source

Sports Performance Research Institute New Zealand, School of Sport and Recreation, Auckland University of Technology, Auckland, New Zealand.

Abstract

Kinesio tape (KT) is an elastic therapeutic tape used for treating sports injuries and a variety of other disorders. Chiropractor, Dr Kenso Kase, developed KT taping techniques in the 1970s. It is claimed that KT supports injured muscles and joints and helps relieve pain by lifting the skin and allowing improved blood and lymph flow. The profile of KT rose after the tape was donated to 58 countries for use during the 2008 Olympic Games, and was seen on high-profile athletes. Practitioners are asking whether they should use KT over other elastic adhesive tapes. The aim of this review was to evaluate, using meta-analysis, the effectiveness of KT in the treatment and prevention of sports injuries. Electronic databases including SPORTDiscus™, Scopus, MEDLINE, ScienceDirect and sports medicine websites were searched using keywords 'kinesio taping/tape'. From 97 articles, ten met the inclusion criteria (article reported data for effect of KT on a musculoskeletal outcome and had a control group) and were retained for meta-analyses. Magnitude-based inferences were used to assess clinical worth of positive outcomes reported in studies. Only two studies investigated sports-related injuries (shoulder impingement), and just one of these involved injured athletes. Studies attending to musculoskeletal outcomes in healthy participants were included on the basis that these outcomes may have implications for the prevention of sporting injuries. The efficacy of KT in pain relief was trivial given there were no clinically important results. There were inconsistent range-of-motion outcome results, with at least small beneficial results seen in two studies, but trivial results in two other studies across numerous joint measurements. There was a likely beneficial effect for proprioception regarding grip force sense error, but no positive outcome for ankle proprioception. Seven outcomes relating to strength were beneficial, although there were numerous trivial findings for quadriceps and hamstrings peak torque, and grip strength measures. KT had some substantial effects on muscle activity, but it was unclear whether these changes were beneficial or harmful. In conclusion, there was little quality evidence to support the use of KT over other types of elastic taping in the management or prevention of sports injuries. KT may have a small beneficial role in improving strength, range of motion in certain injured cohorts and force sense error compared with other tapes, but further studies are needed to confirm these findings. The amount of case study and anecdotal support for KT warrants well designed experimental research, particularly pertaining to sporting injuries, so that practitioners can be confident that KT is beneficial for their athletes.

<http://rocktape.net/downloads/ktmetaanalysis.pdf>

[Acta Orthop Traumatol Turc.](#) 2011 Sep;45(5):335-41. doi: 10.3944/AOTT.2011.2403.

The effects of additional kinesio taping over exercise in the treatment of patellofemoral pain syndrome

[Akbaş E](#), [Atay AO](#), [Yüksel I](#).

Source

Institute of Health Sciences, Hacettepe University, Ankara, Turkey. akbas.pt@gmail.com

OBJECTIVE:

The purpose of this prospective, randomized, controlled study was to determine the effects of kinesio taping in the treatment of patients with patellofemoral pain syndrome (PFPS).

METHODS:

Thirty-one women with PFPS (mean age: 44.88 years; range: 17 to 50 years) were randomly assigned to either a kinesio taping (KT) (n=15) or control (n=16) group. Both groups received the same muscle strengthening and soft tissue stretching exercises for six weeks and the KT group additionally received kinesio taping at four day intervals for six weeks. Visual analog scale was used to measure pain intensity. Tension of the iliotibial band/tensor fascia lata and hamstring muscles and the mediolateral location of the patella were measured before the treatment and at the end of the third and sixth week. The Anterior Knee Pain Scale / Kujala Scale was used for the analysis of functional performance.

RESULTS:

Comparing pretreatment and 6th week values, significant improvements were found in pain, soft tissue flexibility and functional performance of both groups ($p < 0.05$). However, patellar shift was unchanged ($p > 0.05$). The KT group had significantly better hamstring flexibility than the control group at the end of three weeks ($p < 0.05$).

CONCLUSION:

The addition of kinesio taping to the conventional exercise program does not improve the results in patients with PFPS, other than a faster improvement in hamstring muscle flexibility.

<http://www.google.fi/url?sa=t&rct=j&q=the%20effects%20of%20additional%20kinesio%20taping%20over%20exercise%20in%20the%20treatment%20of%20patellofemoral%20pain%20syndrome&source=web&cd=2&ved=0CDsQFjAB&url=http%3A%2F%2Fwww.aott.org.tr%2Findex.php%2Faott%2Farticle%2Fdownload%2F5139%2F3078&ei=iYAIUoOtD8zP4QSG84Fg&usq=AFQjCNF5xI9rJeir3oqke4QwfSH-qDviFA&bvm=bv.50500085.d.bGE&cad=rja>

[J Chiropr Med](#). 2011 Mar;10(1):47-53. Epub 2010 Oct 14.

Chiropractic management of a postoperative complete anterior cruciate ligament rupture using a multimodal approach: a case report

[Solecki TJ](#), [Herbst EM](#).

Source

Staff Clinician, National University of Health Sciences, Lombard, IL 60148.

OBJECTIVE:

The purpose of this case report is to describe the chiropractic management of a patient who had postoperative reconstructive surgery for an anterior cruciate ligament (ACL) tear.

CLINICAL FEATURES:

A 25-year-old man experienced a rupture of his left ACL, as well as a bucket-handle tear of the medial meniscus and full-thickness tear within the posterior horn of the lateral meniscus, following direct-contact trauma while playing basketball.

INTERVENTION AND OUTCOME:

Postoperative care included a 12-week functional chiropractic rehabilitation program along with Active Release Technique, Graston Technique, and Kinesio Taping. Following treatment, the patient recorded a

0/10 on the Numeric Pain Scale, recorded improvement on the Patient Specific Functional and Pain Scales, returned to play with no complications, and had complete restoration of range of motion and lower extremity muscle strength. At 1-year follow-up, the patient reported no pain and was fully functional.

CONCLUSION:

A multimodal approach to the treatment of a postsurgical ACL repair was successful in restoring functional ability, as well as complete subjective pain relief. Chiropractic care may be a beneficial addition to the care of postoperative patients.

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3110400/>

[Int J Occup Med Environ Health](#). 2011 Sep;24(3):320-3. doi: 10.2478/s13382-011-0029-8. Epub 2011 Aug 16.

Effects of kinesio taping in a physical therapist with acute low back pain due to patient handling: a case report

[Hwang-Bo G](#), [Lee JH](#).

Source

Department of Physical Therapy, College of Rehabilitation Science, Daegu University, Daegu, Republic of Korea.

OBJECTIVES:

The paper describes the case of a physical therapist with acute Low Back Pain (LBP) due to patient handling and the efficacy of Kinesio Taping (KT) around the trunk in the treatment of this occupational LBP. Materials and

METHODS:

KT was applied around the trunk for 3 days, for an average of 10 h/day. Kinesio tape was applied with 130-140% stretch to the rectus abdominis, internal oblique, erector spinae, and latissimus dorsi muscles, which are activated in the process of lifting.

RESULTS:

Following the KT application, the 'Visual Analog Scale' and 'Oswestry Disability Questionnaire scores' gradually decreased and active trunk range of motion limited by the LBP increased progressively. The physical therapist no longer complained of LBP and was able to handle patients without any pain.

CONCLUSIONS:

Hence, continuous application of KT around the trunk may be a supplementary treatment method for acute LBP in physical therapists and enable continuous patient handling without any loss of work time due to occupational LBP. In addition, KT may also be applicable for the prevention and treatment of occupational LBP in other professions involving lifting heavy objects.

<http://www.ncbi.nlm.nih.gov/pubmed/21845524>

[Biomed Eng Online](#). 2011 Aug 11;10:70.

Effect of the Kinesio tape to muscle activity and vertical jump performance in healthy inactive people

[Huang CY](#), [Hsieh TH](#), [Lu SC](#), [Su FC](#).

Source

Department of Biomedical Engineering, National Cheng Kung University, Tainan, Taiwan.

BACKGROUND:

Elastic taping applied on the triceps surae has been commonly used to improve the performance of lower extremities. However, little objective evidence has been documented. The purpose of this study was to

investigate the effect of elastic taping on the triceps surae during a maximal vertical jump. It was hypothesized that elastic taping to the triceps surae would increase muscle activity and cause positive effect to jump height.

METHODS:

Thirty-one healthy adults (19 males and 12 females with mean age, body weight and height for 25.3 ± 3.8 years old, 64.1 ± 6.2 kg, and 169.4 ± 7.3 cm, respectively) were recruited. All participants performed vertical jump tests prior to (without taping) and during elastic taping. Two elastic tapes, Kinesio tape and Mplacebo tape from two different manufacturers, were applied to the participants, respectively.

RESULTS:

The results showed that the vertical ground reaction force increased when Kinesio tape was applied even when the height of jump remained about constant. However, the height of the jump decreased, and there was no difference on the vertical ground reaction force in Mplacebo taping group. Although the EMG activity of medial gastrocnemius tended to increase in Kinesio taping group, we did not see differences in EMG activity for the medial gastrocnemius, tibialis anterior and soleus muscles in either group.

CONCLUSIONS:

Based on the varied effects of Kinesio tape and Mplacebo tape, different intervention technique was suggested for specific purpose during vertical jump movement. Mplacebo tape was demanded for the benefits of stabilization, protection, and the restriction of motion at the ankle joint. On the other hand, the findings may implicate benefits for medial gastrocnemius muscle strength and push-off force when using Kinesio tape.

<http://www.ncbi.nlm.nih.gov/pubmed/21831321>

[Foot Ankle Int.](#) 2009 Mar;30(3):218-25.

Prophylactic ankle taping: elastic versus inelastic taping

[Abián-Vicén J](#), [Alegre LM](#), [Fernández-Rodríguez JM](#), [Aguado X](#).

Source

Facultad de Ciencias del Deporte, Universidad de Castilla-La Mancha, Campus Tecnológico Antigua Fábrica de Armas, Avenida Carlos III S/N., 45071 Toledo, Spain. javier.abian@uclm.es

BACKGROUND:

The ankle is frequently injured in sporting activities, and therefore it is frequently protected with prophylactic ankle taping. This study aimed first, to compare the mechanical fatigue of two types of prophylactic ankle taping after 30 minutes of intense exercise, one made with elastic tape (ET) and the other with inelastic tape (IT), and second, to investigate the subjects' perception on the tape restriction and comfort.

MATERIALS AND METHODS:

Twenty-seven active women (mean age, 20.6 ± 4.1 years), without previous ankle injuries volunteered for the study. The participants were tested on three different conditions: with elastic ankle taping, with inelastic taping, and without taping, before and after 30 minutes of intense exercise. The ankle passive ranges of movement (ROMs) were measured before and after exercise, and a subjective scale on taping comfort and restriction was completed by the subjects.

RESULTS:

Both types of ankle taping showed less ROM restriction after 30 minutes of exercise in inversion (IT = 27% and ET = 21%), and plantarflexion (IT = 8% and ET = 6%). The IT showed more loss of restriction than the ET, with significant differences in inversion ($p < 0.05$). The participants perceived the ET as more comfortable and less restrictive.

CONCLUSION:

We would recommend the use of ET as the first choice for prophylactic ankle taping because it produces the same restriction in the ROM as the IT with less taping fatigue, and is perceived as more comfortable and less restrictive by the users.

<http://www.ncbi.nlm.nih.gov/pubmed/19321098>

Effects of treatment with kinesiio taping for flat feet

[Fernández Román, M.](#); [Castro Méndez, A.](#); [Albornoz Cabello, M.](#)

Published in *Fisioterapia*. 2012;34:11-5. - vol.34 núm 01

Abstract

The main purpose of this study was to investigate changes in pain in the back of leg and hindfoot valgus with Kinesio tape application over tibialis posterior muscle in subjects with flat feet. We made pre-post-intervention measurements (24hours) of perceived pain with visual analogue scale (VAS) and degrees of pronation rear foot with Perthes Ruler in 15 subjects (13 women, 2 men). The results showed that the subjects perceived a statistically significant decrease in their pain after treatment ($P < 0.05$). However, a statistically significant change was not observed in rearfoot pronation ($P \geq 0.05$). Similarly, no statistically significant differences were observed between gender or degrees of obesity in pre-post intervention measures of perceived pain and the degree of pronation rearfoot. In conclusion, the results obtained in this study suggest that Kinesio tape application for 24hours over tibialis posterior muscle in subjects with flat feet can decrease pain in the area but not the degrees of rearfoot pronation.

<http://www.sciencedirect.com/science/article/pii/S0211563811001313>

[J Physiother](#). 2012;58(2):89-95.

Kinesio Taping reduces disability and pain slightly in chronic non-specific low back pain: a randomised trial

[Castro-Sánchez AM](#), [Lara-Palomo IC](#), [Matarán-Peñarrocha GA](#), [Fernández-Sánchez M](#), [Sánchez-Labraca N](#), [Arroyo-Morales M](#).

Source

Department of Nursing and Physical Therapy, Universidad de Almería, Spain. adelaid@ual.es

Abstract

QUESTION

Does Kinesio Taping reduce disability, pain, and kinesiophobia in people with chronic non-specific low back pain?

DESIGN

Randomised trial, with concealed allocation, assessor blinding, and intention-to-treat analysis.

PARTICIPANTS

Sixty adults with chronic non-specific low back pain.

INTERVENTION

The experimental intervention was Kinesio Taping over the lumbar spine for one week; the control intervention was sham taping.

OUTCOME MEASURES

The following outcomes were measured at baseline, immediately after the week with the tape in situ, and four weeks later: Oswestry Disability Index, Roland- Morris Low Back Pain and Disability Questionnaire, pain on a 10-cm visual analogue scale, Tampa kinesiophobia scale, trunk flexion range of motion, and the McQuade test of trunk muscle endurance.

RESULTS

At one week, the experimental group had significantly greater improvement in disability, by 4 points (95% CI 2 to 6) on the Oswestry score and by 1.2 points (95% CI 0.4 to 2.0) on the Roland-Morris score. However,

these effects were not significant four weeks later. The experimental group also had a greater decrease in pain than the control group immediately after treatment (mean between-group difference 1.1cm, 95% CI 0.3 to 1.9), which was maintained four weeks later (1.0cm, 95% CI 0.2 to 1.7). Similarly trunk muscle endurance was significantly better at one week (by 23 sec, 95% CI 14 to 32) and four weeks later (by 18 sec, 95% CI 9 to 26). Other outcomes were not significantly affected.

CONCLUSION

Kinesio Taping reduced disability and pain in people with chronic non-specific low back pain, but these effects may be too small to be clinically worthwhile. Trial registration: ACTRN12612000402842.

<http://www.ncbi.nlm.nih.gov/pubmed/22613238>

[Clin J Sport Med.](#) 2012 Jul;22(4):327-33.

Could forearm kinesio taping improve strength, force sense, and pain in baseball pitchers with medial epicondylitis?

[Chang HY](#), [Wang CH](#), [Chou KY](#), [Cheng SC](#).

Source

*School of Physical Therapy, College of Medical Science & Technology, Chung Shan Medical University, Taichung, Taiwan †Room of Physical Therapy, Chung Shan Medical University Hospital, Taichung, Taiwan ‡Department of Physical Education, National Taichung University of Education, Taichung, Taiwan §Ortho & SportsMed, Graduate Institute of Coaching Science, National Taiwan Sport University, Taoyuan, Taiwan.

OBJECTIVE

To determine short-term effects of applied forearm Kinesio Taping (KT) on pain, wrist flexor strength, and force sense for baseball players with medial epicondylitis (ME).

DESIGN

Case-control repeated measures study.

SETTING

Clinical sports medicine research laboratory in a medical university.

PARTICIPANTS

A group of 10 baseball players with ME (ME group) and another group of 17 healthy collegiate athletes (healthy group).

INTERVENTION

Three taping conditions were applied in both groups: (1) no taping applied, (2) placebo taping applied (PT), and (3) KT applied.

MAIN OUTCOME MEASURES

Three variables were measured including maximal wrist flexor strength, related/absolute force sense errors, and pain scale (pressure pain and pain tolerance) under 3 taping conditions.

RESULTS

No significant relationship was found either in maximal wrist flexor strength or in related force sense errors between the 2 groups with taping applied, except absolute force sense errors ($P = 0.037$). Both the healthy group and the ME group in absolute force sense measurement significantly decreased the errors in PT and KT conditions. Also, the tolerance of pressure pain also improved in both the healthy group and the ME group when performing PT and KT conditions.

CONCLUSIONS

Forearm KT may enhance absolute force sense and improve pain condition for both healthy athletes and athletes suffering from ME when placebo and KT applied. However, KT did not result in significant changes in maximal wrist flexor strength for either group.

<http://www.ncbi.nlm.nih.gov/pubmed/22584958>

[Int J Sports Phys Ther.](#) 2012 Apr;7(2):154-66.

Effect of athletic taping and kinesiotaping® on measurements of functional performance in basketball players with chronic inversion ankle sprains

[Bicici S](#), [Karatas N](#), [Baltaci G](#).

Source

Hacettepe University, Faculty of Health Sciences, Department of Physiotherapy and Rehabilitation 06100 Ankara-Turkey.

BACKGROUND

Chronic inversion ankle sprains are common in basketball players. The effect of taping on functional performance is disputed in the literature. Kinesiotaping® (KT®) is a new method that is being used as both a therapeutic and performance enhancement tool. To date, it appears that no study has investigated the effect of ankle KT® on functional performance.

PURPOSE

To investigate the effects of different types of taping (KT® using Kinesio Tex®, athletic taping) on functional performance in athletes with chronic inversion sprains of the ankle.

STUDY DESIGN

Crossover Study Design

METHODS

Fifteen male basketball players with chronic inversion ankle sprains between the ages of 18 and 22 participated in this study. Functional performance tests (Hopping test by Amanda et al, Single Limb Hurdle Test, Standing Heel Rise test, Vertical Jump Test, The Star Excursion Balance Test [SEBT] and Kinesthetic Ability Trainer [KAT] Test) were used to quantify agility, endurance, balance, and coordination. These tests were conducted four times at one week intervals using varied conditions: placebo tape, without tape, standard athletic tape, and KT®. One-way ANOVA tests were used to examine difference in measurements between conditions. Bonferroni correction was applied to correct for repeated testing.

RESULTS

There were no significant differences among the results obtained using the four conditions for SEBT (anterior $p=0.0699$; anteromedial $p=0.126$; medial $p=0.550$; posteromedial $p=0.587$; posterior $p=0.754$; posterolateral $p=0.907$; lateral $p=0.124$; anterolateral $p=0.963$) and the KAT dynamic measurement ($p=0.388$). Faster performance times were measured with KT® and athletic tape in single limb hurdle test when compared to placebo and non-taped conditions (Athletic taping- placebo taping: $p=0.03$; athletic taping- non tape $p=0.016$; KT®- Placebo taping $p=0.042$; KT®-Non tape $p=0.016$). In standing heel rise test and vertical jump test, athletic taping led to decreased performance. (Standing heel rise test: Athletic taping- placebo taping $p=0.035$; athletic taping- non tape $p=0.043$; athletic tape- KT® $p<0.001$) (Vertical jump test: Athletic taping- placebo taping $p=0.002$; athletic taping- non tape $p=0.002$; KT®- athletic tape $p<0.001$)

CONCLUSION

Kinesiotaping® had no negative effects on a battery of functional performance tests and improvements were seen in some functional performance tests.

CLINICAL RELEVANCE

Ankle taping using Kinesio Tex® Tape did not inhibit functional performance

<http://www.ncbi.nlm.nih.gov/pubmed/22530190>

[Phys Ther Sport](#). 2012 May;13(2):115-9. Epub 2011 Sep 15.

Treatment of chronic Achilles tendon pain by Kinesio taping in an amateur badminton player

[Lee JH](#), [Yoo WG](#).

Source

Department of Physical Therapy, Inje University Pusan Paik Hospital, Republic of Korea.

OBJECTIVE

To evaluate the effects of Kinesio taping on a patient with chronic Achilles tendon pain.

DESIGN

Case report.

CASE DESCRIPTION

A 22-year-old male amateur badminton player slipped on the ground as he landed after jumping while playing badminton, resulting in chronic Achilles tendon pain of the dominant (right) leg. We performed Achilles tendon taping (ATT) over 5 weeks.

RESULTS

The patient's ultrasonography showed that the tendon thickness was moderately reduced from 0.42 cm to 0.37 cm and that the angles of active dorsiflexion and active plantar flexion without pain increased from 15° to 20° and from 20° to 45°, respectively. The Victorian Institute of Sport Assessment-Achilles (VISA-A) questionnaire score increased from 64 to 95, and the load-induced pain assessment score decreased from 6 to 0. The pain threshold increased from 0.8 kg to 10 kg. The tenderness at 3 kg, assessed on a numeric rating scale, decreased from 7 to 0, and the patient was able to play badminton and soccer without pain.

CONCLUSIONS

We verified the effect with an increase in the active ankle joint range of motion and the VISA-A questionnaire score, which was achieved by a decrease in tenderness and pain from repeated ATT application.

<http://rocktape.com/wp-content/uploads/KT-for-Achilles-tendon.pdf>

[Turk Neurosurg](#). 2012;22(1):83-9. doi: 10.5137/1019-5149.JTN.5377-11.1.

The effect of Kinesiotape application on functional performance in surgeons who have musculo-skeletal pain after performing surgery

[Karatas N](#), [Bicici S](#), [Baltaci G](#), [Caner H](#).

Source

Gazi University, Faculty of Health Sciences, Department of Physiotherapy Rehabilitation, Ankara, Turkey. nihankaratas86@hotmail.com

AIM

Surgeons make up a unique group that is at risk for developing work-related musculoskeletal symptoms. The purpose of this study was to evaluate the effect of Kinesiotape technique on pain and functional performance in surgeons who have musculoskeletal system pain after performing surgery. MATERIAL and

METHODS

32 surgeons between the ages of 27 and 44 yrs working in a university hospital were included. The Visual Analog Scale (VAS) was used to evaluate the surgeons' neck and low back pain and the Oswestry Low Back and Neck Disability Indexes were used to determine the impact of pain on daily living activities. First,

surgeons were evaluated without Kinesiotape application, then evaluated again on the first day and fourth day of Kinesiotape application.

RESULTS

The results showed that surgeons had a significant reduction in neck and low back pain ($p < 0.05$). There were improvements in both Oswestry Low Back Disability Index and Neck Disability Index scores when compared with their initial status ($p < 0.05$). After Kinesiotape application, neck and low back range of motions' scores showed an increase ($p < 0.05$).

CONCLUSION

Findings demonstrated that Kinesio taping would be an effective method for reducing neck and low back pain and improving functional performance.

http://www.turkishneurosurgery.org.tr/pdf/pdf_JTN_945.pdf

Fisioterapia

Volume 34, Issue 5, September 2012, Pages 189-195

Physiotherapy intervention with kinesio taping in patients suffering chronic neck pain. A pilot study

[Intervención fisioterápica con vendaje neuromuscular en pacientes con cervicalgia mecánica. Un estudio piloto]

[García Llopis, L.](#)^a, [Campos Aranda, M.](#)^b

^a Master en Ejercicio Físico, Salud y Dependencia, Universidad de Murcia, Murcia, Spain

^b Doctora en Estadística y titular del Departamento de Bioestadística, Universidad de Murcia, Murcia, Spain

Objective: The main aim was to verify if the Kinesio Taping improves the efficacy of conventional treatments in those subjects who have chronic neck pain.

Material and method: A prospective study using a sample of 10 patients with chronic neck pain was carried out. Five patients were randomly allocated to the control group in order to receive conventional physiotherapy. The remaining 5 were allotted to the experimental group in which conventional physiotherapy and neuromuscular kinesio taping were applied.

Measures: Data was collected by an evaluator blinded to the treatment allocation of the patients on the intensity of the neck and arm pain before and after the intervention with the analogue visual scale, on the neck mobility and shoulder joint mobility using a universal goniometer. Moreover, the subjects were administered the SF-36 scale and the cervical pain questionnaire.

Results: The 10 patients completed the study. When both procedures were compared for grade of improvement, it was found that there was a significant improvement in neck flexion of the experimental group compared to the control group ($P < .05$). The same was found with neck extension ($P < .02$), lateral tilt of the neck ($P < .05$) and the shoulder internal rotation ($P < .01$). In addition, mental health status was significantly improved according to the quality of life questionnaire (SF-36) in the experimental group compared to the control one ($P < .05$).

Conclusions: Kinesio Taping has improved the efficiency of conventional chronic neck pain treatment. © 2012 Asociación Española de Fisioterapeutas.

<http://www.elsevier.es/en/abstract/revistas/fisioterapia-146/physiotherapy-intervention-with-kinesio-taping-in-patients-90153312-originales-2012>

Journal of Physical Therapy Science

Volume 24, Issue 2, March 2012, Pages 153-156

The effects of Kinesio taping on VMO and VL EMG activities during stair ascent and descent by persons with patellofemoral pain: A preliminary study

[Lee, C.R.](#)^a, [Lee, D.Y.](#)^b, [Jeong, H.S.](#)^c, [Lee, M.H.](#)^d

^a Department of Physical Therapy, Korea Nazarene University, South Korea

^b Department of Physical Therapy, Sun Moon University, South Korea

^c Department of Physical Therapy, Masan University, South Korea

^d C and D Health, 682-4 3rd Floor, Chojeon Dong, Jinju City, Kyung Nam Province, 660-985, South Korea

Abstract

Purpose: This study aimed to find out the effects of Kinesio taping (KT) on the vastus medialis oblique (VMO) and vastus lateralis (VL) EMG activities of patellofemoral pain syndrome (PFPS) patients.

Subjects and Methods: Fifteen PFPS patients (mean age: 23 yr, mean height: 155 cm, mean weight: 71.47 kg) participated in this study. KT was attached to all subjects from the tibial tuberosity, following VMO and VL paths, up to 1/3 of the proximal thigh. Subjects' pain was measured using a VAS scale with and without KT. A digital dynamometer (Power Track II, JTECH medical, USA) was used to measure maximal voluntary isometric contraction (MVIC), and a surface EMG (MP150 BIOPAC System Inc. CA. USA) was used to measure the VMO and VL EMG activities.

Results: KT was found to significantly reduce pain and to increase MVIC. The VMO and VL EMG activities during stair ascent and descent decreased to a significant degree.

Conclusion: The study results suggest that KT is effective for pain relief, increase MVIC and decrease EMG activity of PFPS patients. Accordingly, KT applied around knee joints seems to help PFPS patients during stair ascent and descent and with activities of daily living including walking.

<http://www.kinesiotaping.com/images/kinesio-association/pdf/research/2010-2.pdf>

[Journal of Manipulative and Physiological Therapeutics](#)

Volume 35, Issue 6, July 2012, Pages 454-463

Mobilization with movement and kinesiotaping compared with a supervised exercise program for painful shoulder: Results of a clinical trial

[Djordjevic, O.C.](#)^a, [Vukicevic, D.](#)^a, [Katunac, L.](#)^b, [Jovic, S.](#)^c

^a Specialist in Physical Medicine and Rehabilitation, Clinic for Rehabilitation Dr Miroslav Zotovic, Bulevar Zorana Djindjica 115/IV/19, 11000 Belgrade, Serbia

^b Physiotherapist, Clinic for Rehabilitation Dr Miroslav Zotovic, Belgrade, Serbia

^c Clinic for Rehabilitation Dr Miroslav Zotovic, Belgrade, Serbia

Abstract

Objective: The purpose of this study was to compare the efficacy of Mobilization with Movement (MWM) and kinesiotaping (KT) techniques with a supervised exercise program in participants with patients with shoulder pain.

Methods: Twenty subjects with shoulder pain were included if subjects were diagnosed by the referring physician with either rotator cuff lesion with impingement syndrome or impingement shoulder syndrome. Participants were randomly assigned to 1 of 2 groups after clinical and radiologic assessment: group 1 was treated with MWM and KT techniques, whereas group 2 was treated with a supervised exercise program. The main outcome measures were active pain-free shoulder abduction and flexion tested on days 0, 5, and 10.

Results: Improvement in active pain-free shoulder range of motion was significantly higher in the group treated with MWM and KT. Repeated-measures analysis of variance indicated significant effects of treatment, time, and treatment × time interaction.

Conclusion: This study suggests that MWM and KT may be an effective and useful treatment in range of motion augmentation of subjects with rotator cuff lesion and impingement syndrome or impingement shoulder syndrome. © 2012 National University of Health Sciences.

<http://www.ncbi.nlm.nih.gov/pubmed/22921332>

Journal of Orthopaedic and Sports Physical Therapy

Volume 42, Issue 8, August 2012, Pages 724-730

Short-term effects of kinesio taping versus cervical thrust manipulation in patients with mechanical neck pain: A randomized clinical trial

[Saavedra-Hernández, M.^a](#), [Castro-Sánchez, A.M.^a](#), [Arroyo-Morales, M.^b](#), [Cleland, J.A.^{cde}](#), [Lara-Palomo, I.C.^f](#), [Fernández-De-Las-Peñas, C.^g](#)

^a Department of Nursing and Physical Therapy, Universidad de Almería, Spain

^b Department of Physical Therapy, Faculty of Health Sciences, Universidad de Granada, Spain

^c Department of Physical Therapy, Franklin Pierce University, Concord, NH, United States

^d Physical Therapist, Rehabilitation Services, Concord Hospital, Concord, NH, United States

^e Regis University, Denver, CO, United States

^f Department of Physical Therapy, Occupational Therapy, Physical Medicine and Rehabilitation, Universidad Rey Juan Carlos, Alcorcón, Spain

^g Esthesiology Laboratory, Universidad Rey Juan Carlos, Facultad de Ciencias de la Salud, Avenida de Atenas s/n, 28922 Alcorcón, Madrid, Spain

Abstract

STUDY DESIGN: Randomized clinical trial.

OBJECTIVE: To compare the effectiveness of cervical spine thrust manipulation to that of Kinesio Taping applied to the neck in individuals with mechanical neck pain, using self-reported pain and disability and cervical range of motion as measures.

BACKGROUND: The effectiveness of cervical manipulation has received considerable attention in the literature. However, because some patients cannot tolerate cervical thrust manipulation, alternative therapeutic options should be investigated.

METHODS: Eighty patients (36 women) were randomly assigned to 1 of 2 groups: the manipulation group, which received 2 cervical thrust manipulations, and the tape group, which received Kinesio Taping applied to the neck. Neck pain (11-point numeric pain rating scale), disability (Neck Disability Index), and cervical-range-of-motion data were collected at baseline and 1 week after the intervention by an assessor blinded to the treatment allocation of the patients. Mixed-model analyses of variance 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: No significant group-by-time interactions were found for pain ($F = 1.892$, $P = .447$) or disability ($F = 0.115$, $P = .736$). The group-by-time interaction was statistically significant for right ($F = 7.317$, $P = .008$) and left ($F = 9.525$, $P = .003$) cervical rotation range of motion, with the patients who received the cervical thrust manipulation having experienced greater improvement in cervical rotation than those treated with Kinesio Tape ($P < .01$). No significant group-by-time interactions were found for cervical spine range of motion for flexion ($F = 0.944$, $P = .334$), extension ($F = 0.122$, $P = .728$), and right ($F = 0.220$, $P = .650$) and left ($F = 0.389$, $P = .535$) lateral flexion.

CONCLUSION: Patients with mechanical neck pain who received cervical thrust manipulation or Kinesio Taping exhibited similar reductions in neck pain intensity and disability and similar changes in active cervical range of motion, except for rotation. Changes in neck pain surpassed the minimal clinically important difference, whereas changes in disability did not. Changes in cervical range of motion were small and not clinically meaningful. Because we did not include a control or placebo group in this study, we cannot rule out a placebo effect or natural changes over time as potential reasons for the improvements measured in both groups. Copyright © 2012 Journal of Orthopaedic & Sports Physical Therapy.

<http://www.totalrehabtt.com/uploads/2/0/4/7/2047352/short-term-effects-of-kinesio-taping-versus-cervical-thrust-manipulation-in-patients-with-mechanical-neck-pain-a-randomized-clinical-trial.pdf>

Clinical Journal of Sport Medicine

Volume 22, Issue 4, July 2012, Pages 319-326

Immediate effects of kinesiотaping on quadriceps muscle strength: A single-blind, placebo-controlled crossover trial

[Vercelli, S.](#)^a, [Sartorio, F.](#)^a, [Foti, C.](#)^b, [Colletto, L.](#)^c, [Virton, D.](#)^c, [Ronconi, G.](#)^d, [Ferriero, G.](#)^a

^a Unit of Occupational Rehabilitation and Ergonomics, Fondazione Salvatore Maugeri, Clinica Del Lavoro e della Riabilitazione, IRCCS, Via per Revislate 13, Veruno, I-28010, Novara, Italy

^b Department of Physical and Rehabilitation Medicine, University of Rome Tor Vergata, Rome, Italy

^c Physical Therapy School, Insubria University, Varese, Italy

^d Department of Geriatrics, Gerontology, and Physical Sciences, University Hospital A. Gemelli, Catholic University of the Sacred Heart, Rome, Italy

Abstract

Objective: To investigate the immediate effects on maximal muscle strength of kinesiотaping (KT) applied to the dominant quadriceps of healthy subjects.

Design: Single-blind, placebo-controlled crossover trial. Setting: "Salvatore Maugeri" Foundation.

Participants: With ethical approval and informed consent, a convenience sample of 36 healthy volunteers were recruited. Two subjects did not complete the sessions and were excluded from the analysis.

Interventions: Subjects were tested across 3 different sessions, randomly receiving 2 experimental KT conditions applied with the aim of enhancing and inhibiting muscle strength and a sham KT application. Main Outcome Measures: Quadriceps muscle strength was measured by means of an isokinetic maximal test performed at 60 and 180 degrees per second. Two secondary outcome measures were performed: the single-leg triple hop for distance to measure limb performance and the Global Rating of Change Scale (GRCS) to calculate agreement between KT application and subjective perception of strength.

Results: Compared with baseline, none of the 3 taping conditions showed a significant change in muscle strength and performance (all $P > 0.05$). Effect size was very low under all conditions (≤ 0.08). Very few subjects showed an individual change greater than the minimal detectable change. Global Rating of Change Scale scores demonstrated low to moderate agreement with the type of KT applied, but some placebo effects were reported independently of condition.

Conclusions: Our findings indicated no significant effect in the maximal quadriceps strength immediately after the application of inhibition, facilitation, or sham KT. These results do not support the use of KT applied in this way to change maximal muscle strength in healthy people.

<http://www.google.fi/url?sa=t&rct=j&q=immediate%20effects%20of%20kinesiotaping%20on%20quadriceps%20muscle%20strength%3A%20a%20single-blind%2C%20placebo-controlled%20crossover%20trial&source=web&cd=2&ved=0CDYQFjAB&url=http%3A%2F%2Ffiles.mvtrainer-preparacaofisica.com%2F200000194-35ff536fb3%2FImmediate%2520effects%2520of%2520kinesiotaping%2520on%2520quadriceps%2520muscle%2520strength-%2520a%2520single-blind%2C%2520placebo-controlled%2520crossover%2520trial.pdf&ei=TYqIUoOWK6eC4AT404CQBw&usg=AFQjCNHSHBmUBDdh6slzgrlwVcUsk14YTQ&bvm=bv.50500085.d.bGE&cad=rja>

Manual Therapy

2012

Kinesio Taping[®] does not alter neuromuscular performance of femoral quadriceps or lower limb function in healthy subjects: Randomized, blind, controlled, clinical trial

[Lins, C.A.d.A.](#)^{ab}, [Neto, F.L.](#)^{ab}, [Amorim, A.B.C.d.](#)^{ab}, [Macedo, L.d.B.](#)^{ab}, [Brasileiro, J.S.](#)^{ab} _ _

^a Department of Physiotherapy of the Federal University of Rio Grande do Norte (UFRN), Natal, Brazil

^b Laboratório de Análise da Performance Neuromuscular (LAPERNA), Departamento de Fisioterapia, Universidade Federal do Rio Grande do Norte (UFRN), Av. Senador Salgado Filho, 3000, Campus Universitário, Lagoa Nova CEP 59.078-970, Natal - RN, Brazil

Abstract

The aim of this study was to analyze the immediate effects of applying Kinesio Taping[®] (KT) on the neuromuscular performance of femoral quadriceps, postural balance and lower limb function in healthy subjects. This is a randomized, blind, controlled, clinical trial, where sixty female volunteers (age: 23.3 ± 2.5 years; BMI: 22.2 ± 2.1 kg/m²) were randomly assigned to three groups of 20 subjects each: control (10 min at rest); nonelastic adhesive tape (application over the rectus femoris, vastus lateralis and vastus medialis muscles); and KT (KT application over the same muscles). All individuals were assessed for single and triple hops, postural balance (by baropodometry), peak concentric and eccentric torque and electromyographic activity of vastus lateralis, before and after interventions. No significant differences in electromyographic activity of the VL or concentric and eccentric knee peak torque were recorded, between groups and initial and final assessment in any of the three groups. We also observed no significant alteration in single and triple-hop distance and one-footed static balance between the three groups. Application of KT to RF, VL and VM muscles did not significantly change lower limb function, postural balance, knee extensor peak torque or electromyographic activity of VL muscle in healthy women.

<http://www.ncbi.nlm.nih.gov/pubmed/22796389>

Journal of Science and Medicine in Sport

2012

Influence of Kinesio Taping applied over biceps brachii on isokinetic elbow peak torque. A placebo controlled study in a population of young healthy subjects

[Fratocchi, G.](#)^a, [Di Mattia, F.](#)^a, [Rossi, R.](#)^a, [Mangone, M.](#)^b, [Santilli, V.](#)^{ab}, [Paoloni, M.](#)^{ab} _ _

^a Physical Medicine and Rehabilitation Unit, Azienda Policlinico Umberto I, Rome, Italy

^b Department of Physical Medicine and Rehabilitation, Sapienza, University of Rome, Italy

Abstract

Objectives: To investigate the effect of Kinesio Taping (KT) applied over the biceps brachii on maximal isokinetic elbow torque.

Design: This study followed a single-blinded, placebo controlled, repeated measures design.

Methods: Isokinetic eccentric and concentric elbow peak torques were evaluated without taping (NT), with KT or placebo taping (PT) in 20 healthy participants. Furthermore, all the participants were required to perform a proprioceptive task of elbow joint position sense (JPS) in the same experimental conditions.

Results: A significant effect of taping condition was found for concentric elbow peak torque ($p = 0.01$). Post hoc analysis revealed a statistically significant concentric elbow peak torque improvement between NT and KT ($p < 0.05$) but not between NT and PT. As regards eccentric elbow peak torque, we found a significant effect of taping condition ($p < 0.0001$). Significant eccentric elbow peak torque differences were observed between NT and PT ($p < 0.01$) and between KT and PT ($p < 0.001$), while the increase observed from NT to KT conditions failed to reach significance at a post hoc analysis.

Conclusions: When applied over the biceps brachii, KT increases concentric elbow peak torque in a population of healthy participants, if compared with a PT. © 2012 Sports Medicine Australia.

<http://www.ncbi.nlm.nih.gov/pubmed/22771110>

Physical Therapy in Sport

2012

Isokinetic knee function in healthy subjects with and without Kinesio taping

[Wong, O.M.H.^a](#), [Cheung, R.T.H.^b](#), [Li, R.C.T.^c](#)

^a Physiotherapy Department, United Christian Hospital, 130 Hip Wo Street, Kwun Tong, KLN, Hong Kong, China

^b Department of Physical Medicine and Rehabilitation, Harvard Medical School, Harvard University, Boston, MA, USA

^c The Hong Kong Sports Institute, Hong Kong, China

Abstract

Objective: This study examined the difference in the isokinetic knee performance in healthy subjects with and without the Kinesio tape application onto the skin surface overlying the vastus medialis.

Design: A cross-sectional experimental study.

Setting: Clinical setting. Participants: 30 healthy participants. Main outcome measures: Maximal concentric knee extension and flexion at three angular velocities (60, 120 and 180°/s) were measured with an isokinetic dynamometer. Normalized peak torque, normalized total work done and time to peak torque of knee extension and flexion were compared by repeated measures ANOVA.

Results: There was no significant main effect in ANOVA in normalized peak torque and normalized total work done between taping conditions and angular velocities. Conversely, participants demonstrated significant shorter time to peak extension torque with the tape condition ($p = 0.03$). Pair-wise comparisons indicated that such time reduction (36-101 ms) occurred at all three angular velocities ($p < 0.01$).

Conclusion: This investigation demonstrated the application of Kinesio tape did not alter the muscle peak torque generation and total work done but shortened the time to generate peak torque. This finding may contribute to the rationale in injury prevention and rehabilitation in athletes with Kinesio taping. © 2012 Elsevier Ltd. All rights reserved.

<http://www.ncbi.nlm.nih.gov/pubmed/23068902>

Journal of Physical Therapy Science

Volume 24, Issue 3, 2012, Pages 241-244

The effect of kinesiology taping on respiratory muscle strength

[Zübeyir, S.](#), [Nilüfer, K.](#), [Burcu, C.](#), [Onur, A.](#), [Bahar, K.](#), [Ufuk, Y.S.](#), [Gülden, P.M.](#)

Physiotherapy and Rehabilitation Department, Faculty of Health Science, Marmara University, Cevizli, Kartal, Istanbul, Turkey

Abstract

Purpose: The aim of this study was to examine the effect of kinesiology taping applied to primary and accessory respiratory muscles on respiratory muscle strength.

Subjects: The subjects were 47 healthy university students (16 female, 31 male), who were all enrolled at the Department of Physiotherapy and Rehabilitation, Faculty of Health Sciences, The University of Marmara.

Methods: Participants were divided into two groups and diaphragmatic kinesiology taping was applied to the first group and kinesiology taping to the accessory respiratory muscles of the second group. Respiratory muscle strength was measured with Micro Mouth Pressure Measurement (MPM) before and after taping.

Results: The results show that kinesiology taping of the primary and accessory respiratory muscles caused no significant increase in respiratory strength.

Conclusion: The current findings on the effect of kinesiology taping on muscular strength do not fully support the results of other studies reported in the literature. These results suggest the need for more comprehensive studies of both acute and long-term effects of kinesiology taping on muscular strength of healthy individuals and patients.

<http://www.kinesiotaping.co.uk/research/casestudies/2012-06-27-The-Effect-of-Kinesio-Taping-on-Respiratory-Muscle-Strength/index.jsp>

[Ortopedia Traumatologia Rehabilitacja](#)

Volume 14, Issue 1, 2012, Pages 23-30

The use of Kinesiology Taping for physiotherapy of patients with rheumatoid hand - Pilot study

[Zastosowanie metody Kinesiology Taping w fizjoterapii reumatoidalnej - Badanie pilotażowe]

[Szczegielniak, J.](#)^a, [Łuniewski, J.](#)^{ab}, [Bogacz, K.](#)^a, [Śliwiński, Z.](#)^a

^a Physical Education and Physiotherapy Department, University of Technology, Opole, Poland

^b Rehabilitation Department, Pulmonary and Rheumatological Hospital in Kup, Kup, Poland

Abstract

Background. Rheumatoid arthritis (RA) most frequently affects smaller joints in the hands and feet. The most common deformities seen in the course of the disease include ulnar deviation, Boutonniere deformity, swan neck deformity, contractures and limited range of movement in the hand and wrist joints, and atrophy of long and short muscles. This article discusses the effect of Kinesiology Taping on hand function in patients with rheumatoid arthritis.

Material and methods. The study involved 20 patients with rheumatoid arthritis (16 women, 4 men), treated in the Hospital in Kup. The average age of the patients was 62.2 years. Apart from medication therapy at the rheumatology ward, the patients received standard physiotherapy. In 10 patients, K-Active Tape applications were additionally used to correct ulnar positioning of the hand and improve hand function. Prior to physiotherapy, all patients were given a hand function test and a dynamometer measurement was conducted. The tests were repeated at the end of the 2-week rehabilitation. The results were analysed with the Wilcoxon test and the Mann-Whitney U test. Correlations between the study parameters were assessed with a linear correlation test.

Results. In the KT group, hand muscle strength increased significantly ($p < 0.05$) in comparison with the SF-only group (treated with standard physiotherapy). The hand muscle strength increase correlated with the time needed to complete the hand function test ($r > 0.8$).

Conclusion. The results suggest that Kinesiology Taping is useful for physiotherapy of the rheumatoid hand.

<http://www.ncbi.nlm.nih.gov/pubmed/22388357>

[Rigakuryoho Kagaku](#)

Volume 27, Issue 2, June 2012, Pages 239-245

The theory of Kinesio taping® and basic application methods

[Yoshida, K.](#)

Course of Physical Therapy, Department of Rehabilitation, Faculty of Health Sciences, University of Human Arts and Science, 354-3 Shinsyouji Kuruwa, Ota-aza, Iwatsuki-ku, Saitama-shi, Saitama 339-8555, Japan

Abstract

Purpose: This paper presents a review of Kinesio Taping[®] theory and basic application methods. In the Kinesio Taping[®] method, elastic tape is applied to the skin to improve the circulation of fluids, which is expected to raise the natural healing power. Using a relatively shallow-layer approach to the assessment and modification of tissue disorders, it aims at functional improvement focusing on myofascia. With regard to its effects, it improves muscle function and fluid circulation, suppresses pain and corrects joints, and prolongs the effect of treatments. A feature of Kinesio Taping[®] is that the tape itself is applied with little or no stretching. In addition, by changing the stretch or application method of the tape, the target fascia can be changed: low stretch for the dermis, myofascia and muscles; high stretch for the deep layers of the tendon, ligament and joint correction. This distinctive taping method can be used not only for treatment, and its application in physical therapy assessment and greater use in the field of physical therapy can be expected.

http://astp.jst.go.jp/modules/search/DocumentDetail/1341-1667_27_2_The%2BTheory%2Bof%2BKinesio%2BTapingsup%252Fsup%2Band%2BBasic%2BApplication%2BMethods_N%252FA

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

Kaya E, Zinnuroglu M, Tugcu I
Clinical Rheumatology 30(2):201-7, 2011 Feb
30(2):201-7, 2011 Feb

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 3days or a daily program of local modalities (n=25) for 2weeks. 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.

<http://www.ncbi.nlm.nih.gov/pubmed/20443039>

[Manual Therapy](#)
[Volume 18, Issue 1](#), February 2013, Pages 4–25

The effectiveness of physiotherapy functional restoration for post-acute low back pain: A systematic review

[Richards MC](#), [Ford JJ](#), [Slater SL](#), [Hahne AJ](#), [Surkitt LD](#), [Davidson M](#), [McMeeken JM](#).

Source

Low Back Research Team, Musculoskeletal Research Centre, Department of Physiotherapy, School of Allied Health, Faculty of Health Sciences, La Trobe University, 3086, Australia. matt.c.richards@gmail.com

Abstract

BACKGROUND:

The effectiveness of multidisciplinary treatment for post-acute (>6 weeks) low back pain (LBP) has been established. Physiotherapists have sufficient training to conduct less intensive functional restoration. The effectiveness of physiotherapy functional restoration (PFR) has not been evaluated using current systematic review methodology.

OBJECTIVES:

To determine the effects of PFR for post-acute LBP.

DATA SOURCES:

Electronic databases searched include: MEDLINE, EMBASE, CINAHL, PsycINFO, PEDro and Cochrane CENTRAL. TRIAL ELIGIBILITY CRITERIA: Randomised controlled trials of physiotherapy treatment for post-acute LBP combining exercise and cognitive-behavioural intervention compared with other intervention, no intervention or placebo. TRIAL APPRAISAL AND SYNTHESIS METHODS: Two authors independently extracted data. Risk of bias was assessed using the PEDro scale and overall quality of the body of evidence was assessed using GRADE (Grading of Recommendations, Assessment, Development and Evaluation). Treatment effect sizes and 95% confidence intervals were calculated for pain, function and sick leave.

RESULTS:

Sixteen trials were included. Heterogeneity prevented meta-analysis for most comparisons. Meta-analyses showed moderate to high quality evidence of significant but small effects favouring PFR compared with advice for intermediate term function and intermediate and long term pain. There was however low to moderate quality evidence that PFR was no more effective than a range of other treatment types. Heterogeneous trials frequently contributed to very low quality evidence.

CONCLUSIONS:

Moderate to high quality evidence was found of small effects favouring PFR compared with advice. Preliminary evidence suggested PFR is not different to other treatment types. Further high quality research is required replicating existing trial protocols.

<http://www.ncbi.nlm.nih.gov/pubmed/22796390>

[J Strength Cond Res.](#) 2013 Feb 22. [Epub ahead of print]

EFFECT OF KINESIO TAPING ON JUMPING AND BALANCE IN ATHLETES: A CROSS-OVER RANDOMIZED CONTROLLED TRIAL

[Nunes GS](#), [de Noronha M](#), [Cunha HS](#), [Ruschel C](#), [Borges NG Jr.](#)

Source

1Center of Health and Sport Sciences, Santa Catarina State University, Florianópolis-SC, Brazil
2Department of Allied Health, La Trobe Rural Health School, Bendigo, Victoria, Australia.

Abstract

ABSTRACT: The purpose of this cross-over randomized controlled trial was to verify the effect of KT applied to the triceps surae with the aim to improve muscle performance during vertical jump (VJ), horizontal jump (HJ), and dynamic balance (DB) in healthy college athletes. The participants were 20 athletes (11 male) who competed in four different sports modalities (track and field, handball, volleyball and soccer). Participants had a mean age of 22.3 ± 3.3 years, mean height of 1.74 ± 0.08 m, and mean body mass of 67.8 ± 10.1 kg. The intervention consisted of applying KT from the origin of the triceps surae to its insertion with the purpose of increasing muscle performance; and the placebo consisted of applying tape with non-elastic properties. There were no significant differences between KT and placebo conditions for height (m) in VJ (KT, 0.18 ± 0.06 ; placebo, 0.17 ± 0.06 ; $p = 0.14$), distance (m) in HJ (KT, 1.48 ± 0.3 ; placebo, 1.47 ± 0.3 ; $p = 0.40$), and DB in distance reached (m) in the star excursion balance test, normalized by lower limb length (anterior: KT, 90.0 ± 6.7 ; placebo, 89.5 ± 7.5 ; $p = 0.56$; posterolateral: KT, 92.5 ± 7.5 ; placebo, 93.2 ± 5.8 ; $p = 0.52$; posteromedial: KT, 98.3 ± 6.7 ; placebo, 98.7 ± 7.4 ; $p = 0.69$). The KT technique was not found to be useful in

improving performance in some sports-related movements in healthy college athletes, therefore KT applied to the triceps surae should not be considered by athletes when the sole reason of the application is to increase performance during jumping and balance.

<http://www.ncbi.nlm.nih.gov/pubmed/23439339>

[Phys Sportsmed](#). 2012 Nov;40(4):33-40. doi: 10.3810/psm.2012.11.1986.

A systematic review of the effectiveness of kinesio taping for musculoskeletal injury

[Mostafavifar M](#), [Wertz J](#), [Borchers J](#).

Source

Department of Family Medicine, The Ohio State University, Columbus, OH, USA.
ahmad.mostafavifar@osumc.edu

Abstract

OBJECTIVE:

Kinesio taping (KT) is used to prevent and treat musculoskeletal injuries. This systematic review examines the evidence for the effectiveness of KT in improving patient outcomes following musculoskeletal injury.

MATERIALS AND METHODS:

A literature search (October 2011) was performed using PubMed, CINAHL, Scopus, SportsDiscus, and Cochrane databases. The literature search employed the keywords "kinesio tap*" or "kinesiotap*" or "athletic tap*" and "performance" or "function" or "strength" or "activity" or "pain" or "muscle" and "athlet*" or "sport*." These searches yielded a total of 727 articles, which were reviewed thoroughly to identify suitable articles.

RESULTS:

Six studies met our criteria and were included in this systematic review. Two of these studies examined musculoskeletal injuries in the lower extremity and reported that the use of KT did not affect outcome measures. Two studies examined musculoskeletal injuries involving the spine. Treatment with KT significantly improved pain levels and range of motion in patients with acute whiplash-associated disorders of the cervical spine both immediately and 24 hours after injury; however, the long-term results did not differ between the 2 groups. Subjects with chronic low back pain treated with KT and exercise, KT alone, or exercise alone experienced significant improvement in short-term pain, while the exercise-only group also showed significantly less long-term disability. Two studies examined musculoskeletal injuries in the shoulder. The first of these found insufficient evidence to indicate that KT decreases pain and disability in young patients with shoulder impingement/tendinitis, while the second suggested that KT may provide short-term pain relief for patients with shoulder impingement. This systematic review found insufficient evidence to support the use of KT following musculoskeletal injury, although a perceived benefit cannot be discounted. There are few high-quality studies examining the use of KT following musculoskeletal injury.

<http://www.ncbi.nlm.nih.gov/pubmed/23306413>

[Acta Orthop Traumatol Turc](#). 2012;46(5):385-92.

Comparison of efficiency of Kinesio® taping and electrical stimulation in patients with patellofemoral pain syndrome

[Kuru T](#), [Yalman A](#), [Dereli EE](#).

Source

Department of Physiotherapy and Rehabilitation, Faculty of Health Sciences, İstanbul University, İstanbul, Turkey. tugbakuru@gmail.com

Abstract**OBJECTIVE:**

The aim of this study was to compare the efficiency of Kinesio® taping and electrical stimulation in the treatment of patellofemoral pain syndrome.

METHODS:

Thirty patients (26 females, 4 males; mean age: 32.9 ± 12.2 years) with patellofemoral pain syndrome were equally divided into two groups; the KT group receiving Kinesio® taping and an exercise program, and the ES group receiving electrical stimulation and the same exercise program. All patients received stretching and strengthening exercises for the lower extremity under the supervision of a physiotherapist in the outpatient unit 3 times a week for 6 weeks (18 sessions). Patients were evaluated for pain (visual analog scale), range of motion (using a goniometer), muscle strength (manual muscle test), functional condition (step test, triple-jump test, knee flexion test and Kujala patellofemoral score), and quality of life (SF-36) before and after treatment.

RESULTS:

Visual analog scale scores were reduced by 3.33 and 3.93 and Kujala patellofemoral scores increased by 8.93 and 9.66 for the KT and ES groups, respectively. Both these improvements were statistically significant ($p < 0.05$). While improvements were observed in functional tests, range of motion, and muscle strength values in both groups; there were no significant differences between the two groups ($p > 0.05$). There were statistically significant improvements in the SF-36 scores in both groups ($p < 0.05$) and these improvements were of a similar rate ($p > 0.05$).

CONCLUSION:

Kinesio® taping and electrical stimulation have similar effects on decreasing pain, improving functional condition, increasing muscle strength and improving quality of life and neither are superior in the treatment of patellofemoral pain syndrome.

<http://www.google.fi/url?sa=t&rct=j&q=comparison%20of%20efficiency%20of%20kinesio%C2%AE%20taping%20and%20electrical%20stimulation%20in%20patients%20with%20patellofemoral%20pain%20syndrome&source=web&cd=2&ved=0CDoQFjAB&url=http%3A%2F%2Fwww.aott.org.tr%2Findex.php%2Faott%2Farticle%2Fdownload%2F5916%2F3304&ei=ilslUufgOIHx4QTwuIDQCA&usq=AFQjCNHCFpr-ygDXTonZPO1prBnGAm9Gjw&bvm=bv.50500085,d.bGE&cad=rja>

[J Sport Rehabil.](#) 2013 Feb;22(1):59-66. Epub 2012 Oct 11.

Two stretching treatments for the hamstrings: proprioceptive neuromuscular facilitation versus kinesio taping

[Chen CH](#), [Huang TS](#), [Chai HM](#), [Jan MH](#), [Lin JJ](#).

Source

School and Graduate Institute of Physical Therapy, College of Medicine, National Taiwan University, Taipei, and Center for Physical Education, National Dong Hwa University, Hualien, Taiwan.

Abstract**CONTEXT:**

Recent studies have shown that the static stretch (SS) may adversely affect leg-muscle performance.

OBJECTIVES:

The authors examined the short-term effects of 2 stretching exercises on hamstrings muscle before and after exercise.

DESIGN:

Crossover.

SETTING:

Laboratory.

PARTICIPANTS:

9 healthy, physically active men.

INTERVENTIONS:

There were 3 protocols in a randomized order with a 7-d interval: nonstretching (CON protocol), hamstrings static stretching (SS) with proprioceptive neuromuscular facilitation (PNF), and SS with kinesiio-taping application on the hamstrings.

MAIN OUTCOME MEASURES:

Outcome measures included first-felt and maximum tolerant-felt range of motion (FROM and TROM), maximal knee-flexion peak torque (PT) at 180°/s, and hamstrings muscle stiffness.

RESULTS:

Groups were not different at prestretching in terms of hamstrings flexibility, PT, and muscle stiffness. At poststretching, both stretching protocols showed significant increases in FROM and TROM ($P < .05$). Stiffer hamstrings muscle and decreased PT were found in both SS+PNF and CON protocols ($P < .05$). However, there was no significant difference in the SS+Taping protocol ($P > .05$).

CONCLUSION:

The stretching protocols improve hamstrings flexibility immediately, but after exercise hamstrings peak torque is diminished in the SS+PNF but not in the SS+Taping group. This means that SS+Taping can prevent negative results from exercise, which may prevent muscle injury.

<http://www.ncbi.nlm.nih.gov/pubmed/23069636>

[J Sport Rehabil.](#) 2013 Feb;22(1):53-8. Epub 2012 Sep 19.

Immediate effect of kinesiio taping on muscle response in young elite soccer players

[de Hoyo M](#), [Álvarez-Mesa A](#), [Sañudo B](#), [Carrasco L](#), [Domínguez S](#).

Source

Dept of Physical Education and Sport, University of Seville, Spain.

Abstract**CONTEXT:**

Kinesiio taping (KT) is a new taping technique increasingly used in sports medicine to improve muscle performance; however, its real effect is not entirely known.

OBJECTIVE:

To assess the immediate effects of KT on muscle performance in young healthy elite soccer players.

DESIGN:

Crossover study.

SETTING:

University laboratory.

PARTICIPANTS:

Eighteen young elite soccer players voluntarily participated in the study (mean \pm SEM: age 18.20 ± 2.45 y, height 1.76 ± 3.56 m, body mass 65.25 ± 3.76 kg, body-mass index 20.12 ± 1.25 kg/m²).

INTERVENTIONS:

Each subject completed 2 different protocols, with and without KT. Interventions were performed in a random order, with a washout period between conditions of 1 wk.

MAIN OUTCOME MEASURES:

Outcome measures included tensiomyographic response in the vastus lateralis and vastus medialis, power output with 30 and 50 kg, countermovement jump, and 10-m sprint.

RESULTS:

Data showed no significant differences for any of the outcomes analyzed between interventions.

CONCLUSIONS:

KT does not produce a short-term improvement in muscle performance in young elite soccer players.

<http://www.ncbi.nlm.nih.gov/pubmed/23006787>

[Journal of Electromyography and Kinesiology](#)

Available online 21 December 2012

Scapular taping alters kinematics in asymptomatic subjects

[Shaheen AF](#), [Villa C](#), [Lee YN](#), [Bull AM](#), [Alexander CM](#)

Source

Department of Bioengineering, Imperial College London, Royal School of Mines, South Kensington Campus, London SW7 2AZ, UK.

Abstract**BACKGROUND:**

Scapular taping is frequently used in the management of shoulder pain and as a part of injury prevention strategies in sports. It is believed to alter scapular kinematics and restore normal motion. However, there is little evidence to support its use. The aim of the study was to investigate the effect of shoulder taping on the scapular kinematics of asymptomatic subjects.

METHOD:

Thirteen asymptomatic subjects performed elevations in the sagittal and scapular planes with no tape and after the application of tape. A motion tracking system and a scapula locator method were used to measure the shoulder movement. Co-ordinate frames were defined for the thorax, humerus and scapula and Euler angles were used to calculate joints rotations.

RESULTS:

Scapular taping increased the scapular external and upward rotations and posterior tilt in elevations in the sagittal plane ($p < 0.001$). In the scapular plane, taping increased scapular external rotation ($p < 0.05$).

CONCLUSIONS:

Taping affects scapulothoracic kinematics in asymptomatic subjects. The effect may be different for different planes of movement. The findings have implications on the use of taping as a preventive measure in high-risk groups. Further work is needed to assess the effect of taping on symptomatic populations.

<http://www.ncbi.nlm.nih.gov/pubmed/23261085>

[J Back Musculoskelet Rehabil.](#) 2012;25(3):187-91. doi: 10.3233/BMR-2012-0326.

Effect of scapular elevation taping on scapular depression syndrome: a case report

[Lee JH](#), [Yoo WG](#).

Source

Department of Physical Therapy, Inje University Pusan Paik Hospital, Inje University, Gimhae, Republic of Korea.

Abstract**OBJECTIVE:**

This report describes the application of scapular elevation taping (SET) using kinesio tape to elevate the scapula and treat upper trapezius (UT) muscle tenderness in a patient with scapular depression syndrome.

METHODS:

The patient was a 22-year-old man who had scapular depression and severe tenderness of the right UT. We performed SET for 2 months, 4 days a week, for an average of 9 h each day, to provide scapular elevation.

RESULTS:

At the last assessment, the right superior angle of the scapula and the lateral border of the acromion were slightly elevated compared with the spinous process of the second thoracic vertebra. A chest X-ray showed that the right coracoid process was higher compared to the initial level and that the level of the first ribs was similar on both sides. The pressure-pain threshold in the UT increased from 1 to 8 kg and the tenderness at 3 kg, assessed on a numeric rating scale, decreased from 6 to 0. No tenderness occurred when carrying a bag with the right hand or slinging a bag over the right shoulder.

CONCLUSION:

Continuous application of SET may be used as a supplementary method for scapular elevation and reduction in patients with UT tenderness.

<http://www.ncbi.nlm.nih.gov/pubmed/22935857>

[Polish Annals of Medicine](#)

[Volume 19, Issue 2, August–December 2012, Pages 98–105](#)

The effect of Kinesio Taping on maximal grip force and key pinch force

- [Venta Donec](#)
- [Lina Varžaitytė](#),
- [Aleksandras Kriščiūnas](#)
- Rehabilitation Department, Medical Academy, Lithuanian University of Health Sciences, Kaunas, Lithuania

INTRODUCTION

Kinesio Taping method is used to achieve various therapeutic effects such as circulation improvement, subcutaneous lymphatic drainage, muscle facilitation or inhibition, fascia correction, and mechanical correction. According to its founder, the effects of KinesioTex tape on the body will differ depending on how and where such tape is placed.

AIM

To evaluate whether Kinesio Taping can increase maximal grip force and maximal key pinch force for healthy non-athletic subjects after 30 min and 1 h following the application.

MATERIALS AND METHODS

In total, 54 healthy subjects participated in this study. Both hands were used in the research. Special Kinesio Taping technique was applied to 32 hands (Kinesio Taping group), and placebo taping to 22 hands (placebo group); no taping technique was applied to 54 hands (control group). A dynamometer was employed for grip force, and a manometer for key pinch force measurements. The chosen level of significance was $p < 0.05$. The power of the study was calculated. In the case of $\beta \leq 0.2$, the difference was statistically significant.

RESULTS AND DISCUSSION

In the Kinesio Taping group no changes in maximal key pinch force after 30 min were observed; however, 1 h following the application maximal key pinch force increased ($p < 0.05$, $\beta=0.3$); maximal grip force increased both after 30 min ($p < 0.05$, $\beta=0.2$) and 1 h following the application ($p < 0.05$, $\beta < 0.2$). No changes in the measured forces were observed in the placebo and control groups ($p > 0.05$).

CONCLUSIONS

The Kinesio Taping technique did not result in changes to maximal key pinch force after 30 min, but increased maximal key pinch force after 1 h and maximal grip force after 30 min and 1 h following such application.

<http://www.kinesiotaping.co.uk/research/rct/2012-08-10-The-effect-of-Kinesio-Taping-on-maximal-grip-force-and-key-pinch-force/index.jsp>

Phys Ther Sport. 2012 Nov;13(4):279-85. doi: 10.1016/j.pts.2011.10.003. Epub 2011 Dec 8.

Application of posterior pelvic tilt taping for the treatment of chronic low back pain with sacroiliac joint dysfunction and increased sacral horizontal angle

[Lee JH](#), [Yoo WG](#).

Source

Department of Physical Therapy, Inje University Pusan Paik Hospital and Department of Physical Therapy, The Graduate School, Inje University, Republic of Korea.

Abstract

OBJECTIVE:

Kinesio Taping (KT) is a therapeutic method used by physical therapists and athletic trainers in combination with other treatment techniques for various musculoskeletal and neuromuscular problems. However, no research has evaluated the effect of KT in patients with low back pain (LBP). The purpose of this case was to describe the application of posterior pelvic tilt taping (PPTT) with Kinesio tape as a treatment for chronic LBP and to reduce the anterior pelvic tilt angle.

DESIGN:

Case report.

CASE DESCRIPTION:

The patient was a 20-year-old female amateur swimmer with a Cobb's angle (L1-S1) of 68°, a sacral horizontal angle of 45°, and pain in both medial buttock areas and sacroiliac joints. We performed PPTT with Kinesio tape for 2 weeks (six times per week for an average of 9 h each time).

RESULTS:

The patient's radiographs showed that the Cobb's angle (L1-S1) had decreased from 68° to 47° and that the sacral horizontal angle had decreased from 45° to 31°. Reductions in hypomobility or motion asymmetry, as assessed by the motion palpation test, and in pain, as measured by the pain-provocation tests, were observed. On palpation for both medial buttock areas in the prone position, the patient felt no pain. The patient experienced no pain or stiffness in the low back area while performing forward flexion in the standing position with knees fully extended when washing dishes in the sink.

CONCLUSIONS:

The case study demonstrated that PPTT intervention favourably affected the pelvic inclination and sacral horizontal angle, leading to beneficial effects on sacroiliac joint dysfunction (SIJD) and medial buttock pain. Additional research on the clinical effects of this taping procedure requires greater numbers of athletes with SIJD or LBP who have inappropriate anterior pelvic tilt angles and hyperlordosis.

<http://www.ncbi.nlm.nih.gov/pubmed/23068906>

J Physiother. 2013;59(1):52. doi: 10.1016/S1836-9553(13)70147-4.

Do convolutions in Kinesio Taping matter? Comparison of two Kinesio Taping approaches in patients with chronic non-specific low back pain: protocol of a randomised trial

[Silva Parreira Pdo C](#), [Menezes Costa Lda C](#), [Takahashi R](#), [Hespanhol Junior LC](#), [Motta Silva T](#), [da Luz Junior MA](#), [Pena Costa LO](#), [Cook J](#).

Source

Universidade Cidade de São Paulo, Brazil.

Abstract**INTRODUCTION:**

Chronic low back pain is a common condition. A new intervention that is popular in sports has been used in patients with low back pain. This technique is based on the use of elastic tapes that are fixed on the skin of patients using different tensions and is named Kinesio Taping Method. Although this intervention has been widely used, to date the evidence of its effectiveness is lacking.

RESEARCH QUESTION:

Is the application of the Kinesio Taping Method according to the treatment manual (with convolutions in neutral position) more efficacious than a simple application without convolutions in patients with chronic low back pain?

DESIGN:

Two-arm randomised controlled trial with a blinded assessor.

PARTICIPANTS AND SETTING:

148 patients with chronic low back pain from two outpatient physiotherapy clinics in Brazil.

INTERVENTION:

8 sessions of Kinesio Taping according to the Kinesio Taping Method treatment manual (ie, 10-15% tension with the treated muscles in stretching position and with convolutions in neutral).

CONTROL:

8 sessions of Kinesio Taping having no convolutions in neutral (0% tension) with the treated muscles in resting position.

MEASUREMENTS:

Clinical outcomes (pain intensity, disability and global impression of recovery) will be obtained in assessments that will be performed at 4 weeks and 3 months after randomisation.

ANALYSIS:

The effects of the intervention will be calculated through linear mixed models following intention-to-treat principles.

DISCUSSION:

This is the largest study aimed to investigate the hypothesised mechanism behind the Kinesio Taping application in patients with chronic low back pain. The results of this study will contribute to a better understanding about the mechanisms of action of this widely applied therapeutic modality.

TRIAL REGISTRATION:

Brazilian Registry of Clinical Trials. REGISTRATION NUMBER: RBR-7ggfkv. PROSPECTIVE REGISTRATION: Yes. FUNDED BY: Fundação de Amparo a Pesquisa do Estado de São Paulo (FAPESP), and Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq), Brazil. APPROVAL NUMBER: FAPESP number 2011/12926-0; CNPq number 470652/2011-0. ANTICIPATED COMPLETION: February 2013. CORRESPONDENCE: Leonardo Oliveira Pena Costa, Rua Cesário Galeno 448, Tatuapé, São Paulo/SP, Brazil 03071-000 Email: lcos3060@gmail.com FULL PROTOCOL: Available on the eAddenda at jop.physiotherapy.asn.au.

Copyright © 2013 Australian Physiotherapy Association. Published by .. All rights reserved.

<http://www.sciencedirect.com/science/article/pii/S1836955313701474>

Effect of kinesio taping on explosive muscle power of gluteus maximus of male athletes

Karien Mostert-Wentzel, Johannes J Swart, Lieketseng J Masenyetse, Bafana H Sihlali, Renier Cilliers, Leanne Clarke, Janette Maritz, Eliz-mari Prinsloo, Lozanne Steenkamp

Abstract

Objective. To determine the short-term effect of kinesio tape on the explosive gluteus maximus power of male athletes, comparing a recommended application pattern with a placebo.

Methods. Sixty healthy university male athletes participated in this double-blinded randomised controlled trial. Those athletes with musculoskeletal injury 6 weeks prior to screening, serious medical condition(s) in the previous 6 months, or metabolic conditions affecting joint integrity were not selected. A different investigator from the one who administered the intervention randomly allocated participants to groups. Allocation was concealed. Group A (n=30) received a recommended Y-strip kinesio tape application and group B (n=30) a neutral placebo application. Height displacement during a counter-movement jump was measured with a reliable Vertec apparatus. Measurements were recorded at baseline, immediately after strapping and 30 minutes later. Participants and raters were blinded to group assignment. Descriptive statistics and analysis of variance for repeated measures were used to determine the effect of time and group on the measurements. Post hoc analysis was done using the Tukey's method.

Results. Time (before, immediately after and 30 minutes after taping) had a significant effect on the measurements. All the measurements after intervention (either immediately or 30 minutes after) had significant differences compared with baseline (95% CI [0.59, 2.29] and [1.50, 3.2] respectively.)

Conclusion. The recommended application type of taping with kinesio tape was equally effective in significantly improving the explosive power of the gluteus maximus in male athletes immediately after and 30 minutes after taping in both groups.

http://www.google.fi/url?sa=t&rct=j&q=effect%20of%20kinesio%20taping%20on%20explosive%20muscle%20power%20of%20gluteus%20maximus%20of%20male%20athletes&source=web&cd=2&sqi=2&ved=0CDwQFjAB&url=http%3A%2F%2Fwww.sajsm.org.za%2Findex.php%2Fsajsm%2Farticle%2Fdownload%2F261%2F299&ei=HY4lUtnvFenO4QSo74HYAw&usq=AFQjCNHRAu-TLzIEnR_osjp1T2Z8agya-w&bvm=bv.50500085,d.bGE&cad=rja

[Foot Ankle Int.](#) 2013 May 29.

Effect of Elastic Taping on Postural Control Deficits in Subjects With Healthy Ankles, Copers, and Individuals With Functional Ankle Instability

[Shields CA](#), [Needle AR](#), [Rose WC](#), [Swanik CB](#), [Kaminski TW](#).

Source

Notre Dame of Maryland University, Baltimore, MD, USA.

Abstract

BACKGROUND:

Ankle sprains are the most common injury among physically active people, with common sequelae including repeated episodes of giving way, termed functional ankle instability. Copers are a cohort in ankle research comprised of those who have sprained their ankle but have not suffered any further dysfunction. The use of an elastic tape, Kinesio Tape, in sports medicine practice has recently gained popularity and may help improve postural control deficits related to functional ankle instability. The purpose of this study was to examine the immediate and prolonged effects of Kinesio Taping on postural control in healthy, coper, and unstable ankles as measured through single-limb balance on a force plate.

METHODS:

Sixty physically active, college-aged participants (72.5 ± 9.7 cm, 74.2 ± 16.2 kg, 21.5 ± 2.6 years) were stratified into healthy, coper, or unstable groups using the Cumberland Ankle Instability Tool (CAIT) combined with their history of ankle injury. Dependent variables included time-to-boundary (TTB) measures and traditional center of pressure (COP) measures in both the mediolateral (frontal) and anteroposterior (sagittal) planes. Testing was performed prior to tape application, immediately after application of the tape, 24 hours following tape application, and immediately after tape removal.

RESULTS:

Significant differences between groups were observed for COP standard deviation and range in the sagittal plane. Significant differences between tape conditions for TTB absolute minima and standard deviation were also noted. Post hoc testing revealed large to medium effect sizes for the group differences and very small effect sizes for the differences between conditions.

CONCLUSIONS:

Our study did not reveal decisively relevant changes following application of Kinesio Tape to the ankle. However, we did observe sagittal plane postural control deficits in subjects with ankle instability measured through summary COP variables over 20-second trials.

CLINICAL RELEVANCE:

Ankle instability is a concern for many clinicians. Kinesio Taping, although a popular form of clinical intervention, remains understudied. Evidence from this study does not support the use of Kinesio Taping for improving postural control deficits in those with ankle instability.

http://udspace.udel.edu/bitstream/handle/19716/11729/Christina_Shields_thesis.pdf?sequence=1

[Acta Orthop Traumatol Turc.](#) 2013;47(2):104-10.

Does Kinesio taping in addition to exercise therapy improve the outcomes in subacromial impingement syndrome? A randomized, double-blind, controlled clinical trial

[Şimşek HH](#), [Balki S](#), [Keklik SS](#), [Öztürk H](#), [Elden H](#).

Source

Institute of Health Sciences, Cumhuriyet University, Sivas, Turkey.

Abstract

OBJECTIVE:

The aim of this study was to determine the effectiveness of Kinesio taping (KT) application added to the exercise treatment of subacromial impingement syndrome (SIS).

METHODS:

Thirty-eight (25 female, 13 male) patients with SIS were randomly divided into therapeutic KT (n=19) and sham KT (n=19) groups. All patients received the same exercise therapy in addition to therapeutic or sham KT at 3-day intervals for 12 days. The groups were compared according to pain, range of motion (ROM), muscle strength and DASH and Constant scores before treatment and at the 5th and 12th treatment days.

RESULTS:

Within group comparisons showed significant improvements in both groups at the 5th and 12th day evaluations ($p < 0.05$). In comparisons between the groups, pain with movement and DASH scores in the therapeutic group were significantly lower at the 5th day ($p < 0.01$). There were significant improvements in night pain, pain with movement, DASH score, shoulder external rotation muscle strength, and pain free shoulder abduction ROM in the therapeutic group at the 12th day ($p < 0.05$). Passive shoulder flexion ROM increased more in the sham group at the 12th day ($p < 0.05$).

CONCLUSION:

The addition of KT application to the exercise program appears to be more effective than the exercise program alone for the treatment of SIS.

<http://www.google.fi/url?sa=t&rct=j&q=does%20kinesio%20taping%20in%20addition%20to%20exercise%20therapy%20improve%20the%20outcomes%20in%20subacromial%20impingement%20syndrome%3F%20a%20randomized%2C%20double-blind%2C%20controlled%20clinical%20trial&source=web&cd=2&ved=0CDUQFjAB&url=http%3A%2F%2Fwww.aott.org.tr%2Findex.php%2Faott%2Farticle%2Fdownload%2F6191%2F3416&ei=x44lUr6dC6XV4gSFooDgDg&usq=AFQjCNH2kg2QkPsk2TgfaLiVCTEGcN3tGw&bvm=bv.50500085.d.bGE&cad=rja>

[Int J Sports Phys Ther.](#) 2013 Apr;8(2):105-10.

A comparison of two taping techniques (kinesio and mcconnell) and their effect on anterior knee pain during functional activities

[Campolo M](#), [Babu J](#), [Dmochowska K](#), [Scariah S](#), [Varughese J](#).

Source

University of the Sciences, Philadelphia, PA, USA.

Abstract

BACKGROUND:

Anterior knee pain is a clinical syndrome characterized by pain experienced perceived over the anterior aspect of the knee that can be aggravated by functional activities such as stair climbing and squatting. Two taping techniques commonly used for anterior knee pain in the clinic include the McConnell Taping Technique (MT) and the Kinesio Taping® Method (KT®).

OBJECTIVE:

The purpose of this study was to compare the effectiveness of KT® and the MT versus no tape in subjects with anterior knee pain during a squat lift and stair climbing.

DESIGN:

Pretest- posttest design.

PARTICIPANTS:

A total of 20 subjects (15 female, 5 male) with unilateral anterior knee pain were recruited. The mean age of the subjects was 24 (+/-3) years, with a mean weight of 160 (+/-28) pounds.

METHODS:

Each participant was tested during two functional activities; a squat lift with a weighted box (10% of his/her body weight, plus the weight [8.5 pounds] of the box) and stair climbing under three conditions: 1) no tape, 2) MT and 3) KT®. Pain levels were assessed (verbally) using the 0-10 Numeric Pain Intensity Scale.

RESULTS:

The median (interquartile range [IQR]) pain during squat lift was 2 (2.75) for no tape, 1 (1) for KT®, and 0.5 (2) for McConnell, with no significant differences between the groups. During the stair activity the median (IQR) pain was 1.5 (2.75) for no tape, 1 (1.75) for KT®, and 1 (1.75) for MT with a significant difference ($p=0.024$) between the groups. Further analysis determined that the only a significant difference was ($p=0.034$) between the no tape and the KT® conditions.

CONCLUSION:

The results of this study found that both the KT® and the MT may be effective in reducing pain during stair climbing activities.

LEVEL OF EVIDENCE:

Level 2, Prospective Cohort study.

[http://www.google.fi/url?sa=t&rct=j&q=a%20comparison%20of%20two%20taping%20techniques%20\(kinesio%20and%20mcconnell\)%20and%20their%20effect%20on%20anterior%20knee%20pain%20during%20func](http://www.google.fi/url?sa=t&rct=j&q=a%20comparison%20of%20two%20taping%20techniques%20(kinesio%20and%20mcconnell)%20and%20their%20effect%20on%20anterior%20knee%20pain%20during%20func)

[ional%20activities&source=web&cd=2&ved=0CDgQFjAB&url=http%3A%2F%2F216.197.105.206%2FLibrari
es%2FResearch_Committee%2FResearch_1.sflb.ashx&ei=E48IUo3iOKL-
4QT4wYGoCA&usg=AFQjCNHF5BcmbLS-PQOovFcaMUBHRMPV0Q&bvm=bv.50500085,d.bGE&cad=rja](http://www.sciencedirect.com/science/article/pii/S0278239113003108)

[J Oral Maxillofac Surg.](#) 2013 May 13. pii: S0278-2391(13)00310-8. doi: 10.1016/j.joms.2013.03.020. [Epub ahead of print]

Does Elastic Therapeutic Tape Reduce Postoperative Swelling, Pain, and Trismus After Open Reduction and Internal Fixation of Mandibular Fractures?

[Ristow O](#), [Hohlweg-Majert B](#), [Kehl V](#), [Koerdt S](#), [Hahnefeld L](#), [Pautke C](#).

Source

Resident, Medicine and Aesthetics, Private Clinic for Oral and Maxillofacial and Plastic Surgery, Munich, Germany; Dental Medical Student, University of Munich, Munich, Germany. Electronic address: ristow@aesthetik-muenchen.de.

Abstract

PURPOSE:

The aim of the present study was to investigate whether the application of elastic therapeutic tape (Kinesio Tape [KT]) prevents or decreases swelling, pain, and trismus after open reduction and internal fixation of mandibular fracture, thus improving patients' postoperative morbidity.

MATERIALS AND METHODS:

To address the research purpose, the investigators designed and implemented an open-label, monocentric, parallel-group, randomized clinical trial. Patients were prospectively assigned for treatment of unilateral mandibular fractures and randomly allocated to receive treatment with or without KT application. KT was applied directly after surgery and maintained for 5 days postoperatively. Facial swelling was quantified using a 5-line measurement at 6 specific time points. Pain score was assessed using a 10-level visual analog scale; mouth opening was measured. In addition, all patients were asked to evaluate overall satisfaction and swelling (2 groups) and the effect of the tape on movement and comfort (KT group only).

RESULTS:

The study included 26 patients (11 female and 15 male; mean age, 43 yr; standard deviation, 18.5 yr). Application of KT after surgery for mandibular fracture had a statistically significant influence on tissue reaction and swelling, decreasing the incidence of swelling and turgidity by more than 60% during the first 2 days after surgery. Although KT had no significant influence on pain control, patients in the KT group perceived significantly lower morbidity.

CONCLUSION:

The present results showed that KT after open reduction and internal fixation of mandibular fracture is a promising, simple, less traumatic, and economical approach for managing postoperative swelling that is free from systemic adverse reactions, thus improving patients' quality of life.

<http://www.sciencedirect.com/science/article/pii/S0278239113003108>

[Int J Sports Med.](#) 2013 May 13. [Epub ahead of print]

Does the Application of Kinesiotape Change Scapular Kinematics in Healthy Female Handball Players?

[Van Herzeele M](#), [van Cingel R](#), [Maenhout A](#), [De Mey K](#), [Cools A](#).

Source

Rehabilitation Sciences and Physiotherapy, Ghent University, Ghent, Belgium.

Abstract

Elastic taping is widely used in sports medicine for correcting functional alignment and muscle recruitment. However, evidence regarding its influence on scapular dynamic positioning is scarce. This study aimed to investigate the effect of a specific kinesiotaping method on scapular kinematics in female elite handball players without shoulder complaints. 25 athletes (18.0±1.5 years) active in the highest national division were recruited. All subjects received an elastic adhesive tape (K-active tape©) with the purpose to correct scapular position. 3-dimensional scapular motion measurements were performed (Fastrak®) during humeral elevation in the sagittal, frontal and scapular plane. The results showed that taping has a moderate to large effect (Cohen's $d > 0.7$) towards scapular posterior tilting, in all 3 planes of humeral movement and for all angles of elevation (mean posteriorizing effect of 4.23°, 3.23° and 4.33° respectively for elevation in the sagittal, frontal and scapular plane, $p < 0.001$). In addition, taping also moderately increased the scapular upward rotation at 30°, 60° and 90° of humeral abduction (mean increase of 2.90°, Cohen's $d > 0.7$). Together these results suggest that kinesiotape application causes positive changes in scapular motion. This could support its use in sports medicine for preventing shoulder problems in overhead athletes.

<http://www.ncbi.nlm.nih.gov/pubmed/23670362>

[Ann Phys Rehabil Med.](#) 2013 Mar;56(2):113-22. doi: 10.1016/j.rehab.2012.12.001. Epub 2013 Jan 22.

A comparison of the effects of ankle taping styles on biomechanics during ankle inversion

[Tréguët P](#), [Merland F](#), [Horodyski MB](#).

Source

Centre Audomarais de recherche biomécanique, 22, rue des Epéers, 62500 Saint-Omer, France.
paul.tregouet@laposte.net

Abstract**OBJECTIVE:**

This study was designed to compare the effects of different ankle taping methods on lower leg EMG and subtalar kinematics.

METHODS:

Twelve healthy volunteers were tested on an inversion platform in one of three taping conditions: non-elastic basketweave, elastic adhesive bandage wrap and non-taped control. Muscle activation and range of motion data were collected during an inversion of 35 degrees using a Biometrics® datalogger. Testing was done before and after 30minutes of treadmill running.

RESULTS:

Significant differences were noted in total inversion, time to peak inversion and rate of inversion. While total inversion did not differ between tape conditions, the rate of inversion in the non-elastic condition was lower than the elastic adhesive condition, which was lower than the control. There was no effect of ankle taping style on latency of the peroneus longus.

CONCLUSIONS:

The choice of ankle taping style can have significant effects on ankle biomechanics and the use of non-elastic tape reduces the rate of inversion. While the rate increased after 30minutes of running, it was still lower than the other conditions.

<http://www.sciencedirect.com/science/article/pii/S1877065712013073>

Kinesio tape and its effects on internal and external range of motion of the shoulder

[Renner, Chelsea M](#)

Issue Date: 18-May-2012

Abstract:

The primary objective to this study was to determine the effects of kinesio tape (KT) on shoulder ROM arc pre and post KT treatment. The experimental design consisted of a pretest-posttest randomized-group. Independent variables were treatments with two levels: no KT and KT. Dependent variables were shoulder internal and external rotation. Shoulder internal and external rotation was measured with a digital inclinometer on 45 healthy subjects (control group = 22, KT group = 23), while perceptions of participation and KT efficacy was measured with an electronic post-experiment questionnaire. Results showed no significant differences between control and KT treatment groups for shoulder ROM arc pre and post intervention. Significant differences were identified between females ($x=125^\circ$) and males ($x=115^\circ$) within each group on day 4 pre tape removal. Overall, females displayed a significant increase in ROM arc with KT after 4 days of treatment, and returned to baseline arc upon tape removal.

<http://scholars.indstate.edu/handle/10484/3989>

Journal of Physical Therapy Science
 Vol. 22 (2010) No. 3 P 285-289

Effects of Head-neck Rotation and Kinesio Taping of the Flexor Muscles on Dominant-hand Grip Strength

[Jung-Hoon Lee^{1\)}](#), [Won-Gyu Yoo^{2\)}](#), [Kyung-Soon Lee^{3\)}](#)

1) Department of Physical Therapy, The Graduate School, Inje University 2) Department of Physical Therapy, College of Biomedical Science and Engineering, Inje University 3) Department of Physical Therapy, Dong Ju College University

Purpose

The purposes of this study were to examine whether the asymmetrical tonic neck reflex affects the dominant-hand grip strength in healthy adults and to compare the results with the degree of grip strength achieved when Kinesio tape was applied to the flexor muscles of the dominant hands.

Subjects

The subjects were 20 men and 20 women who agreed to participate in the study.

Methods

Grip strength was measured using a Jamer dynamometer under 3 conditions: the neutral position, the head-neck system rotating toward the nondominant hand in the transverse plane, and after applying Kinesio tape to the flexor muscles of the dominant hand.

Results

In the neutral position, the grip strength of the dominant hand was significantly greater after applying Kinesio tape to the flexor muscles than that of the untaped dominant hand in the neutral position or the head-neck rotation condition in both males and females.

Conclusion

These results suggest that the muscle strength of the upper extremity in subjects with upper-extremity muscle weakness may be improved by clinical application of Kinesio taping as a supplementary measure.

https://www.jstage.jst.go.jp/article/jpts/22/3/22_3_285/pdf

Does kinesiotaping increase knee muscles strength and functional performance?

Journal [Isokinetics and Exercise Science](#)
 Publisher IOS Press
 Issue [Volume 19, Number 3 / 2011](#)
 Pages 149-155

Gulcan Aktas¹, Gul Baltaci¹

¹Department of Physiotherapy and Rehabilitation, Hacettepe University, Faculty of Health Sciences, Ankara, Turkey

Abstract

Context:

Knee injuries which are the most common disabling injuries in both athletic and physically active people, can be expected to occur with all sporting activities especially contact sports. Therefore, knee braces and taping techniques are widely used to reduce and/or prevent the severity and incidence of knee injuries in sports.

Objective:

To determine which application, knee brace, kinesiotope (KT) or both, is more effective regarding muscular strength and functional performance.

Design:

A prospective, criterion-based controlled study.

Setting:

University research laboratory.

Patients or other participants:

Twenty (11 F, 9M) healthy subjects with no previous history of lower extremity injuries and using knee brace and KT were included in this study.

Main outcome measures:

Muscular strength, and jump performance were tested with knee brace, kinesiotope and both applications. Repeated measures ANOVA was performed to determine if there were differences between braced, taped and both conditions. Participants filled in a questionnaire regarding demographic and lower extremity problems.

Results:

Kinesiotope application brought about a significant increase in hop distance ($p=0.015$, $P=0.018$) in both the dominant and non-dominant extremity and in isokinetic knee extension peak torque ($p=0.034$) at $180^\circ/s$.

Conclusion:

KT application was more effective in terms of muscular strength and jump performance than knee brace and KT plus knee brace. Physical therapists and athletic trainers may apply KT to a patient during or after treatment and rehabilitation to support knee musculature, to encourage the tissue healing process, and to avoid limiting the enhancement of improved knee muscle performance.

<http://iospress.metapress.com/content/t26x0m1704123516/>

The effects of scapular taping on electromyographic muscle activity and proprioception feedback in healthy shoulders

Journal of Orthopaedic Research

[Volume 29, Issue 1](#), pages 53–57, January 2011

1. Jiu-jenq Lin^{1,2,†,*},
2. Cheng-Ju Hung¹,
3. Pey-Lin Yang¹

Abstract

We investigated the effects of scapular tape on the electromyographic (EMG) activity of the upper trapezius (UT), lower trapezius (LT), serratus anterior (SA), anterior deltoid (AD), and shoulder proprioception in 12 healthy shoulders. Participants were blindfolded and required to complete a target end/mid range position with the hand. They performed six trials under two experimental conditions; no tape and therapeutic tape. EMG activity was measured by surface electrodes, and proprioception was measured by the FASTRAK electromagnetic motion tracking system. Two-way repeated measures ANOVA showed that UT and AD activities decreased 2.65% ($p = 0.001$), and SA muscular activities increased 1.9% ($p = 0.015$) in the taping condition. The proprioceptive feedback magnitude was significantly lower in the taping condition than in the no taping condition (11.9° , $p < 0.005$). Additionally, correlation coefficients were higher than 0.5 between muscle activity and proprioceptive feedback with the taping condition; UT and magnitude in the mid range task ($R = 0.516$); LT and magnitude in the end range task ($R = -0.524$); and SA and magnitude in the mid range task ($R = -0.576$). The results suggest that scapular tape affects the muscle activity of UT, AD, and SA, and that the effects are related to proprioception feedback. These results implicate that the mechanisms by which scapular taping induces effects can be explained by neuromuscular control and proprioceptive feedback factors. © 2010 Orthopaedic Research Society. Published by Wiley Periodicals, Inc. *J Orthop Res* 29:53–57, 2011

<http://onlinelibrary.wiley.com/doi/10.1002/jor.21146/abstract;jsessionid=68610481EB6431D81808998579BFFA7D.d03t02?deniedAccessCustomisedMessage=&userIsAuthenticated=false>

The effect of Kinesio taping on calf's injuries prevention in triathletes during competition: pilot experience

[Merino Marban, Rafael](#) | [Fernández Rodríguez, Emilio](#) | [Iglesias Navarrete, Pablo](#) | [Mayorga Vega, Daniel](#)

Educación Física y Deportiva 2011

Universidad de Alicante. Área de Educación Física y Deporte

"The effect of Kinesio taping on calf's injuries prevention in triathletes during competition: pilot experience". *Journal of Human Sport and Exercise* [en línea]. Vol. 6, No. 2 (2011). Supplement. ISSN 1988-5202, pp. 305-308. <http://www.jhse.ua.es/index.php/jhse/article/viewArticle/223>

[consulta: 29 junio 2011]

Resumen:

The aim of the study was to evaluate the subjective perception of the local pain after the competition in triathletes. Before start the warm up the kinesio tape was applied in both legs through "I" technique. After the race triathletes were evaluated about perceived pain and soreness on gastrocnemius and soleos muscle by Borg's scale CR10. During the different competitions in which it was proved, none of the sportsmen suffered contractures or cramps in the musculature of the calves, and according to the scale CR10 the perceived pain was zero or not more than 2. Based on these experimental tests and properties of the kinesio tape, it is possible to recommend its use for triathletes and duathletes for injuries prevention and to avoid contractures or cramps during the competition.

<http://193.145.233.67/dspace/handle/10045/17815>

Initial effects of kinesio® taping in patients with patellofemoral pain syndrome: A randomized, double-blind study

Journal [Isokinetics and Exercise Science](#)
 Publisher IOS Press
 Issue [Volume 19, Number 2 / 2011](#), 135-142

Aydan Aytar¹, Nihan Ozunlu¹, Ozgur Surenkok², Gul Baltaci³, Pinar Oztop⁴, Metin Karatas⁴

¹Department of Physical Therapy and Rehabilitation, Faculty of Health Sciences, Baskent University, Ankara, Turkey

²Department of Physical Medicine and Rehabilitation, SinoUnited Health Clinic, Shanghai, China

³Department of Physical Therapy and Rehabilitation, Faculty of Health Sciences, Hacettepe University, Ankara, Turkey

⁴Department of Physical Medicine and Rehabilitation, Baskent University Hospital, Ankara, Turkey

Abstract

The purpose of this randomized, double-blind study was to determine the acute effects of kinesio® taping on pain, strength, joint position sense and balance in patients with patellofemoral pain syndrome (PFPS). Twenty-two subjects with PFPS participated in the study. Subjects were separated into two groups; kinesio® taping (KT) and placebo kinesiotaping (PKT). All subjects were assessed before and 45-min after the applications. Muscle strength, joint position sense, static and dynamic balance and pain intensity were used as the main outcome measures. Among all outcome parameters significant differences were found between strength of quadriceps muscle at 60 and 180°/s, and static and dynamic balance scores before and 45-min after application of KT. There was also a significant difference between strength of quadriceps muscle at 60°/s and static balance scores before and 45 minutes after application of the PKT. Therefore KT application does not seem to be an effective treatment method for both decreasing pain and improving joint position sense for patients with PFPS.

<http://iospress.metapress.com/content/71247053j3pj746r/>

Journal of Physical Education and Sport © 2011, 11(2), pp.23 -27

E- ISSN 2066-2483 P-ISSN 1582-8131 © JPES

The acute effect of kinesio taping on hamstring extensibility in university students

MERINO-MARBAN R.,¹FERNANDEZ-RODRIGUEZ E.,² LOPEZ-FERNANDEZ I.,³ MAYORGA-VEGA D.⁴
^{1,2,3} University of Malaga, Faculty of Sciences of Education, Human Movement Laboratory, Malaga, Spain
⁴ University of Malaga, Malaga, Spain

Abstract

Objectives:

The aim and rationale of our study was to determine the acute effect of kinesio taping on the extensibility of the hamstring muscle among university students.

Design:

An intra-subject experimental design was used to evaluate the possible acute effects of KT using the Xshaped taping technique in order to affect hamstring muscle extensibility.

Method:

Forty-three healthy university students (age 21.98 ± 4.68 years, body mass 71.50 ± 13.49 kg, height 172.35 ± 8.17 cm) were assessed for hamstring flexibility. All participants had both legs tested under three different randomly ordered conditions (kinesio tape, sham tape and control) using the Passive Straight Leg Raise Test. All measurements were made during the same testing session. Participants performed three sets of tests, each set measured twice, to determine hamstring extensibility in both legs. There was a 12 minute rest period between each set and a one minute break between each repetition.

Results:

An analysis of variance (ANOVA) with repeated measurements showed no statistically significant differences either in the right ($p=0.503$) or the left leg ($p=0.948$) between the three study conditions.

Conclusions:

The application of kinesio taping does not seem to acutely increase hip flexion range of motion in healthy subjects.

http://www.researchgate.net/publication/230787237_The_acute_effect_of_kinesio_taping_on_hamstring_extensibility_in_university_students/file/79e4150461735d808f.pdf

Kinesio Taping on Short-Term Changes in Shoulder Strength in Healthy Adults: A Randomized Clinical Trial

[Dario A. Callegari, University of Nevada, Las Vegas](#)

[Cristobal E. Cordova, University of Nevada, Las Vegas](#)

[Julia R. Dunievitz, University of Nevada, Las Vegas](#)

Award Date: 5-2012

Degree Type: Dissertation

Degree Name: Doctor of Physical Therapy (DPT)

Department: Physical Therapy

Advisor 1: Jill Slaboda, Coordinator

Advisor 2: Merrill Landers

Number of Pages: 27

Abstract

Study Type: A Randomized Clinical Trial

Introduction:

Kinesio tape is an elastic tape used in various settings and it is purported to assist in strengthening weakened muscles. The mechanism behind this claim is neuromuscular facilitation. The purpose of this study was to determine if the claims of Kinesio tape would be supported in its role in strength enhancing properties.

Methods:

Twenty-nine healthy, untrained male and female college-aged individuals participated in this study. Two baseline measurements assessing shoulder external rotation (ER) strength were collected using isokinetic dynamometry. Subjects were then randomized into two groups, Kinesio tape with ER strengthening (KT-Ex) and ER strengthening only (Ex). Both groups followed a training program for 3 weeks with measurements obtained at the end of each week.

Results:

Shoulder external rotator concentric and eccentric peak torque values were assessed using factorial ANOVAs. No significant interaction was found for concentric strength changes over time, ($p=0.862$). Likewise, no significant interaction was found for eccentric strength over time, ($p=0.183$).

Discussion:

The training program used in this study was insufficient to drive strength changes in shoulder external rotation strength in either group. The effect that Kinesio tape, in conjunction with a training program, could not be determined from this study. Future studies should employ a design with more power.

<http://digitalscholarship.unlv.edu/thesesdissertations/1329/>

[Volume 21, Issue 3](#), 2013

The Effects of Ankle Kinesio® Taping on Ankle Stiffness and Dynamic Balance

[Shirleeah D. Fayson^a](#), [Alan R. Needle^{a*}](#) & [Thomas W. Kaminski^a](#)

Abstract

The purpose of this study was to determine the effects of Kinesio® taping on static restraint and dynamic postural control of the ankle joint. Thirty female subjects with no history of ankle injury participated in this study. Subjects were tested for passive ankle laxity and stiffness, and time to stabilization following forward, backward, medial, and lateral hops. Subjects were tested prior to tape application, immediately following application, and following 24 hours of use. Differences between taping conditions were investigated using analyses of variance and pairwise comparisons. Stiffness increased following initial application and 24 hours of Kinesio® tape use ($F_{(1,27)} = 6.99$, $p = .003$), despite no observed changes in ankle laxity ($F_{(1,27)} = 0.77$, $p = .49$); however, no changes were observed in time-to-stabilization ($F_{(1,27)} = 0.03$, $p = .97$). Our results suggest that Kinesio® tape may improve static restraint in the ankle joint without altering peak motion or dynamic postural control. A future investigation into Kinesio® tape efficacy in injury prevention or rehabilitation is warranted.

<http://www.tandfonline.com/doi/abs/10.1080/15438627.2013.792083#UgT5bX9q0hw>

[Manual Therapy, Volume 18, Issue 1](#), February 2013, Pages 41–45

Kinesio Taping® does not alter neuromuscular performance of femoral quadriceps or lower limb function in healthy subjects: Randomized, blind, controlled, clinical trial

[Lins CA](#), [Neto FL](#), [Amorim AB](#), [Macedo Lde B](#), [Brasileiro JS](#)

Source

Department of Physiotherapy of the Federal University of Rio Grande do Norte (UFRN), Natal, Brazil.

Abstract

The aim of this study was to analyze the immediate effects of applying Kinesio Taping® (KT) on the neuromuscular performance of femoral quadriceps, postural balance and lower limb function in healthy subjects. This is a randomized, blind, controlled, clinical trial, where sixty female volunteers (age: 23.3 ± 2.5 years; BMI: 22.2 ± 2.1 kg/m²) were randomly assigned to three groups of 20 subjects each: control (10 min at rest); nonelastic adhesive tape (application over the rectus femoris, vastus lateralis and vastus medialis muscles); and KT (KT application over the same muscles). All individuals were assessed for single and triple hops, postural balance (by baropodometry), peak concentric and eccentric torque and electromyographic activity of vastus lateralis, before and after interventions. No significant differences in electromyographic activity of the VL or concentric and eccentric knee peak torque were recorded, between groups and initial and final assessment in any of the three groups. We also observed no significant alteration in single and triple-hop distance and one-footed static balance between the three groups. Application of KT to RF, VL and VM muscles did not significantly change lower limb function, postural balance, knee extensor peak torque or electromyographic activity of VL muscle in healthy women.

<http://www.ncbi.nlm.nih.gov/pubmed/22796389>

Influence of Kinesio Taping on the Motor Neuron Conduction Velocity

[Moon Hwan Lee^{1\)}](#), [Chang Ryeol Lee^{2\)}](#), [Jeong Seo Park^{2\)}](#), [Soo Yeon Lee^{3\)}](#), [Tae Gyeong Jeong^{3\)}](#), [Gil Soo Son^{4\)}](#), [Ji Yeun Lee^{5\)}](#), [Eung Chang Kim^{6\)}](#), [Yong Kwon Kim^{1\)}](#)

1) Department of Physical Therapy, International University of Korea 2) Department of Physical Therapy, Young Dong University 3) Department of Physical Therapy, Daegu University 4) Department of Physical Therapy, Younngnam College of Science & Technology 5) Department of Physical Therapy, Andong Science College 6) Department of Physiology and Biophysics, College of Medicine, Eulji University

[Purpose] The objective of this study was to investigate whether Kinesio taping (KT) exerts influence on the motor nerve conduction velocity. [Subjects and Methods] Seventeen healthy participants (male 9, female 8) with no pathology or past history of a peripheral and central neuropathy who were working at the Jinju Seran hospital voluntarily participated in this study. Their mean age was 34.3 years (range=25-52 years), their mean height was 167.1 cm (range=158-177 cm), and their mean weight was 56.9 kg (range=45-73 kg). All participants received bipolar percutaneous stimulation by orthodromic conduction delivered by a EP/EMG system (MEB-9200, Nihon Kohden, Japan) with a pulse duration of under 1 ms. Ulnar and median nerves were stimulated with 20 mA and the radial nerve was stimulated with 30mA. The motor nerve conduction velocity was measured with and without the application of KT. [Results] Statistically, there were no significant differences between with and without KT in the latency, amplitude, and motor nerve conduction velocity of the median, ulnar, and radial nerves. [Conclusion] The results of this study suggest that Kinesio taping neither increases nor decreases motor nerve conduction velocity.

https://www.jstage.jst.go.jp/article/jpts/23/2/23_2_313/article

Do kinaesthetic tapes affect plantarflexor muscle performance?

[Robert Csapo^{a\)}](#), [Malvina Herceg^{b\)}](#), [Luis M. Alegre^{c\)}](#), [Richard Crevenna^{b\)}](#) & [Karin Pieber^{b\)}](#)

Abstract

This study aimed to examine the effects of application of kinaesthetic tapes on plantarflexor muscle performance. We hypothesised that taping of the triceps surae muscle would improve plantarflexor muscle strength and endurance with no significant effect on drop jump performance. Using a repeated-measures design, all performance measures were obtained in 24 volunteers on two separate occasions: without tapes and after application of kinaesthetic tapes. Performance tests included measurements of isometric plantarflexor muscle strength and the associated electromyographic activity of the gastrocnemius muscle, an isokinetic fatigue resistance test (30 contractions at $180^\circ \cdot s^{-1}$) and assessments of drop jump performance. The taping-intervention was associated with an increase in gastrocnemius electromyographic activity. However, significant increases in isometric strength were only found at fully dorsiflexed ankle positions (+12% at -20°). Strength gains were negatively correlated to baseline strength ($r = -.58$). The intervention did not affect the results of the isokinetic fatigue and drop jump tests. The application of kinaesthetic tapes over the triceps surae muscle promotes an increase in isometric strength and gastrocnemius muscle activity. Our data suggest that these effects are joint-angle dependent and more prominent in weaker individuals. By contrast, the taping-intervention improves neither drop jump performance nor muscular endurance.

<http://www.tandfonline.com/doi/abs/10.1080/02640414.2012.712713#.UgT7In9q0hw>

South African Journal of Sports Medicine 2012;24(3):75-80. DOI: [10.7196/sajsm.261](https://doi.org/10.7196/sajsm.261)

Effect of kinesio taping on explosive muscle power of gluteus maximus of male athletes

Karien Mostert-Wentzel, Johannes J Swart, Lieketseng J Masenyetse, Bafana H Sihlali, Renier Cilliers, Leanne Clarke, Janette Maritz, Eliz-mari Prinsloo, Lozanne Steenkamp

Objective

To determine the short-term effect of kinesio tape on the explosive gluteus maximus power of male athletes, comparing a recommended application pattern with a placebo.

Methods

Sixty healthy university male athletes participated in this double-blinded randomised controlled trial. Those athletes with musculoskeletal injury 6 weeks prior to screening, serious medical condition(s) in the previous 6 months, or metabolic conditions affecting joint integrity were not selected. A different investigator from the one who administered the intervention randomly allocated participants to groups. Allocation was concealed. Group A (n=30) received a recommended Y-strip kinesio tape application and group B (n=30) a neutral placebo application. Height displacement during a counter-movement jump was measured with a reliable Vertec apparatus. Measurements were recorded at baseline, immediately after strapping and 30 minutes later. Participants and raters were blinded to group assignment. Descriptive statistics and analysis of variance for repeated measures were used to determine the effect of time and group on the measurements. Post hoc analysis was done using the Tukey's method.

Results

Time (before, immediately after and 30 minutes after taping) had a significant effect on the measurements. All the measurements after intervention (either immediately or 30 minutes after) had significant differences compared with baseline (95% CI [0.59, 2.29] and [1.50, 3.2] respectively.)

Conclusion

The recommended application type of taping with kinesio tape was equally effective in significantly improving the explosive power of the gluteus maximus in male athletes immediately after and 30 minutes after taping in both group.

http://www.google.fi/url?sa=t&rct=j&q=effect%20of%20kinesio%20taping%20on%20explosive%20muscle%20power%20of%20gluteus%20maximus%20of%20male%20athletes&source=web&cd=2&cad=rja&sqi=2&ved=0CDwQFjAB&url=http%3A%2F%2Fwww.sajsm.org.za%2Findex.php%2Fsajsm%2Farticle%2Fdownload%2F261%2F299&ei=25A1UpKQEcOD4ASj0oHoBA&usq=AFQjCNHRAu-TLzIEnR_osjp1T2Z8agya-w&bvm=bv.50500085,d.bGE

Kinesio tape management for superficial radial nerve entrapment: A case report

April 2013, Vol. 29, No. 3 , Pages 232-241

[Sudarshan Anandkumar, MSc.PT, BPT, C-OMPT, MIAP, MMTFI](#)

Post graduate student, International School of Physiotherapy, Coventry University, Gokula Education Foundation, Bangalore, Karnataka, India

Address correspondence to Anandkumar Sudarshan, International School of Physiotherapy, Coventry University, Gokula Education Foundation, M.S.R. Nagar, MSRIT Post, Bangalore, Karnataka 54, India. E-mail: anandkumar.sudarshan@gmail.com

This case report describes a 41-year-old female who presented with complaints of pain in the lower lateral one-third of the right radius extending into the first web space. Tinel's sign reproducing the patient's symptoms was elicited 8.2 cm above the radial styloid process. Physical diagnosis for superficial radial nerve entrapment was made based on a positive upper limb neural tension test 2a along with symptom reproduction during resisted isometrics to brachioradialis and wrist extensors. A potential first time successful

conservative Kinesio tape (KT) management for entrapment of the superficial radial nerve is described in this report. An immediate improvement in grip strength and functional activities along with a reduction in pain and swelling was noted in this patient after the first treatment session, which was maintained at a 6 month follow-up. A model is proposed describing the mechanism by which KT application could be used to intervene for nerve entrapment interfaces.

<http://informahealthcare.com/doi/abs/10.3109/09593985.2012.717589>

Bandaging and Taping Considerations for the Dancer

Author: Ewalt, Katherine L.

Source: [Journal of Dance Medicine & Science](#), Volume 14, Number 3, September 2010 , pp. 103-113(11)

Publisher: [J. Michael Ryan Publishing Inc.](#)

Abstract:

Although widely disputed, bandaging and taping techniques are common practice in sports medicine. This article reviews literature related to the efficacy of bandaging and taping procedures and their role in sport and dance medicine. It further examines dance-specific application principles, and outlines selected techniques for treatment of common dance-related pathologies.

<http://www.ingentaconnect.com/content/jmrp/jdms/2010/00000014/00000003/art00005>

The Roles of Kinesio Tape®

Erica D. Carlyn Stuart
California University of Pennsylvania

Summary

Applying Kinesio tape® to a musculoskeletal injury during rehabilitation could result in a quicker recovery by allowing the body to biomechanically heal itself. Educating certified athletic trainers on the beneficial factors of Kinesio tape® may offer the profession new protocols and positive outcomes in the rehabilitation of injured athletes.

<http://www.kon.org/urc/v9/athletic-training/stuart.html>

The Effects of Kinesio Tape on Hamstring Flexibility

Kathryn Krohn, David Castro, & Joseph Kling

Advisor: Daryl Ridgeway, D. C.

Oct 10, 2011

Abstract

Objectives:

To determine if Kinesio Tape has an effect on hamstring flexibility when taped using control, inhibition, and facilitation methods of taping

Methods:

A study was conducted regarding the effects of Kinesiotape therapy on hamstring flexibility. A total of 45 subjects with the appropriate criteria for participation were separated into three groups. Every participant had their hamstring flexibility measured by using a Sit-N-Reach machine prior to being taped. Fifteen participants

were blindly taped with Kinesiotape, another fifteen with inhibiting tape, and the other fifteen with a non-affective control tape. They were then instructed to walk ½ a mile and were then re-measured on the Sit-N-Reach. They were instructed to return the following day to be re-measured in order to see any changes that may have happened over the 24 hours. The researchers expected the subjects with the Kinesiotape to improve their hamstring flexibility.

Results:

The researchers had a null hypothesis, in order to test the significance of the measurements, that the group with Kinesiotape would not have data that was different from the control group's data. The Kinesiotape group demonstrated some improvements relative to their pre-tape measurements, as expected, but relative to the control group, the data was not significantly different. Therefore, the null hypothesis could not be rejected.

Conclusion:

The study demonstrated that in this case, under these circumstances, the Kinesiotape did not make a significant difference in the flexibility of the hamstrings of the subjects. The inhibitory tape also did not make a significant difference in inhibiting flexibility of the hamstrings. A future study could incorporate different ideas such as increasing the amount of time between the measurements, so instead of 24 hours it could be a week. These data will help develop future studies for the further analysis of the effects of Kinesiotape and the benefits it has on patients and their care

<http://www.logan.edu/mm/files/LRC/Senior-Research/2011-Dec-13.pdf>

Comparison of two techniques for using the Kinesio Taping in patients with chronic non-specific low back pain: a randomized controlled trial

Principal Investigator: [Leonardo Oliveira Pena Costa](#)

Awardee: [Leonardo Oliveira Pena Costa](#)

Institution: PRO REITORIA POS GRADUACAO PESQUISA EXTENSAO/UNICID
 Field of knowledge: [Health Sciences - Physiotherapy and Occupational Therapy](#)
 Support type: Regular Research Awards
 Grant number: 11/12926-0
 Duration: February 01, 2012 - January 31, 2014

Abstract

Chronic low back pain is a highly prevalent condition which is associated with high direct and indirect costs worldwide. Although this condition is highly prevalent, it is still extremely difficult to treat. A new alternative of treatment that is very popular in sports has been proposed for patients with low back pain. This technique is based on the use of elastic bandages that are fixed using different tensions on the skin of patients and is called Kinesio Taping. Despite being an interesting treatment approach, it has never been tested in a high methodological quality study. Therefore a high quality randomized controlled trial is necessary to compare, for the first time, the effectiveness of such techniques in patients with chronic low back pain. One hundred and forty-eight patients will be randomly allocated to two different Kinesio Taping techniques during 8 sessions of treatment over four weeks. Clinical outcomes (pain intensity, disability and global perceived effect) will be obtained in evaluations that will be performed in 4 weeks, 3 and 6 months after randomization. Data will be collected by a blinded examiner with regards to the patients' allocation. This is the first study to compare different techniques of Kinesio Taping for patients with chronic low back pain. The results of this study can assist health care professionals in their clinical decision making for the treatment of chronic low back pain, and can reduce the health costs for this condition. (AU)

<http://www.bv.fapesp.br/en/auxilios/46297/comparison-of-two-techniques-for-using-the-kinesio-taping-in-patients-with-chronic-non-specific-low-/>

The Effects of Kinesio Taping on the Thigh of Healthy Individuals

Masters thesis, Queen Margaret University. N Hutcheon - 2010

Item Type: Thesis (Masters)
Subjects: School of Health Sciences > Physiotherapy
ID Code: 391
Deposited By: Mrs Isabel Bentley
Deposited On: 08 Mar 2011 12:09
Last Modified: 03 Aug 2011 09:33

Abstract

Background: Kinesio tape is a novel taping technique designed in 1973 which is becoming increasingly popular in the sports industry in the treatment of injuries and rehabilitation. It is claimed that kinesio tape can effectively reduce pain and swelling, relax or strengthen muscles, re-align subluxed joints and enhance proprioception. Despite the growing use of this tape, there is very little empirical evidence to support how that tape mediates these aforementioned effects and much of the existing literature is often conflicting. The objective of this study was to examine the effects of kinesio tape when applied to the anterior thigh on knee position perception, range of motion and tissue characteristics and determine whether these effects would be decreased, enhanced or unchanged over a duration of 24 hours. Methods: Seventeen healthy physiotherapy student participated in this study: 12 females, 5 males (mean age = 25 ± 2.34). The study consisted of a repeated measure within subject design, where the subject's knee joint position sense and knee range of motion were measured under 3 conditions : Without Tape (WT): Immediately after taping (IT): and 24 hours after with tape in situ (AT). Tissue depths (mm) at 3 sites of the quadriceps were measured before and after the application of tape using an ultrasound machine. Kinesio tape was applied to the knee and thigh using a superior and inferior Y-technique. Results: Our results indicated that the use of kinesio tape did not significantly alter ($p > 0.05$) knee joint position sense and knee range of movement immediately after application or 24 hours post application in comparison to no tape. Similarly, there were no significant differences ($p > 0.05$) in tissue depths (mm) at any of the 3 muscle sites. Conclusion: We concluded that kinesio tape has no effect when applied to the thigh of a population of healthy individuals. It is suggested that more research is conducted into the effects of kinesio tape to determine how the tape mediates its outcomes. This will enable a greater understanding of the physiological effects of the tape and support the growing use of the tape in all clinical areas. Key Words: Kinesio tape, joint position sense, quadriceps, range of movement, tissue characteristics, goniometer, ultrasound

<http://etheses.qmu.ac.uk/391/>

Application of Kinesio Taping® for Treatment of Sports Injuries

Jolanta Zajt-Kwiatkowska^{1(A,B,D,E,F)}, Elzbieta Rajkowska-Labon^{2(A,B,D)}, Wojciech Skrobot^{2(A,B,D,F)}, Stanisław Bakuś^{2(D,E)}, Jolanta Szamotulska^{2(A,B,D,F)}
¹Eniadecki Academy of Physical Education in Gdańsk, Poland ²Medical University of Gdansk, Poland

Abstract

Injuries and straining of the motor system as a result of professional or recreational sports activity constitute an important problem for both the sufferer and medical personnel involved in treatment. The most common injuries involve traumas of joints and muscles as well as straining of the motor system. Modern competitive sports force the sportsmen and sportswomen who were injured to return to the contest arena as quickly as possible. The aim of this article is the presentation of the method enhancing the therapy applied in sports medicine and known as Kinesio Taping®. This treatment method using cotton tapes of large elasticity (Kinesio Tex®) is used for the injuries of the upper and lower limbs as well as strains of the motor system. The method suggested by Dr Kenzo Kase, enhancing the rehabilitation process regulates blood and lymph circulation and decreases their concentration in the region of tissues deformed as a result of an injury or straining. This paper presents application Kinesio Text® for treatment in ankle sprain, epicondylalgia of

brachial biceps muscle, inflammatory condition of long head of brachial biceps muscle, syndrome of tightness of the tibia front and lateral fascial compartment and inflammation of the plantar aponeurosis. Clinical observations after the application of KT® have indicated that in all injured persons pain decreased and visible oedema resorption occurred. Tapes were well tolerated and no allergic reactions were observed. The results from published papers confirm the author's observations that the application of KT® tapes: 1. reduces the levels of pain suffered, 2. increases the functional capabilities of the patient, 3. constitutes a good method supplementing a regular physiotherapeutic treatment.

<http://www.fisiotaping.com.br/site/wp-content/uploads/2012/07/Aplica%C3%A7%C3%A3o-do-Kinesio-Taping-no-tratamento-de-Les%C3%B5es-Esportivas.pdf>

Is Kinesio Tape effective in relieving musculoskeletal pain in the geriatric population?

[Shane Rushing, Pacific University](#)

Document Type

Critically Appraised Topic

Publication Date

2010

Clinical Scenario

The patient who led me to pursue this question was a 62 year old female with pain related to musculoskeletal problems. Medical treatment to date has included medication, modalities and rest (non-use). Problems identified (or PT diagnosis) include fractures, joint replacements, Cerebrovascular Accident (CVA), and muscle damage related to falls.

Clinical Question

Is Kinesio Tape effective in relieving musculoskeletal pain in the geriatric population?

Clinical Bottom Line

At this point there have been no studies that suggest that the Kinesio Tape treatment will decrease pain or increase pain free range-of-motion in my clinical population of geriatric adults with pain related to musculoskeletal problems. The most current literature related to Kinesio Tape suggests that in young people with acute injuries, KT may work a little bit better than Sham KT in restoring ROM and reducing pain. More research must be done in order to get a more complete understanding of the clinical effectiveness of Kinesio Tape with older adults.

<http://commons.pacificu.edu/ptcats/24/>

The effect of tape application to fascial planes on muscle contraction

C. Baker, B. Laiderman; E. Paunicka, R. Simpson, R. Weaver

Advisor: Brian McLaughran, D. C.

November 7, 2011

Abstract

Introduction:

Kinesio Taping® applications have been used by numerous medical practitioners to reduce the tension and adhesions of the fascia. Kinesio tape manufacturers claim that the reduction of tension and increase of space between the dermis and for optimal muscle contractility. The purpose of this study was to determine

the effects of Kinesio Taping® on muscle contractility when compared to no tape and Elastikon taping applications.

Methods:

Three taping procedures (Kinesio Taping®, no taping, and Elastikon taping) were applied to the flexor group of the forearm in this study. A hand dynamometer was used to test the grip strength of all participants.

Results:

Significant increase in strength was noted between the Elastikon group vs. Kinesio Tape® group in the male subjects. No significant differences in strength were noted between the control group and the Kinesio Tape® wearing groups in the male and female subjects.

Conclusion:

The results suggest that the application of Kinesio Tape® to the flexor group of the forearm could increase the strength of muscle contraction in healthy adults

<http://www.logan.edu/mm/files/LRC/Senior-Research/2011-Dec-05.pdf>

[Journal of Human Sport and Exercise - 2012, Vol. 7, No. 4](#)

Acute and 48 h effect of kinesiотaping on the handgrip strength among university students

[Merino Marban, Rafael](#) | [Mayorga Vega, Daniel](#) | [Fernández Rodríguez, Emilio](#)

Educación Física y Deportiva, dic-2012

Resumen:

This study aimed to determine the acute and 48 h effect of kinesiотaping (KT) on the maximal grip strength of wrist flexor muscle, and the comfort level immediately and after 48 h with the KT applied on the forearm. A sample of 31 university students (eight females and 23 males) (mean age 23.71 ± 2.78 years; mean body mass 72.05 ± 13.54 kg; mean body height 173.81 ± 8.91 cm; mean body mass index 23.69 ± 3.24 kg/m²) participated in the present study. The left or right forearm of the participants was taped randomly. Only one of the forearms of each participant was taped (EH) while the other acted as a control (CH). Handgrip strength and the comfort of wearing the KT were tested: (1) without taping; (2) 15 min after taping; (3) 48 h after taping with the KT remaining in situ and (4) 15 min after removing the tape. The results of the ANOVA showed no interaction effects between the group variable (EH, CH) and time (1, 2, 3, 4) [F (3, 156) = 1.140; p= 0.332; $\eta^2_p = 0.021$; P = 0.282] in the handgrip strength. No changes were found in maximal grip strength immediately and 48 h after KT application. The level of comfort after 48 h wearing the KT on the forearm was very high.

<http://rua.ua.es/dspace/handle/10045/26597>

Immediate Effects of Lumbopelvic Manipulation and Lateral Gluteal Kinesio Taping on Unilateral Patellofemoral Pain Syndrome A Pilot Study

1. [Joseph Miller](#), PT, DPT, DSc, OCS, SCS^{*,†},
2. [Richard Westrick](#), PT, DPT, DSc, OCS, SCS[‡],
3. [Angela Diebal](#), PT, DPT, DSc, OCS, SCS[§],
4. [Christopher Marks](#), MS[□] and
5. [J. Parry Gerber](#), PT, PhD, SCS, ATC[¶]

[±] Author Affiliations

1. [†]*Evans Army Community Hospital, Fort Carson, Colorado*
2. [‡]*Keller Army Community Hospital, West Point, New York*
3. [§]*Fort Belvoir Army Community Hospital, Alexandria, Virginia*
4. [□]*United States Military Academy, West Point, New York*

5. ¹Womack Army Medical Center, Fort Bragg, North Carolina
1. ¹* Joseph Miller, PT, DPT, DSc, OCS, SCS, 1370 Farnham Point, Apt 103, Colorado Springs, CO 80904 (e-mail: joseph.miller10@us.army.mil).

Abstract

Objectives:

To determine the immediate effects of Kinesio taping directed to the hip and manipulation directed to the lumbopelvic region in individuals with unilateral patellofemoral pain syndrome (PFPS).

Background:

PFPS affects up to 25% of the general population. Despite the high prevalence, this condition is not clearly understood, as evidenced by the numerous proposed causes and recommended treatments. Notwithstanding, recent evidence suggests that treatments directed at the hip or spine may lead to beneficial results.

Methods:

A convenience sample of 18 participants (12 men and 6 women, 19.5 ± 1.15 years old) with unilateral PFPS was recruited. Participants were randomized by sex to 1 of 3 groups: Kinesio taping, manipulation, and control taping. The main outcome measures included the Y-balance test, squatting range of motion (ROM), and the Lower Extremity Functional Scale.

Results:

Compared with the lumbopelvic manipulation and control groups, those in the Kinesio taping group performed significantly better on the Y-balance test ($F = 5.59$, $P = 0.02$) and with squatting ROM ($F = 3.93$, $P = 0.04$). The Kinesio taping and lumbopelvic groups were also significantly better than the control (sham) group with double-leg squatting ROM performance 3 days later.

Conclusion:

Kinesio taping may facilitate gluteus medius activation and improve postural stability and a double-leg squat.

Clinical Relevance:

The improvement in affected limb reach and double-leg squatting ROM highlights the potential for Kinesio taping to improve gluteus medius activation. Lumbopelvic manipulation may also immediately improve rehabilitation programs for PFPS.

<http://sph.sagepub.com/content/5/3/214.short>

Montalvo et al., J Nov Physiother 2013, 3:3

An Evidence-Based Practice Approach to the Efficacy of Kinesio Taping for Improving Pain and Quadriceps Performance in Physically-Active Patellofemoral Pain Syndrome Patients

AM Montalvo, WE Buckley, W Sebastianelli... - J Nov ..., 2013 - omicsgroup.org

Alicia M Montalvo^{1*}, William E Buckley¹, Wayne Sebastianelli² and Giampietro L Vairo^{1,21}

Department of Kinesiology, Pennsylvania State University, University Park PA16802, USA²Department of Orthopaedics and Rehabilitation, Penn State Hershey Bone and Joint Institute-State College, State College PA 16803

<http://www.omicsgroup.org/journals/2165-7025/2165-7025-3-151.pdf>

Medical and Biological Sciences, 2012, 26/4, 71-76

Anetta Cubała¹, Maciej Śniegocki^{1,2}, Jarosław Hoffman^{3,4}, Dorota Ratuszek⁴, Tomasz Jurkiewicz, Paweł Molski⁵, Agnieszka Nowacka¹, Maciej Dzierżanowski⁶,

USE OF THE KINESIO TAPING METHOD IN PAINFUL SHOULDER SYNDROME

ZASTOSOWANIE METODY KINESIO TAPING W ZESPOLE BOLESNEGO BARKU

Department of Neurotraumatology, Nicolaus Copernicus University in Toruń, Collegium Medicum in Bydgoszcz

Head: dr hab. n. med. Maciej Śniegocki

1. Department of Neurosurgery and Neurotraumatology, Nicolaus Copernicus University, Collegium Medicum in Bydgoszcz
2. Department of Neurotraumatology, Nicolaus Copernicus University, Collegium Medicum in Bydgoszcz
3. Gdansk Management College
4. Department of Rehabilitation, Nicolaus Copernicus University, Collegium Medicum in Bydgoszcz
5. Department of Physiotherapy, The University of Economy in Bydgoszcz
6. Department of Manual Therapy, Nicolaus Copernicus University, Collegium Medicum in Bydgoszcz

Summary

Introduction

The painful shoulder syndrome is becoming an increasingly frequent pathology for both sexes at different ages. Its diagnosis and treatment still cause many problems. They result from a complicated anatomical and biomechanical structure, rich innervation and diversity of symptoms of the shoulder dysfunction.

Aim

The assessment of Kinesio Taping method impact on pain reduction and improvement in muscle strength and range of the shoulder motion in patients with painful shoulder syndrome.

Material and methods

The study included 20 patients, in whom during the clinical examination carried out by a specialist of orthopedics and traumatology, a painful shoulder syndrome was recognized. Patients were evaluated by the numerical pain scale of NRS, muscle strength Lovett scale and range of motion in the shoulder joint by goniometry. The study was carried out on qualification day and in the period from 5 to 7 days after the Kinesio Taping method.

Results

55% of the respondents were women (mean age 66 years), 45% were male (mean age 62.7 years). The level of pain perception in patients after treatment was 35% lower than before the Kinesio Taping method. The largest increase in mobility (11.72%) was found in the shoulder joint extension motion. Muscle strength after treatment increased from 15% to 20%.

Conclusions

Kinesio Taping reduces pain and improves muscle strength, but is it not a method that significantly improves the range of motion in the joint.

<http://www.degruyter.com/view/j/mbs.2012.26.issue-4/v10251-012-0073-z/v10251-012-0073-z.xml>

Effectiveness of the addition of the use of the Kinesio Taping in patients with chronic nonspecific low back pain who receive conventional physical therapy: a randomized controlled trial

Principal Investigator: [Luciola da Cunha Menezes Costa](#)

Awardee: [Luciola da Cunha Menezes Costa](#)

Institution: PRO REITORIA POS GRADUACAO PESQUISA EXTENSAO/UNICID

Field of knowledge: [Health Sciences](#) - [Physiotherapy and Occupational Therapy](#)

Support type: Regular Research Awards
Grant number: 13/02075-8
Duration: June 01, 2013 - May 31, 2015

Abstract

Background:

Chronic nonspecific low back pain is an important health condition with a high prevalence worldwide and it is associated with enormous direct and indirect costs to the society. Clinical practice guidelines show that many interventions are available to treat patients with chronic low back pain, but the vast majority of these interventions have a modest effect in reducing pain and disability. An intervention that has been widely used in recent years is the use of elastic bandages called Kinesio Taping. Although Kinesio Taping have been largely used in clinical practice, the current evidence does not support the use of this intervention. However, these conclusions are based on a small number of underpowered studies. Therefore, questions remain about the effectiveness of the Kinesio Taping method as an additional treatment to interventions that have already been recommended by the current clinical practice guidelines, such as conventional physical therapy in a well design trial with statistic power.

Objective:

To determine the effectiveness of the addition of the use of Kinesio Taping in patients with chronic nonspecific low back pain who receive conventional physical therapy.

Methods:

One hundred and forty-eight patients will be randomized to receive either conventional physical therapy, which consist of a combination of manual therapy techniques, general exercises and specific exercises for spinal segmental stabilization (Conventional Physical Therapy Group) or to receive conventional physical therapy plus the addition of the Kinesio Taping in the lumbar spine (Conventional Physical Therapy plus Kinesio Taping), over a period of 5 weeks (10 sessions of treatment). Clinical outcomes (pain intensity, disability, global perceived effect and satisfaction with care) will be collected at baseline and at 5 weeks, 3 and 6 months after randomization. Data will be collected by a blinded examiner who will be unaware about the group allocation. All statistical analysis will be conducted following the principles of intention to treat analysis and the comparison between groups will be performed using Mixed Linear Models.

Expected results:

The results of this study may help in the decision making of physical therapists, as well as may reduce the enormous costs associated with chronic nonspecific low back pain. (AU)

<http://www.bv.fapesp.br/en/auxilios/58521/effectiveness-of-the-addition-of-the-use-of-the-kinesio-taping-in-patients-with-chronic-nonspecific-/>

[Archives of Physical Medicine and Rehabilitation](#)

[Arch Phys Med Rehabil.](#) 2013 Jun 13

Effects of Kinesio Taping on Venous Symptoms, Bioelectrical Activity of the Gastrocnemius Muscle, Range of Ankle Motion, and Quality of Life in Postmenopausal Women With Chronic Venous Insufficiency: A Randomized Controlled Trial

[Aguilar-Ferrández ME](#), [Castro-Sánchez AM](#), [Matarán-Peñarrocha GA](#), [García-Muro F](#), [Serge T](#), [Moreno-Lorenzo C](#).

Source

Department of Physical Therapy, University of Granada, Granada, Spain. Electronic address: encaguilar@hotmail.com.

Abstract

Objective

To assess the efficacy of Kinesio taping (KT) on venous symptoms, quality of life, severity, pain, edema, range of ankle motion (ROAM), and peripheral muscle myoelectrical activity in lower limbs of postmenopausal women with mild chronic venous insufficiency (CVI).

Design

Double-blinded randomized controlled trial with concealed allocation.

Setting

Clinical setting.

Participants

Consecutive postmenopausal women (N=123; age range, 62–67y) with early-stage CVI. None of the participants withdrew because of adverse effects.

Intervention

Participants were randomly assigned to an experimental group for standardized KT application for external gastrocnemius (EG) and internal gastrocnemius (IG) muscle enhancement and ankle function correction or a placebo control group for sham KT application. Both interventions were performed 3 times a week during a 4-week period.

Main Outcome Measures

Venous symptoms, CVI severity, pain, leg volume, gastrocnemius electromyographic data, ROAM, and quality of life were recorded at baseline and after treatment.

Results

The experimental group evidenced significant improvements in pain distribution, venous claudication, swelling, heaviness, muscle cramps, pruritus, and CVI severity score ($P \leq .042$). Both groups reported significant reductions in pain (experimental group: 95% confidence interval [CI], 1.6 to 2.1; control group: 95% CI, -0.2 to 0.3). There were no significant changes in either group in quality of life, leg volume, or ROAM. The experimental group showed significant improvements in root mean square signals (right leg: EG 95% CI, 2.99–5.84; IG 95% CI, 1.02–3.42; left leg: EG 95% CI, 3.00–6.25; IG 95% CI, 3.29–5.3) and peak maximum contraction (right leg: EG 95% CI, 4.8–22.7; IG 95% CI, 2.67–24.62; left leg: EG 95% CI, 2.37–20.44; IG 95% CI, 2.55–25.53), which were not changed in controls.

Conclusions

KT may reduce venous symptoms, pain, and their severity and enhance gastrocnemius muscle activity, but its effects on quality of life, edema, and ROAM remain uncertain. KT may have a placebo effect on venous pain.

<http://www.ncbi.nlm.nih.gov/pubmed/23769763>

The effects of Kinesio Taping® on postural control deficits in healthy ankles, copers, and individuals with functional ankle instability

Author(s)	Shields, Christina
Date Issued	2012
Department	University of Delaware, Department of Exercise Science
Degree	M.S.
Advisor	Kaminski, Thomas W.
Publisher	University of Delaware

Abstract

BACKGROUND:

Ankle sprains are the most common injuries among physically active people, with 40-70% developing functional ankle instability (FAI), characterized by frequent episodes of “giving way” and sensations of joint instability. Kinesio Taping,[®] an intervention that has recently gained popularity may help decrease postural control deficits related to FAI. This study examined the immediate and prolonged effects of Kinesio Taping[®] on postural control in subjects with FAI and investigated differences between healthy, copers, and unstable ankles as measured through single-limb balance on a forceplate.

METHODS:

Sixty physically active, college-aged participants (height: 172.5 ± 9.7 cm, mass: 74.2 ± 16.2 kg, age: 21.5 ± 2.6 years) were sorted into three separate groups: healthy control, copers, and FAI. Subjects were stratified using the Cumberland Ankle Instability Tool (CAIT) combined with their history of ankle injury. Dependent variables were time to boundary (TTB) measures and traditional center of pressure (COP) measures in both the mediolateral (frontal) and anteroposterior (sagittal) planes. Testing was performed at baseline, immediately after application of the tape, 24 hours post-tape application, and immediately after removal of the tape.

RESULTS:

Significant group main effects for COP standard deviation ($F_{2,57} = 4.309$, $p = 0.018$) and range ($F_{2,57} = 4.918$, $p = 0.011$) in the sagittal plane were noted. Significant condition main effects for TTB absolute minima (frontal plane, $F_{3,159} = 1.607$, $p = 0.015$) and standard deviation (frontal, $F_{3,138} = 5.710$, $p = 0.002$ and sagittal plane, $F_{3,141} = 0.889$, $p = 0.029$) were also noted. Post hoc testing revealed decreased COP standard deviation and range for the ankle instability group compared to controls and significant improvements at 24 hours post-tape in all groups for TTB absolute minima ($p = 0.025$) and standard deviation (frontal plane, $p = 0.002$).

CONCLUSIONS:

Deficits in COP variables were seen in unstable ankles as compared to both healthy ankles and copers. Minor improvements in TTB measures after 24 hours of continuous wear of Kinesio[®] tape were observed in healthy, copers, and unstable ankles. Since between group differences were seen in COP measures, but improvements post-tape application were seen only in TTB variables, we can conclude that Kinesio[®] tape did not improve the specific postural control deficits experienced by unstable ankles. Therefore, while Kinesio[®] tape may provide a small benefit to postural control at the ankle, it does not appear to be effective at improving ankle instability deficits. Keywords: balance, time to boundary, center of pressure

<http://udspace.udel.edu/handle/19716/11729>

Hettle et al., Clin Res Foot Ankle 2013, 1:1

The Effect of Kinesiotaping on Functional Performance in Chronic Ankle Instability - Preliminary Study

David Hettle^{1*}, Linda Linton², Julien S Baker³ and Orna Donoghue⁴
¹University of Edinburgh Medical School, University of Edinburgh, United Kingdom
²FASIC, Centre for Sport and Exercise, University of Edinburgh, United Kingdom
³Institute of Sport, Physical Education and Health Sciences, University of Edinburgh, United Kingdom
⁴Institute of Clinical Exercise and Health Science, University of the West of Scotland, United Kingdom

Objective:

Chronic Ankle Instability (CAI) is characterised by recurrent giving way and often develops after repeated lateral ankle sprains. Kinesiotape is more elastic than traditional athletic tape and is becoming increasingly popular. It is reported to decrease pain, improve muscle function, circulation and proprioception, however, research examining the effects of Kinesiotape in CAI is limited. The objective of this study was to determine if applying Kinesiotape to chronically unstable ankles improved performance in the Star Excursion Balance Test (SEBT).

Design:

Crossover design study with participants randomised to the taped or untaped condition first.

Setting:

Lab-based study.

Participants:

Sixteen participants (10 female, 6 male; age 22.4 ± 1.41 years; height 1.77 ± 0.08 m; weight 71.9 ± 8.7 kg) from university sports clubs participated in the study. Inclusion criteria was a lateral ankle sprain in the previous year, self-reported history of CAI and Cumberland Ankle Instability Tool score <24 .

Intervention:

Kinesiotape was applied to the affected ankles using an adapted form of the lateral sprain technique and participants waited 20 minutes after application or removal before testing.

Main Outcome Measures:

Reach distances were measured in antero-medial, medial and postero medial directions of the SEBT in taped and untaped conditions.

Results:

There were no significant differences in reach distance in any direction of the SEBT between taped and untaped conditions ($p > 0.05$).

Conclusion:

Kinesiotape did not improve reach distance in the SEBT in young, active individuals with CAI. Further research examining the therapeutic effectiveness of Kinesiotape in CAI is warranted.

<http://www.esciencecentral.org/journals/CRFA/CRFA-1-105.pdf>

Manual Therapy

Available online 4 July 2013

Short term effects of kinesiotaping on acromiohumeral distance in asymptomatic subjects: A randomised controlled trial

[Luque-Suarez A](#), [Navarro-Ledesma S](#), [Petocz P](#), [Hancock MJ](#), [Hush J](#).

Source

Physiotherapy Department, University of Malaga, Malaga, Spain. Electronic address: aluques@uma.es.

Abstract**Objectives**

The first aim of this study was to investigate whether kinesiotaping (KT) can increase the acromiohumeral distance (AHD) in asymptomatic subjects in the short term. The second aim was to investigate whether the direction of kinesiotaping application influences AHD.

Background

In recent years, the use of KT has become increasingly popular for a range of musculoskeletal conditions and for sport injuries. To date, we are unaware of any research investigating the effect of kinesiotaping on AHD. Moreover, it is unknown whether the direction of kinesiotaping application for the shoulder is important.

Methods

Forty nine participants were randomly assigned to one of three groups: kinesiotaping group 1 (KT1), kinesiotaping group 2 (KT2) and sham kinesiotaping (KT3). AHD ultrasound measurements at 0° and 60° of shoulder elevation were collected at baseline and immediately after kinesiotape application.

Results

The results showed significant improvements in AHD after kinesiotope, compared with sham taping. The mean difference in AHD between KT1 and KT3 groups was 1.28 mm (95% CI: 0.55, 2.03), and between KT2 and KT3 was 0.98 mm (95% CI: 0.23, 1.74). Comparison of KT1 and KT2 groups, which was performed to identify whether the direction of taping influences the AHD, indicated there were no significant differences.

Conclusion

KT increases AHD in healthy individuals immediately following application, compared with sham kinesiotope. No differences were found with respect to the direction in which KT was applied.

<http://www.ncbi.nlm.nih.gov/pubmed/23830706>

Indian Journal of Physiotherapy & Occupational Therapy Letter. July-Sept., 2012, Vol. 6, No. 3

Effect of Kinesio Tape in the Treatment of Antenatal Carpal Tunnel Syndrome

Soheir M. El Kosery¹, Fayiz F. Elshamy¹, Hamid A. Atta Allah²

1Department of Physical Therapy for Obstetrics and Gynecology, Faculty of Physical Therapy, Cairo University, Egypt

2Department of Orthopedic Surgery, Faculty of Medicine (Girls), Al Azhar University, Egypt

ABSTRACT

This study was conducted to detect the efficacy of Kinesio tape on the treatment of carpal tunnel syndrome in antenatal period. 15-primipared females at 3rd trimester of pregnancy with positive electro diagnostic findings (MMDL >4.2 ms) participated in this study, their ages ranged between 20-35 years (27.53±4.47). They were received kinesiotope technique on the affected wrist for 3 days, then day off and then another 3 days of kinesiotope / week for 4 weeks. Median motor distal latency (MMDL) was performed before and after the treatment program for all patients. The obtained results showed statistically highly significant (P< 0.0001) improvement in median motor distal latency at the end of the treatment program. Accordingly, it could be concluded that the use of the kinesiotope was found to be effective in the treatment of carpal tunnel syndrome during pregnancy.

http://www.researchgate.net/publication/232282049_Perception_about_Stroke_amongst_Rural_Population_in_Maharashtra/file/d912f50811aa2ea0c2.pdf#page=128

International Journal of Therapies and Rehabilitation Research
[2013; 2\(2\): 1-5](#)

Effectiveness of Kinesio Taping Versus Cervical Traction on Mechanical Neck Dysfunction

Reem S Dawood, Omaima M Kattabei, Samy A Nasef, Khalid A Battarjee, Osama R Abdelraouf.

Abstract

Objective:

To investigate the effect of kinesiotope versus cervical traction posture pump on mechanical neck dysfunction.

Design:

A randomized controlled trial.

Setting:

Physical therapy outpatient clinic.

Subjects:

Fifty four patients with mechanical neck dysfunction participated in this study. Interventions: Participants were assigned randomly into three groups; group (A) received Kinesio taping every 4 days for 8 sessions with exercises program, group (B) received cervical traction posture pump with exercises program 3 days/week for 12 sessions, and control group (C) received exercises program only inform of stretching, postural and isometric exercises for neck and shoulder joint 3 days/week for 12 sessions.

Main measures:

Absolute rotatory angle, pain intensity and neck function disability were measured pre and post treatment by digital radiography, visual analogue scale and neck disability index, respectively.

Results:

There was a significant increase in absolute rotatory angle, significant decrease in visual analogue scale and neck disability index for experimental groups (A) and (B). The control group (C) had a significant decrease in visual analogue scale and neck disability index with least effect, but with no effect on Absolute rotatory angle.

Conclusion:

The combined therapy of kinesio taping or cervical traction posture pump with exercise program are effective in improving the absolute rotatory angle, pain intensity and function neck disability in mechanical neck dysfunction more than exercise alone.

<http://www.scopemed.org/?jft=12&ft=12-1359039706>

Lower-Leg Kinesio® Tape Application Reduces Rate of Loading in Subjects with Medial Tibial Stress Syndrome

[Griebert, Maggie](#)

A thesis submitted to the Faculty of the University of Delaware in partial fulfillment of the requirements for the degree of Honors Bachelor of Science in Athletic Training with Distinction
Spring 2012

The purpose of this study was to determine if lower-leg Kinesio® taping has an effect on the rate of loading in subjects with medial tibial stress syndrome (MTSS). MTSS, commonly referred to as shin splints, is a common overuse injury that occurs in athletes. One of the major intrinsic risk factors of MTSS is an increase in pronation during the loading phase of gait. This study tested the effect of Kinesio® tape on rate of loading during gait in 20 healthy control subjects and 20 subjects with a history of MTSS. Subjects walked across a Tekscan® plantar pressure mat under 3 conditions: prior to tape application, immediately after tape application and after wearing the tape for 24-hours. Time-to-peak force (TTPF) measurements were recorded to measure rate of loading and compared between groups and across the three conditions in six areas of the foot using an analysis of variance. There was a significant interaction effect between group, condition, and foot area ($F = 1.990$, $p = 0.033$). Healthy subjects showed significantly higher TTPF values in the medial midfoot before tape application ($p = 0.021$) and MTSS subjects showed a significant increase in TTPF with tape application for the medial midfoot and lateral forefoot ($p = 0.022$, $p = 0.043$, $p = 0.031$). Our results suggest that Kinesio® tape use may decrease the rate of loading in subjects with MTSS. This may be clinically significant in helping with the treatment of MTSS. Future research should assess how muscle activity is altered by tape use.

<http://dspace.udel.edu/handle/19716/11574>

NEUROMOBILIZATION AND TAPING AS A NON-INTENSIVE METHOD OF TREATING CARPAL TUNNEL SYNDROME

1 Zięba H.R., 2 Eliasová A., 3 Mikulaková W.

1Podhalańska State Higher Vocational School in Nowy Targ, Institute of Physiotherapy, Nowy Targ, Poland
2,3University of Prešov, Institute of Health, Prešov, Slovakia

Abstract

Carpal tunnel syndrome occurs mostly in women over 40 years of age. This disease is caused by compression of the median nerve. Oppression can be caused by many factors. First of all, long-term physical labor, degenerative changes, hormonal disorders, inflammation, excessive overload of wrist movements or maintenance monotypic hand on computer keyboard. Pressure on the median nerve leads to impaired blood flow, causing pain and numbness in the 1st through 3rd finger of the hand and the so-called sensory disturbances. The purpose of this article is to provide non-invasive therapy carpal tunnel syndrome such as kinesiotaping and neuromobilization. Treatment of carpal tunnel syndrome Kinesio Taping method involves the appropriate application patches (tape) on the skin in the area of the forearm, including the wrist and palm portion of the hand. Patches do not contain any painkillers. The corresponding patch application allows you to make unlimited movement on the right wrist joint stabilization. Gradually reducing the pain and numbness. The second method presented in this article is - neuromobilization. Neuromobilization is one of many methods of dealing with manual therapy, soft tissue -the tissue surrounding nerve tissue and nervous system [1]. It is classified in the International Classification of Medicinal Procedures ICD 9 (No. 93.17). Neuromobilization is a technique that restores the plasticity of the nervous system, or the ability to move relative to each other structures surrounding nerve tissue, and restoring the possibility of stretching and tensioning the nervous tissue itself and restore normal physiology of nerve cells [2]. Neuromobilization techniques are included in physiotherapy techniques, that is, movement therapies. The main idea of the method of treatment by neuromobilization a diagnosis of the nervous system, the autonomic, in terms of detection of pathological nervous tension structures and attempt to address them.

<http://www.pulib.sk/web/kniznica/elpub/dokument/Dernarova6/subor/34.pdf>

Annual Conference of Biomechanics in Sports – Melbourne 2012

THE EFFECT OF APPLIED DIRECTION OF KINESIO TAPING IN ANKLE MUSCLE STRENGTH AND FLEXIBILITY

Yuan-Yuan Lee¹, Hsiao-Yun Chang², Yun-Chi Chang¹, Juo-Ming Chen¹
¹School of Medical Laboratory and Biotechnology, College of Medical Technology, Chung Shan Medical University, Taichung, Taiwan
²School of Physical Therapy, College of Medical Technology, Chung Shan Medical University, Taichung, Taiwan

The purpose of this study was to examine the effect of applied direction of Kinesio taping (KT) in ankle range of motion and calf muscle strength. Twenty healthy subjects voluntarily participated in this study. The ankle plantar flexor muscle strength and ankle dorsiflexion ROM were assessed in knee flexion and knee extension before and after taping applied. Two applied directions, heel to posterior of knee cap (insertion to origin of calf muscles) and posterior of knee cap to heel (origin to insertion of calf muscles) were applied over both side of calf muscles, respectively. The results had not showed significantly difference in any of the results. The beneficial effects of applied direction of KT has not provided scientific evidence in this study. Future study may be able to seek other methods to identify the effect on strength or flexibility while KT applied.

<http://rocktape.net/downloads/applieddirectioninankle.pdf>

Effect of Kinesio Tape Application on Calf Pain and Ankle Range of Motion in Duathletes

[Rafael Merino-Marban Ph.D.](#)¹ / Daniel Mayorga-Vega² / Emilio Fernandez-Rodriguez³

¹Physical Education, College of Educational Science, University of Malaga, Malaga, Spain, Cervantes Av., 2. Campus of Teatinos, 29071 Malaga, Spain, Phone: +34 952132464, Fax: +34 952134102

²Department of Physical Education and Sport, University of Granada, Spain

³Physical Education, College of Educational Science, University of Malaga, Spain

Journal of Human Kinetics. Volume 37, Issue 1, July 2013

The purpose of this study was to examine the effect of the kinesio tape immediately after its application and after a duathlon competition on calf pain and the ankle range of motion in duathletes. A sample of 28 duathletes (age 29.11 ± 10.35 years; body height 172.57 ± 6.17 cm; body mass 66.63 ± 9.01 kg; body mass index 22.29 ± 2.00 kg/m²) were recruited from the competitors in a duathlon sprint. The Numerical Pain Rating Scale and ankle dorsiflexion range of motion measures were obtained at baseline, immediately after taping and 10 to 15 minutes after ending the duathlon competition. The kinesio tape was applied on the calf of duathletes 20 to 90 minutes before the competition, only on one of their legs (experimental leg) with the other leg acting as a control (control leg) in a randomized order. According to the between-group comparison, no differences were found immediately after the application of the kinesio tape and after the competition in the ankle range of motion and calf pain. However, a significant difference from baseline to immediately after taping was found in the ankle range of motion in the experimental leg. Applying the kinesio tape on the calf seems to immediately increase ankle dorsiflexion range of motion, but not after a duathlon competition. Applying the kinesio tape on the calf does not reduce muscle pain immediately or after a duathlon competition, but it appears to control an increase in pain.

<http://www.degruyter.com/view/j/hukin.2013.37.issue-1/hukin-2013-0033/hukin-2013-0033.xml>

Flexible Taping - An Overview of Methods Based on the Impact of a Flexible Patch

[Anna Ptak](#)¹ / Grzegorz Konieczny¹

¹Katedra Fizjoterapii w Dysfunkcjach Narządu, Zakład Fizjoterapii w Ortopedii i Traumatologii pod kierownictwem prof. Zdzisławy Wrzosek, Akademia Wychowania Fizycznego al. I. J. Paderewskiego 35, 51-612 Wrocław

Citation Information: Medical and Biological Sciences. Volume 26, Issue 3, Pages 27–31, ISSN (Print) 1734-591X, DOI: [10.2478/v10251-012-0051-5](https://doi.org/10.2478/v10251-012-0051-5), February 2013

Publication History: Published Online: 2013-02-28

Summary

Methods of physiotherapy based on work with a flexible patch (taping) have become more and more popular in the recent years. Thanks to a wide range of applications and a small number of contraindications, flexible taping quickly found usage in sports and clinical physiotherapy. The most common methods in Poland which are based on work with elastic tapes are: Kinesio Taping, Taping Kinesiology and Medical Taping (medical taping).

The purpose of the study is to present methods based on work with the flexible patch and indication of their interrelationships. Due to the fact that all methods based on the work with a flexible patch derive from Kinesio Taping method, many common elements can be observed. All Kinesio Taping, Kinesiology Taping and Medical Taping are supporting patch applications on myofascial chains theory and tensegrity theory. However, the therapy is based on a flexible patch which has the parameters similar to parameters of human skin.

Unfortunately, there is still no comprehensive research, supported by clinical studies explaining accurately how the mechanics of effects arose after the treatment works and what its duration is. It is therefore

necessary to perform numerous studies using various measuring instruments, which respond to constantly asked questions.

<http://www.degruyter.com/view/j/mbs.2012.26.issue-3/v10251-012-0051-5/v10251-012-0051-5.xml>

The effect of Gluteus medius Kinesio(R)taping on Torso-Pelvic separation during the golf swing, ball flight distance and accuracy

Pearce, Boudine

URI: <http://hdl.handle.net/10539/12680>

Date: 2013-04-24

Abstract:

Introduction: The effect that an increased torso-pelvic separation (x-factor) has on driving performance and accuracy is well appreciated by golfers and golf instructors. Increased torso and pelvic separation produces a greater upper trunk energy store to be utilised for a more powerful downswing. Specific muscles' contribution towards pelvic stability during the golf swing has not been well documented. **Aim:** The aim of this study is to determine the effect that gluteus medius Kinesio® Taping has on torso-pelvic separation, subsequent ball flight distance and accuracy. **Method:** The study was a one group pre-test-post test quasi-experimental design. A group of amateur golfers underwent a biomechanical golf swing analysis with iClub™ Body Motion System to determine torso-pelvic separation at the top of the backswing. Ball flight distance and accuracy (smash factor ratio) were measured with the FlightScope®. These outcomes were recorded with and without Kinesio® Tape application on the gluteus medius muscle. Each participant's dominant gluteus medius muscle strength was tested with a Microfet Hand-held Dynamometer before and after Kinesio® Tape application. The data gathered in the taped and non-taped groups was analysed using a paired t-test, when testing at the 0.05 level of significance. Correlation between gluteus medius and x-factor, ball flight distance and smash factor ratio with and without KT application, was done using Pearson Correlation analysis. **Results:** The results showed that Kinesio® Tape is effective in improving gluteus medius muscle activation and thereby the relative muscle strength ($p=0.00<0.05$). With regard to the other aforementioned outcome measures, x-factor, ball distance and accuracy, results showed no statistical significance ($p=0.28$, $p=0.53$ and $p=0.1$ respectively). Correlation analysis revealed a negative relationship between gluteus medius muscle strength and x-factor ($r = -0.46$, $p = 0.01$) and smash factor ratio ($r = -0.33$, $p = 0.08$) **Discussion** Kinesio® Tape has been shown to improve strength in target muscles. As the golf swing is so complex, involving the entire kinetic chain, each golfer differs significantly in his/her swing. This study showed that the gluteus medius strength improved with Kinesio® Tape application in the majority of the golfers tested, but affected each golfer's shot differently. This highlights the fact that each golfer's swing is unique and they utilise the kinetic chain differently. **Conclusion:** Kinesio® Tape is significantly effective in improving gluteus medius muscle activation and strength in amateur golfers. X-factor, ball distance and accuracy are dependent on a wide variety of body movements that act in harmony to produce the golf swing and a statistically significant result was not found regarding these outcome measures. It is thus difficult to isolate only one muscle in creating pelvic stability and only the pelvis in the motion of the golf swing.

http://wiredspace.wits.ac.za/jspui/bitstream/10539/12680/2/Research_Report%20final%2019%2007%202012.pdf

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.

http://www.google.fi/url?sa=t&rct=j&q=the%20use%20of%20kinesio%20taping%20in%20patients%20with%20acute%20stages%20of%20bronchial%20asthma&source=web&cd=2&ved=0CDkQFjAB&url=http%3A%2F%2Fwww.medycynasportowa.edu.pl%2Ffulltxt.php%3FICID%3D846709&ei=EpMIUv2zHMWq4ATHr4B4&usq=AFQjCNF7fPB8eBa4qSMuzovhngiQv_WDaA&bvm=bv.50500085,d.bGE&cad=rja

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 kinesiотaping 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.

<http://www.fizjoterapiapolska.pl/abstracted.php?level=5&ICID=443615>

Kinesio Taping® in physiotherapy after abdominal surgery

Authors

Jan Szczegielniak • Marcin Krajczy • Katarzyna Bogacz • Jacek ?uniewski • Zbigniew ?liwiński

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.

<http://www.kinesiotaping.com/images/kinesio-association/pdf/research/2007-3.pdf>

Marcin KRAJCZY 1, 2 (B, C, D, E), Jan SZCZEGIELNIAK 1 (A, B, C), Zbigniew ŚLIWIŃSKI 3 (A, C, E), Krzysztof KAMIŃSKI 2 (A, B, C)

1. Faculty of Physical Education and Physiotherapy, Opole University of Technology

2. Nysa Municipal Hospital

3. Independent Public Health Care Institution in Zgorzelec

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 open method 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://www.tapingbase.nl/nl/node/2319>

Bibliographic review of the effectiveness of kinesiio 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 kinesiio 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 KinesiioTaping, Kinesiio tape, Kinesiiotaping, 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.

<http://www.elsevier.es/en/abstract/revistas/rehabilitacion-120/bibliographic-review-of-the-effectiveness-of-kinesiio-90010474-revisiones-2011?bd=1>

[Physiother Theory Pract.](#) 2012 Oct 22. [Epub ahead of print]

The clinical effects of Kinesio(®) Tex taping: A systematic review

[Morris D](#), [Jones D](#), [Ryan H](#), [Ryan CG](#).

Source

Senior Physiotherapist, School of Health and Social Care , Teesside University , Middlesbrough , UK.

Abstract

Kinesio(®) Tex tape (KTT) is used in a variety of clinical settings. The purpose of this study was to investigate the effect of KTT from randomized controlled trials (RCTs) in the management of clinical conditions. A systematic literature search of CINAHL; MEDLINE; OVID; AMED; SCIENCE DIRECT; PEDRO; www.internurse.com; SPORT DISCUS; BRITISH NURSING INDEX; www.kinesiotaping.co.uk; www.kinesiotaping.com; COCHRANE CENTRAL REGISTER OF CLINICAL TRIALS; and PROQUEST was performed up to April 2012. The risk of bias and quality of evidence grading was performed using the Cochrane collaboration methodology. Eight RCTs met the full inclusion/exclusion criteria. Six of these included patients with musculoskeletal conditions; one included patients with breast-cancer-related lymphedema; and one included stroke patients with muscle spasticity. Six studies included a sham or usual care tape/bandage group. There was limited to moderate evidence that KTT is no more clinically effective than sham or usual care tape/bandage. There was limited evidence from one moderate quality RCT that KTT in conjunction with physiotherapy was clinically beneficial for plantar fasciitis related pain in the short term; however, there are serious questions around the internal validity of this RCT. There currently exists insufficient evidence to support the use of KTT over other modalities in clinical practice.

<http://www.ncbi.nlm.nih.gov/pubmed/23088702>

[ScientificWorldJournal.](#) 2012;2012:948282. doi: 10.1100/2012/948282. Epub 2012 May 3.

The influence of Kinesio Taping on the effects of physiotherapy in patients after laparoscopic cholecystectomy

[Krajczyk M](#), [Bogacz K](#), [Luniewski J](#), [Szczeplinski J](#).

Source

Physiotherapy Department, Opole University of Technology, 45-271 Opole, Poland.

Abstract

Physiotherapy in patients after laparoscopic cholecystectomy (CHL) is impeded by postoperative pain which causes a decline in patients' activity, reduces respiratory muscles' function, and affects patients' ability to look after themselves. The objective of this work was to assess the influence of Kinesio Taping (KT) on pain level and the increase in effort tolerance in patients after CHL. The research included 63 patients after CHL. Test group and control group included randomly selected volunteers. Control group consisted of 32 patients (26 females, 6 males), test group consisted of 31 patients (22 females, 9 males). Both groups were subjected to complex physiotherapy, and control group had additional KT applications. Before surgery, during and after physiotherapy, patients were given the following tests: 100-meter walk tests, subjective pain perception assessment, and pain relief medicines intake level assessment. The level of statistical significance for all tests was established at $P < 0.05$. Statistical analysis showed a significant decrease in the time required to cover a 100-meter distance and a decrease in pain perception presented by significantly lower painkillers' intake in the test group in comparison with the control group. The improvement in clinical condition observed in the research indicates the efficiency of KT as a method complementing physiotherapy in patients after laparoscopic cholecystectomy.

<http://www.ncbi.nlm.nih.gov/pubmed/22645478>

[Polish Annals of Medicine](#)

[Volume 19, Issue 1](#), January–July 2012, Pages 50–57

Effectiveness of Kinesio Taping on hypertrophic scars, keloids and scar contractures

- [Justyna Karwacińska^{a, b,}](#)  ,
- [Wojciech Kiebzak^{a, b,}](#)
- [Beata Stepanek-Finda^{c,}](#)
- [Ireneusz M. Kowalski^{d,}](#)
- [Halina Protasiewicz-Fałdowska^{d,}](#)
- [Robert Trybulski^{e,}](#)
- [Małgorzata Starczyńska^a](#)

- ^a Faculty of Medical Sciences, The Jan Kochanowski University of Humanities and Sciences in Kielce, Poland
- ^b Physiotherapy Unit, Provincial Specialist Children's Hospital in Kielce, Poland
- ^c University Clinic of Children's Medicine and Youth, Vienna, Austria
- ^d Department of Rehabilitation, Faculty of Medical Sciences, University of Warmia and Mazury in Olsztyn, Poland
- ^e Vitasport Center Rehabilitative–Sport, Żory, Poland

INTRODUCTION

Hypertrophic scars, keloids and scar contractures result from abnormalities in collagen degradation and synthesis, consequently leading to its overproduction. Such scars not only pose an esthetic problem, but also contribute to functional disorders in the organism.

AIM

This work aimed at presenting the effectiveness of Kinesio Tapes applications in managing scars and keloids as evaluated by patients themselves or carers of children who had undergone such treatment.

MATERIALS AND METHODS

Research was conducted at the Provincial Specialist Children's Hospital in Kielce. The study group comprised 54 children, aged 2-18 years old (average age 6.7 years) with hypertrophic scars, keloids and contracture scars. The first stage of the research involved measuring the scars with a digital caliper and applying Kinesio Tape according to the assumed research methodology. In order to assess patients'/carers' subjective evaluations of Kinesio Taping effectiveness a questionnaire form devised by the authors was used.

RESULTS AND DISCUSSION

In the study group, 37 patients declared that the application of Kinesio Tapes improved the cosmetic outcome and perception of the scar after 3 weeks; 10 patients who had undergone treatment observed such changes after 6 weeks; 5 patients indicated positive results after 9 weeks, and 2 patients after 12 weeks.

CONCLUSIONS

On the basis of the questionnaire results, personal observations and taken measurements, it can be concluded that the application of Kinesio Tapes is effective for hypertrophic scars, keloids and contracture scars.

<http://www.kinesiotaping.co.uk/research/casestudies/2012-05-06-effectiveness-of-kinesio-taping-on-hypertrophic-scars-keloids-and-scar-contractures/index.jsp>

[Eur J Phys Rehabil Med.](#) 2013 Apr 5.

A systematic review of the effectiveness of Kinesio Taping® - Fact or fashion?

[Kalron A, Bar-Sela S.](#)

Source

Multiple Sclerosis Center, Sheba Medical Center, Tel Hashomer, Israel - alkalron@gmail.com.

Abstract

In this systematic review article, we assessed the effects of therapeutic Kinesio Taping® (KT®) on pain and disability in participants suffering from musculoskeletal, neurological and lymphatic pathologies. Four online databases (CINAHL, Cochrane Library, MEDLINE, PEDro) were comprehensively searched from their inception through March 2012. The initial literature search found 91 controlled trials. Following elimination procedures, 26 studies were fully screened. Subsequently, 12 met our inclusion criteria. The final 12 articles were subdivided according to the basic pathological disorders of the participants' musculoskeletal (N.=9), neurological (N.=1) and lymphatic (N.=2) systems. As to the effect on musculoskeletal disorders, moderate evidence was found supporting an immediate reduction in pain while wearing the KT®. In 3 out of 6 studies, reduction of pain was superior to that of the comparison group. However, there is no support indicating any long-term effect. Additionally, no evidence was found connecting the KT® application to elevated muscle strength or long-term improved range of movement. No evidence to support the effectiveness of KT® for neurological conditions. As to lymphatic disorders, inconclusive evidence was reported. Although KT® has been shown to be effective in aiding short-term pain, there is no firm evidence-based conclusion of the effectiveness of this application on the majority of movement disorders within a wide range of pathologic disabilities. More research is clearly needed.

http://www.google.fi/url?sa=t&rct=j&q=a%20systematic%20review%20of%20the%20effectiveness%20of%20kinesio%20taping%20C2%AE%20-%20fact%20or%20fashion%3F&source=web&cd=3&ved=0CDwQFjAC&url=http%3A%2F%2Fforum.steelfactor.ru%2Findex.php%3Fapp%3Dcore%26module%3Dattach%26section%3Dattach%26attach_id%3D420463&ei=KZkiUoi2JY704QT3oIHABg&usq=AFQjCNFMSRQEU3tCMmiP3qbAcn2qzZzeAQ&bvm=bv.50500085,d.bGE&cad=rja

[Fizjoterapia Polska](#)

Volume 12, Issue 1, 2012, Pages 1-11

The use of Kinesiology Taping in physiotherapy practice: A systematic review of the literature

[Wykorzystanie metody Kinesiology Taping w praktyce fizjoterapeutycznej: Przegląd literatury]

[Kiebzak, W.](#)^{ab}, [Kowalski, I.](#)^c, [Pawlowski, M.](#)^d, [Gasior, J.](#)^e, [Zaborowska-Sapeta, K.](#)^c, [Wolska, O.](#)^f, [Śliwiński, Z.](#)^a

^a Faculty of Health Sciences, The Jan Kochanowski University of Jan Kochanowski, Kielce, Poland

^b Department of Physiotherapy, Children's Hospital, Kielce, Poland

^c Department of Rehabilitation, Faculty of Medical Sciences, University of Warmia and Mazury, Olsztyn, Poland

^d Division of Rehabilitation, Józef Piłsudski University of Physical Education, Warsaw, Poland

^e Student Scientific Society at Division of Rehabilitation, Medical University of Warsaw, Poland

^f Medical and Rehabilitation Center Kriosonik, Warsaw, Poland

Abstract

Background. In the scientific literature and clinical practice, the interest in using Kinesiology Taping (KT) is still growing. Initially, the method was widespread in Asia in the 70s. In the U.S., it has been applied since 1990. In Europe, the approach was presented for the first time in 1998. In Poland, KT has been developing since 2004. KT philosophy is based on enabling the free movement through the restoration of normal perfusion fluids, analgesic system activation, activating the lymph flow and muscle tension adjustment, and correction of abnormal position of the articular surfaces. The aim of this study was to analyze the available literature on the efficacy and clinical use of KT in the process of Physiotherapy.

Material and methods. The analysis included a methodical review of the literature databases: MEDLINE, EMBASE, PEDro, PUBMED, INGENTA CONNECT and Google Scholar.

Results. We analyzed 87 scientific publications in peer-reviewed journals on the use of KT in the various fields of medicine and of sport of which 3 were randomized trials. Among all publications and speeches reporting the efficacy of KT method there was no paper reporting the dangers or side effects of the method. The review indicates that most of the papers about KT were published Polish Journal of Physiotherapy Conclusions. Kinesiology Taping is widely used in supporting the practice of physiotherapy. © MEDSPORTPRESS, 2012.

The relative effectiveness of non-steroidal anti-inflammatory drugs (Ibuprofen®) and a taping method (Kinesio Taping® Method) in the treatment of episodic tension-type headaches

Henry, Justin Michael

Dissertation submitted in partial compliance with the requirements for a Masters Degree in Technology: Chiropractic, Durban University of Technology, 2009.

Abstract:

Headaches are one of the most common clinical conditions in medicine, and 80% of these are tension-type headaches (TTH). TTH has a greater socioeconomic impact than any other type of headache due to its prevalence. Within the TTH category, episodic TTH are more prevalent than chronic TTH. The mainstay in the treatment of TTH are simple analgesics and NSAIDs. Unless contraindicated, NSAIDs are often the most effective treatment for ETTH. However patients suffering with TTH tend to relate their headaches to increased muscle stiffness in the neck and shoulders and thus the non-pharmacological treatment of ETTH could be directed at the associated musculoskeletal components of ETTH. It is therefore proposed that the Kinesio Taping® Method may have an effect in the treatment of the muscular component of ETTH.

Method:

This study was a prospective randomised clinical trial with two intervention groups (n=16) aimed at determining the relative effectiveness of a NSAID and the Kinesio Taping® Method in the treatment of ETTHs. The patients were treated at 5 consultations over a 3 week period. Feedback was obtained using the: NRS – 101, the CMCC Neck Disability Index and a Headache Diary.

Results:

The Headache Diary showed a reduction in the presence and number, mean duration and pain intensity of ETTH in both groups. These treatment effects were sustained after the cessation of treatment with the exception of mean pain intensity in the Kinesio Taping® Method group. The mean NRS score decreased in both groups but at a slightly faster rate in the Kinesio Taping® Method group. The CMCC showed an improvement in the functional ability of the patients in both groups.

Conclusion:

There seems to be no significant difference in the relative effectiveness of the treatment modalities. We can thus state that the overall short-term reduction in symptomatology supports the use of NSAIDs or Kinesio Taping® Method in the treatment of ETTH.

<http://ir.dut.ac.za:8080/handle/10321/521>

The Effects of Kinesio Tape in a Therapeutic Setting

Frankamp, Hannah; Kelly, Erin; Wayda, Nicole; Apsley, Michelle; and Warner, Cory,
Physical Function CATs. Paper 34.

Document Type

Critically Appraised Topic

Publication Date

2012

Clinical Scenario

Kinesio Tape was developed by Dr. Kenzo Kase, chiropractor and acupuncturist, in 1979. The claimed effects of Kinesio Tape include correcting muscle function, improving circulation, reducing inflammation, relieving pain, repositioning subluxed joints, and relaxing and supporting muscles and joints. Kinesio Tape debuted in the 2008 Beijing Olympics and is now commonly used by professional athletes. In addition, it is commonly used in a therapeutic setting by physical and occupational therapists. It is popular due in part to the endorsement by professional athletes as well as its affordability, accessibility, latex free properties, water resistance, extended wear times, and its unique ability to stretch. Therapists can become certified in applying Kinesio Tape, although the certification is not required. For most of the studies, participants were treated in a clinical setting and taped by a licensed therapist.

Clinical Question

Is Kinesio Taping effective in a therapeutic setting?

Clinical Bottom Line

Kinesio Tape has not been proven to be effective or ineffective in a therapeutic setting.

<http://commons.pacificu.edu/otpf/34/>

The Effect of Pre-Exercise and Post-Exercise Kinesio Taping on Changes of Heart Rate and Blood Lactate after Exercise

Bae Yang-Gyu, [Cheon Woo-Kwang](#) , [Kim Ki-Jin](#) 

[Korean Journal of Sports Science](#) > [Vol.13 No.1](#)

This study aims to investigate the effect of pre-exercise and post-exercise Kinesio Taping on heart rate, concentration of blood lactate, and recovery rates of both. For the study, 30 male university students were divided into three different groups: a group administered the Kinesio Taping before exercise, another administered the taping after exercise, and the control group.

The research findings are as follows:

1. The group administered the Kinesio Taping before performing the exercise showed significant increases in the blood lactate concentration after the physical activity ($p < 0.001$). However, there were no significant differences among the three groups. Immediately after the exercise, the pre-exercise Kinesio Taping group turned out to have a lower blood lactate concentration than the other groups.
2. The group administered the Kinesio Taping after performing the exercise showed significant increases in the blood lactate concentration after supramaximal exercise ($p < 0.001$). However, there were no significant differences among the three groups. The post-exercise Kinesio Taping group displayed the lowest concentration of blood lactate concentration the first five minutes of the recovery period. In addition, from 15 to 30 minutes in recovery, the concentration of this group decreased most quickly compared to other two groups.
3. There were no significant differences in the recovery rate of the blood lactate concentration. The pre-exercise taping group showed a $32.42 \pm 10.72\%$ recovery rate, the post-exercise taping group and the control group showed $41.91 \pm 7.67\%$ and $29.11 \pm 16.86\%$, respectively. Among the three groups, the post-exercise Kinesio Taping group had the highest recovery rate of the blood lactate.
4. The heart rates of the pre-exercise and post-exercise taping groups increased significantly after the supramaximal exercise, but there were no significant differences among the three groups.
5. Significant differences did exist in the heart rate among the groups. The pre-exercise taping group showed a $74.72 \pm 7.47\%$ recovery rate, the post-exercise taping group and the control group showed

67.22%±4.77 and 76.55±9.42%, respectively. Among the three groups, the post-exercise Kinesia Taping group displayed the slowest heart rate recovery.

<http://www.dbpia.co.kr/Journal/ArticleDetail/665630>

Effect of kinesio-taping after muscle fatigue on proprioception, blood lactic acid and muscle soreness

Choi Pil-Byung , Lee Byung-Soo, Kim Byeong-Jo

[Journal of Coaching Development](#) > [Vol.9 No.3](#) 2007

The purpose of this study was to find the effect of the kinesio-taping after fatigue on proprioception, lactic acid, and muscle soreness. Eight health subjects were participated this study. The first test separated four taping group and four non taping group next day, the second test is acrossed same subjects four non taping group and four taping. Both group have no significant difference for the proprioception. but taping group was proprioception increase post-exercise compared to that of pre-exercise. Both group had no significant difference for the blood lactic acid concentration change. but, taping group"s of post-exercise lactic acid was decrease than other group. The perceived exertion of taping group"s after exercise was low than other group. In conclusion, kinesio-taping has no effect of proprioception. but have a good effect of recovery lactic acid for short time and muscle soreness after high-intensity exercise. We suggest that next study will apply to increasing subjects and various exercise intensity.

<http://www.dbpia.co.kr/Journal/ArticleDetail/830194>

The Effects of Kinesio Taping Therapy on Exercise Capacity and Muscle Fatigue

Park Gi-bum , Lee Won-Jae , Han Seung-Wan

[Korean Journal of Sports Science](#) > [Vol.18 No.2](#) 2009

The study carried out a maximum exercise load test for measuring heart rate and blood lactic acid concentration with and without kinesio taping therapy and an electromyogram test for checking muscle fatigue on 14 college students in the physical education department for checking and comparing synchronized muscle function of leg flexor and extensor strengths. Accordingly, it concluded as follows:

In the case of the change in heart rate, there was not any considerable difference by condition for both male and female, but the figure under the therapy application was high compared to the case of not. In the case of the change in blood lactic acid concentration, there wasn"t any considerable difference by the conditioning period for both male and female, but the figure under the condition of taping application was low during exercise for both groups compared to prior to the exercise. As to the recovery ratio of blood lactic acid, no considerable difference in data was noticed for both male and female, but it was low under the therapy application during 20 minutes of recovery period compared to the case without it. For muscle fatigue (decrease of frequency) by electromyogram test, there was not any considerable difference in thigh quadriceps and biceps by the conditioning period for both male and female, but a decrease of frequency was small under the therapy application compared to the case of not. The decrease ratio of frequency without taping therapy was remarkably small compared to the case of the therapy application for male, and in the case of female, there wasn"t any considerable difference, but the figure without the therapy application was low compared to that with taping therapy.

In conclusion, the application of kinesio taping therapy during exercise drops the increase of blood lactic acid concentration but is considered not to have considerable effects on the recovery period after exercise. However, it is thought to be effective on recovery of muscle fatigue in sustained exercise according to an electromyogram test. conclusionly, kinesio taping therapy is regarded as an effective way to the condition the control of muscles used during the later part of exercise.

<http://www.dbpia.co.kr/Journal/ArticleDetail/1036915>

The Effects of Lower Extremity Kinesio Tape on Balance Ability After Muscle Fatigue

2006 □ 2 □ 1 □ p.21 ~ p.28

□□□ (Yu Byong-Kyu) - □□□□ □□□□□

□□□ (Park Soon-Nyeo) - □□□ □□□□□□ □□□□□

The purpose of this study was to investigate the effect of the Kinesio taping after generating muscle fatigue on the static and dynamic balance. The healthy 12 college students ranging 21 to 26 years were selected as subject. The equilibrium reaction of the Kinesio taping and non-taping was measured and was analyzed after exercise to generate muscle fatigue. The data were analyzed by Independent t-test.

The results were as follows ;

1. It was found that the Kinesio taping overall increased the ability of the static balance after generating muscle fatigue.
2. The Kinesio taping statistically significantly affected on the ability of the static balance in the right and in the rear after generating muscle fatigue, but the left static balance had no significant difference. On the contrary, the front static balance was lower in applying to the Kinesio taping than in applying to non-taping.
3. It was found that the Kinesio taping overall increased the ability of the dynamic balance after generating muscle fatigue.
4. The Kinesio taping statistically significantly affected on the ability of the dynamic balance in the right and in the front after generating muscle fatigue, but the left and rear static balance had no significant difference.
5. It was found that the Kinesio taping increased the ability of the static and dynamic balance after generating muscle fatigue. However the both balance ability after generating muscle fatigue was lower than before.

In consequence, the Kinesio taping applying to the lower extremity increase the ability of the static and dynamic balance after generating muscle fatigue. Therefore the Kinesio taping could help develop the capacity for locomotion at all sort of sports.

<http://kmbase.medic.or.kr/Main.aspx?d=KMBASE&m=VIEW&i=1194820060020010021>
