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Literature Search Results

Search completed for:
Search completion date: 8th August 2011
Search completed by: Janet Badcock

Enquiry Details

Taping and neuromuscular disorders

Opening Internet Links

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Guidance on Searching within Online Documents

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Word documents

Select Edit from the menu, the Find and type in your term in the search box which is presented. The search function will locate the first use of the term in the document. By pressing 'next' you will jump to further references.

Guidelines

Medical Taping Concept Bulletin

The basis for the Medical Taping Concept (Neuromuscular Taping Concept) was laid in Japan and Korea in the seventies. At the time, methods of taping were being developed based on the idea that movement and muscle activity are essential in maintaining and in recovering health.

A central concept is that muscles are not only responsible for moving the different body parts but the muscles also control blood and lymph circulation, as well as body temperature. Improper muscle function can cause a range of symptoms and complaints.

<http://www.medicaltaping.com/International-Cure-Tape-dealers/Newsletter%20Sept%202009.pdf>

A Look at Kinesio® Taping

Posted on May 26, 2011 by Heidi

By: Munira Adenwalla, Pediatric Occupational Therapist / Certified Kinesio® Taping Practitioner

David Beckham, Serena Williams and Lance Armstrong all use Kinesio® Tape and so do the kids I treat. Kinesio Tape is an elastic, cotton, water-resistant tape developed by Dr. Kenzo Kase in 1973. It was first used in Japan on athletes to enhance their sports performance and for faster recovery from injuries.

I have used Kinesio® Taping with babies and young children for the past eight years after taking the course. I'm not affiliated with the Kinesio Taping Association, however I find it to be a valuable adjunct to treatment for infants to older children.

Kinesio tape is applied over and around specific muscles to provide joint support and muscle re-education. The tape can be stretched 40-60% gently 'pulling' on the skin and causing the muscles underneath to strengthen. It comes in beige, blue, pink and black and varies in width from one to three inches.

The thickness and weight of the tape is designed to be similar to that of skin so it is comfortable and non-invasive.

Benefits of Kinesio Taping for Children:

- improve body and muscle alignment for motor skills development
- support and strengthen weak muscles, reducing fatigue
- relax tight muscles and increase range of motion
- stabilize joints proximally for increased distal control
- provide sensory input for body awareness ?
- improve gross motor, fine motor, oral-motor and self-help skills
- Who can Benefit?

As therapists, we tailor treatments based on a child's unique strengths, needs and goals rather than their diagnosis.

Generally, Kinesio taping helps babies and children with neuromuscular, orthopaedic, developmental delays or medical conditions such as:

Delays in gross motor, fine motor, self-help and sensory processing skills

- Down's Syndrome
- Cerebral Palsy, Hemiplegia, Brain Injury
- Hypotonia (low muscle tone), Hypermobility syndrome, joint instability
- Torticollis
- Brachial Plexus Injury / Erb's Palsy
- Various physical disabilities and neurological impairments
- Developmental Coordination Disorder / Dyspraxia
- Autism
- Sensory Processing Disorder
-and more
- Initial Assessment

Therapist will enquire about child's background and medical history, previous therapies and developmental milestones. They should then further assess:

- body alignment and movement patterns in different positions such as lying on back or stomach, sitting and standing
- range of motion limitations, muscle imbalances, joint stability, sensory processing and its effect on gross motor, fine motor and self-help skills
- primary concerns of parent, child and teacher to prioritize goals
- Treatment Process

First, a test patch is applied to monitor the skin's response and integrity.

Prior to taping, deep tissue massage, shoulder mobilizations or stretches may be used to relax muscles and prepare the body. Taping can be used alongside splinting and other treatment techniques.

Next, the therapist determines which muscle groups or joints to strengthen to attain desired skills and developmental milestones. No more than three areas should be taped at once.

The child's alignment and movement patterns are frequently re-assessed to determine which techniques are most beneficial. As they progress, taping applications change to support new skills and goals.

Following tape application, the child engages in functional activities to support their therapeutic goals. For example, if tape has been applied to strengthen wrist muscles, they may do activities like pushing up on hands from stomach, upper extremity weightbearing or colouring on an upright easel.

Kinesio tape is worn continually for 3-5 days and left off for 1-2 days to allow the skin to "breathe." The tape is water resistant so the child can bathe or swim. It's easiest to remove the tape during bath time or after being soaked in oil or lotion. Parents are instructed in tape removal and application as appropriate.

Pictures

More : <http://www.pediastaff.com/blog/a-look-at-kinesio%C2%AE-taping-3595>

Papers

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

Tülay Tarsuslu Şimşek, Bahriye Türkücüoğlu, Nilay Çokal, Gonca Üstünbaş, & İbrahim Engin Şimşek

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 palsied 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, respectively.

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

Conclusions: No direct effects of KT were observed on gross motor function and functional independence, though sitting posture (head, neck, foot position and arm, hand function) was affected positively. These results may imply that in clinical settings KT may be a beneficial assistive treatment approach when combined with physiotherapy.

<http://informahealthcare.com/doi/abs/10.3109/09638288.2011.560331>

Title: The effects of kinesio taping on sitting posture and functional independence in children with myelomeningocele: Report of four cases [Turkish] "Kinesio tape" bantlama yonteminin miyelomeningoselli cocuklarda oturma sekli ve islevsel bagimsizlik uzerine etkisi: Dort olgu sunumu

Citation: Turk Pediatri Arsivi,

June 2011, vol./is. 46/2(177-180), 1306-0015;1308-6278 (June 2011)

Author(s): Simsek T.T., Turkucuoglu B., Ustunbas G., Cokal N.

Language: Turkish

Myelomeningocele, is a defect of neural arch which causes body structure and function disorders, participation restrictions and activity limitation in children. Keeping body structure and functions, and gaining functional independence are the most important goals in the rehabilitation of children with myelomeningocele. In this study, we analysed the effects of Kinesio Taping on sitting posture and functional independence in 4 cases with myelomeningocele.

Title: The effect of kinesio taping at the thumb and the wrist in children with cerebral palsy, hemiplegia

Citation: European Journal of Paediatric Neurology, November 2010, vol./is. 14/6(550),

Author(s): Spirtos M., O'Mahony P.

Abstract: INTRODUCTION: This before after trial using multiple single case studies examined the changes in range of motion, quality of movement and functional skills in children with hemiplegic cerebral palsy (CP), following a 6 week course of kinesio taping applied at the thumb and the wrist. MATERIAL AND METHODS: Fourteen children completed all stages; the mean age was 5.9 years +/- 2.2. Manual Ability Classification System levels were; Level I nZ8, Level II nZ6. Data was collected at 6 week intervals; baseline, pre taping, post taping and follow up. Outcomes were assessed using goniometry to measure active wrist extension and thumb palmar and radial abduction, the Melbourne assessment of unilateral upper limb function (MUUL) and the pediatric evaluation of disability (PEDI) self care domain. Eight children completed the assisting hand assessment (AHA). RESULTS AND CONCLUSION: Using the Wilcoxon Signed Rank Test, there was no statistically significant change between baseline and pre taping measures where no intervention took place. There was a significant change in active motion at both post taping ($p<0.01$) and follow up ($p<0.01$). There was no significant change in scores in the Melbourne Assessment or the AHA at either post taping or follow up. Six of the 8 children who completed the AHA had a clinically meaningful change of ≥ 4 raw scores at either post taping or follow up. There was a significant change in the self care domain of the PEDI at both post taping and follow up ($p<0.05$). As Kinesio tape impacts at the level of body functions and structures and significant change was greater at this level, studies which investigate kinesio taping combined with functional training would be useful.

Conference Abstract

Title: Upper limb evaluation in non-ambulatory patients with neuromuscular disorders

Citation: *Developmental Medicine and Child Neurology*, May 2010, vol./is. 52/(41-42),
Author(s): Servais L., Canal A., Deconinck N., Mesdelices A., Desguerres I., Quijanoroy
Abstract: Disease progression in children with neuromuscular disorder is frequently assessed by the 6-minute walk test, which classically constitutes the primary clinical outcome of therapeutic trials. There is currently no validated and standardized method to assess upper limb function in non-ambulatory patients, which constitutes a major challenge for therapeutic trials. Upper limb evaluation may be assessed either by direct muscular strength measurement or by clinical scale, or questionnaire that still need to be standardized and validated. The aim of ULENAP (Upper Limb Evaluation in Non-Ambulatory Patients) is to study these different approaches in a group of 100 non-ambulatory patients with neuromuscular disorders. In each patient, strength of pinch, grip, hand flexion and extension is performed on both limbs. In addition, limb function is evaluated through a hand function questionnaire, motor function measurement (MFM), taping, and the moviplate, a recently developed device to measure the ability of patients to hit two targets with fingers. Patients from the five participating sites are being followed up during 1 year in order to define the test which is the most sensitive to change. Here, we present the feasibility and reproducibility of these different approaches, and the correlations that may be observed between strength and functional outcome measures.
Conference Abstract

Title: The effect of Kinesio Taping applications on motor activity in children with developmental defects [Polish;English] Wplyw aplikacji kinesiotalingu na zmiany motoryki u dzieci z wadami rozwojowymi

Citation: *Fizjoterapia Polska*, 2007, vol./is. 7/1(52-62), 1642-0136 (2007)

Author(s): Sliwinski Z., Halat B., Kufel W., Michalak B., Kiljanski M.

Language: Polish, English

Abstract: Background. The authors present the results of a study of children with developmental defects who underwent a comprehensive physiotherapeutic treatment with the Kinesio Taping method. The children were aged 18 months to 8 years. All patients took part in a 4-week rehabilitation programme at the Rehabilitation Centre in Zgorzelec. Material and methods. The study included 30 children of both sexes. All patients underwent a medical and physiotherapeutic examination, which was the basis for designing a Kinesio Taping-based rehabilitation plan. The application of Kinesio Taping was preceded by Kinesio Taping screening tests, Vojta's screening tests and an assessment of spontaneous motor activity. The final stage of the study involved analysis of study results and assessment of the utility of the screening tests. Results. Our observations supported by the test results and their analysis prove that Kinesio Taping is a very useful physiotherapeutic modality. If applied properly, it is a valuable adjunct to therapeutic rehabilitation. Kinesio Taping enables the control of muscle tone, which directly translates into new possibilities of locomotor activity of the patients. This method helps to reduce paraesthesias and oedemas. Conclusions. Kinesio Taping applications influenced muscle and fascia tone in our study. Kinesio Taping can be used in combination with other procedures. There are no absolute contraindications to the use of Kinesio Taping as part of comprehensive physiotherapeutic management.
Medsportpress, 2007.

Title: The effects of therapeutic taping on gross motor function in children with cerebral palsy.

Citation: Pediatric Physical Therapy, 01 December 2006, vol./is. 18/4(245-252),
Author(s): Footer CB

Abstract: PURPOSE: Therapeutic taping to address dysfunctional sitting control in children with cerebral palsy (CP) was investigated in this study. METHODS: Eighteen children with quadriplegic CP, Gross Motor Function Classification System for Cerebral Palsy levels IV (n = 9) and V (n = 9) participated in the 12-week program. Subjects were assigned randomly to one of two groups: therapeutic taping + physical therapy or physical therapy only. Therapeutic taping was applied for periods of up to 72 hours over the paraspinal region. The effects were assessed with the Gross Motor Function Measure (GMFM-88) at baseline, six weeks, and 12 weeks. A factorial analysis of variance was used to examine group differences over time. RESULTS: No significant differences were found for the GMFM-88 scores between groups over time. CONCLUSION: Therapeutic taping does not evoke a positive functional change in the seated postural control of children with quadriplegic cerebral palsy. Subjective observation, however, suggested that one child with athetosis benefited from therapeutic taping over the paraspinal region.

Title: Effects of a kinesiotherapy and aquatic physiotherapy program onto [sic] the neuropsychomotor development of a patient with Prader-Willi syndrome [Portuguese].

Citation: Fisioterapia e Pesquisa, 01 September 2006, vol./is. 13/3(53-58), 18092950
Author(s): Bottura AP, Accacio LMP, Mazzitelli C

Abstract: The Prader-Willi syndrome (PWS) is a complex multisystem genetic disorder in chromosome 15, characterized mostly by muscular hypotonia, obesity, neuropsychomotor development delay, hypogenitalism, hypogonadism, and short stature. This article reports on the effects of an eight-month physical therapy program (on soil and in water) onto the neuropsychomotor development of a PWS patient aged 1 year and 4 months at program onset. The child was evaluated before and at the end of the program by the Functional Activities Scale of Durigon et al. (1996). At the end of eight months, the child was able to adopt postures (such as sitting and standing) which she couldn't before, and to perform dynamic activities such as rolling and turning round with greater motor variability, as well as functionally crawling and walking. The child became more independent in daily life activities, showing that the kinesio and aquatic physical therapy program proposed was effective in promoting her neuropsychomotor development.

Title: Pilot study: investigating the effects of Kinesio Taping in an acute pediatric rehabilitation setting

Citation: American Journal of Occupational Therapy, January 2006, vol./is. 60/1(104-10),
Author(s): Yasukawa A, Patel P, Sisung C

Abstract: 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.