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# EFFECTS OF KINESIO TAPING ON PAIN AND FUNCTION IN PATIENTS WITH KNEE OSTEOARTHRITIS

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## Abstract

**Objective:** To determine the effects of kinesiio taping on pain, function, gait and neuromuscular control concerning patients with knee osteoarthritis (OA). **Participants:** 141 Patients ( $65.1 \pm 7.0$ ) with knee osteoarthritis. **Intervention:** Receiving a kinesiio tape, placebo tape or no tape. **Primary Outcome:** Western Ontario and McMaster Universities Arthritis Index (WOMAC). **Results:** Significant effects were found for the tape group in WOMAC pain, stiffness and physical function. **Conclusions:** Patients with knee OA receiving an application of kinesiio tape show significant improvements in pain, stiffness and physical function compared to a placebo and control group.

## Introduction

Knee OA is one of the most frequent musculoskeletal disorders of elderly people (Woolf & Pfleger, 2003). One non-pharmacological and therapeutic approach is the treatment with kinesiio taping, which gets more and more common in daily practice. Previous research has shown a small beneficial effect of kinesiio taping on musculoskeletal disorders (Morris et al. 2013; William et al., 2012). However, research done so far has been of limited value regarding the effect of kinesiio taping on pain and function by patients with knee OA.

## Experimental Design

The study design was a randomized controlled trial with blinded subjects, conducted between January 2015 and October 2015. The randomization was occurred in three different groups: a intervention group, a placebo group and a control group. Both placebo and control group were implemented to achieve sufficient evidence. All procedures performed in the study were conducted according to the Declaration of Helsinki, 1975.

## Methods

The patients with a clinical and radiographic diagnosis of knee OA were randomized into one of the three groups. Participants completed a baseline test and a post tests after receiving the tape (Leukotape K, BSN medical) and wearing it for three consecutive days. Primary outcomes were pain, stiffness and physical function measured by the WOMAC. Secondary outcomes were balance (Balance Error Scoring System = BESS), gait speed (10 meters walking test = 10MWT), maximum isometric quadriceps strength and knee range of motion (ROM). Differences between the groups were analyzed using ANCOVA on an intention-to-treat basis.



Figure 1: Kinesiio tape



Figure 2: Placebo tape

## Results

A total of 141 patients joined the study. At baseline, there were no statistically significant differences between the three groups. Significant effects were found for the tape group in WOMAC pain (tape vs. placebo  $p=0.053$ ; tape vs. control  $p=0.047$ ), stiffness (tape vs. placebo  $p=0.012$ ; tape vs. control  $p \leq 0.001$ ) and physical function (tape vs. placebo  $p=0.034$ ; tape vs. control  $p=0.004$ ).

Table 1: Post-hoc group wise comparison of absolute differences.

	Tape vs. Placebo		Tape vs. Control		Placebo vs. Control	
	95% CI	p Value	95% CI	p Value	95% CI	p Value
WOMAC pain	[-1.11; 0.00]	0.053	[-1.12; -0.01]	0.047	[-0.57; 0.55]	1.000
WOMAC stiffness	[-1.69; -0.16]	0.012	[-1.90; -0.37]	0.001	[-0.97; 0.56]	1.000
WOMAC function	[-1.00; -0.01]	0.044	[-1.16; -0.19]	0.003	[-0.66; 0.32]	1.000

\* 95% CI= 95% Confidence Interval. The analysis was made with an  $\alpha$  of 0.05. Tape= tape group, Placebo= placebo group, control=control group, vs=versus.

No significant differences were found for the placebo and control group. And no significant differences were shown for the secondary outcomes: BESS-Test, strength, 10MWT or active ROM in all of the three groups.

## Conclusion

The WOMAC-subscales pain, stiffness and physical function showed a significant improvement after wearing the kinesiio tape compared to a placebo and control group. Regarding the two main symptoms of an OA pain and stiffness, the results showed, that wearing a kinesiio tape has a positive effect on both parameters in the patients' perception. Whether the effect of kinesiio taping in the tape group shows a clinical relevance, is questionable. Compared to other research results this study found no significant effects in ROM or muscle strength. Nor in the other secondary outcomes: functional balance and gait speed. Other research approaches for future studies should focus on the longterm effect of kinesiio taping.

## References

- Morris et al. (2013). *Physiother Theory Pract.* 29(4): 259-270.  
 Williams et al. (2012). *Sports Med.* 42(2): 153-164.  
 Woolf & Pfleger (2003). *Bulletin of the WHO* 81(9): 646-656.

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