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# Cohort Survey on Prevalence and Subjectively-Perceived Effects of Kinesiotape

*Kohortenbefragung zu Nutzung und subjektiv wahrgenommenen Effekten von Kinesiotape*

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## Summary

- Introduction:** Several effects have been proclaimed for the use of elastic Kinesiotape (KT) for treatment or prevention of athletic injuries and performance enhancement. The aim of this study was to evaluate the prevalence as well as the subjectively-perceived effects of KT.
- Methods:** An online questionnaire with open and closed questions was distributed among a cohort of exercise science students at a German university. Main outcome parameters were the subjective effects of KT concerning relief of complaints, (re-)injury rate and performance.
- Results:** Of n=200 respondents (23.7±3.3 years; f=127), n=133 reported use of KT. A physiotherapist (PT) gave the recommendation for KT-use in 81%. Most commonly, KT was used in the therapy of musculoskeletal injuries (n=121), where 74% reported relief of complaints. When a PT or physician recommended KT, relief of complaints was significantly more likely (p<0.05). Overall, n=51 respondents used KT with the goal of preventing recurrent injuries. No re-injury occurred in 2/3 of the users.
- Discussion:** The current study shows the high popularity and prevalence of KT among respondents, especially in therapy and prevention of musculoskeletal re-injury. The low rates of KT use in primary prevention and performance enhancement suggest minor importance in these settings. The majority of users were advised to use KT by a PT. Additionally, the recommendation by a PT or physician seems to positively influence subjectively-perceived therapy effects.

## Zusammenfassung

- Einleitung:** Elastischem, selbstklebendem, mit unterschiedlicher Technik auf die Haut aufgetragenes Textil, sog. Kinesiotape (KT), werden verschiedene Effekte bei Behandlung und Prävention von Sportverletzungen sowie Verbesserungen der Leistungsfähigkeit zugeschrieben. Ziel der vorliegenden Arbeit war neben einer ersten Erhebung zur Nutzung von KT die Evaluation subjektiv wahrgenommener Wirkungen.
- Methode:** Mittels Onlineumfrage mit offenen und geschlossenen Antwortmöglichkeiten wurde die Kohorte Studierender sportwissenschaftlicher Studiengänge einer deutschen Volluniversität hinsichtlich ihrer therapeutischen, (rezidiv-)präventiven sowie leistungssteigernden Nutzung von KT befragt. Zielparameter waren subjektive Effekte von KT auf Beschwerdesymptomatik, (Rezidiv-)Verletzung und Leistungsfähigkeit.
- Ergebnisse:** Von n=200 Befragungsteilnehmern (23.7±3.3 Jahre; w=127) berichteten n=133, KT bereits genutzt zu haben. Die Nutzung erfolgte in 81% auf Empfehlungen eines Physiotherapeuten (PT). Am häufigsten wurde es zur Linderung muskuloskelettaler Beschwerden eingesetzt (n=121), von einer subjektiven Linderung der Beschwerdesymptomatik berichteten 74%. Bei Empfehlung von PT oder Arzt wurde signifikant (p<0.05) häufiger von einer Beschwerdelinderung berichtet. Mit dem Ziel der Verhinderung eines Verletzungsrezidivs nutzten n=51 Befragte KT, von denen sich 2/3 nach eigenen Angaben nicht erneut verletzten.
- Diskussion:** Die vorliegende Studie zeigt eine bei Befragungsteilnehmern hohe Popularität und Verbreitung von KT, die vor allem auf therapeutischem sowie rezidivpräventivem Einsatz fußt. Die vergleichsweise wenigen Angaben zur Leistungssteigerung und Primärprävention deuten auf eine untergeordnete Bedeutung und Verbreitung von KT mit diesen Zielsetzungen hin. Das Gros der Nutzer wurde über PT auf KT aufmerksam, zudem scheint die Empfehlung von Arzt/PT die in der Therapie subjektiv wahrgenommenen Effekte positiv zu beeinflussen.

## KEY WORDS:

Kinesiotape, Therapy, Injury Prevention, Questionnaire

## SCHLÜSSELWÖRTER:

Kinesiotape, Therapie, Verletzungsprävention, Fragebogen

## Introduction

The use of Kinesiotape (KT) is increasing in popularity (3). Use by top athletes and visibility during important athletic events have certainly played a role in this growing spread (5). The elastic tape, developed in the 1970s by the chiropractor Kenzo Kase, is made of cotton with an acrylic adhesive on the back. The properties are supposed to be similar to those of the skin with respect to elasticity, resistance and weight, aiming at a positive effect

on muscles and joints with no negative influence on movement amplitude (15). Depending on the application techniques (26), effects in the area of proprioception (7, 9, 13), lymph drainage (6, 19), neuromuscular function (7, 17, 18, 29), mobility (25, 31), posture (10) and pain reduction (2, 8, 14) are postulated. The use of KT occurs with the goal of performance enhancement and in the context of therapy, or primary and recurrence prevention.



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However, no uniform evidence is available for the anecdotal positive effects. Due to the heterogeneous study types, current systematic surveys and meta-analyses show no consistent results concerning the perceived effects (5, 15, 16, 30). At the same time, there are no objective data available for the general population or for special target groups regarding the frequency of KT use.

The objective of this cohort study was the evaluation of use and subjectively-perceived effects of KT used for various reasons.

## Methods

Based on an in-house mail directory and social networks, a cohort of students from all sport-science programs (BA, MA, LA, summer semester 2015 n=1,665) at a German university with one of the largest student populations was invited to participate in a survey on KT.

Data was collected in a period of 3 months using an online questionnaire ([www.umfrageonline.com](http://www.umfrageonline.com)). The questionnaire consisted of 75 items with open-ended and closed-ended questions.

Information was requested on the source of recommendation for use and frequency of use, as well as the subjectively-perceived effects of KT on athletic competitive performance, (re-)injury or complaint symptoms in dependence on the individual goals (performance enhancement, primary-/recurrence prevention, rehabilitation). The schematic design of the questionnaire is found in Figure 1. The descriptive and inference-statistical data analysis was conducted after examination of conditions for application, using parametric (T-Test for unpaired samples) and non-parametric (Chi<sup>2</sup>-Test) procedures (SPSS v22).

## Results

### Use Behavior and Recommendation

A total of n=200 students (23.7±3.3 years; f=127) participated in the survey, two-thirds of them (n=133) reported use of KT. The recommendation for use came in most cases from physiotherapists (81%) and friends (54%). According to their own statements, the majority (n=121) applied KT as a therapeutic measure in musculoskeletal complaints, followed by use in the context of re-injury prevention (n=51). A presentation of taping differentiated by goal is given in detail in Figure 2.

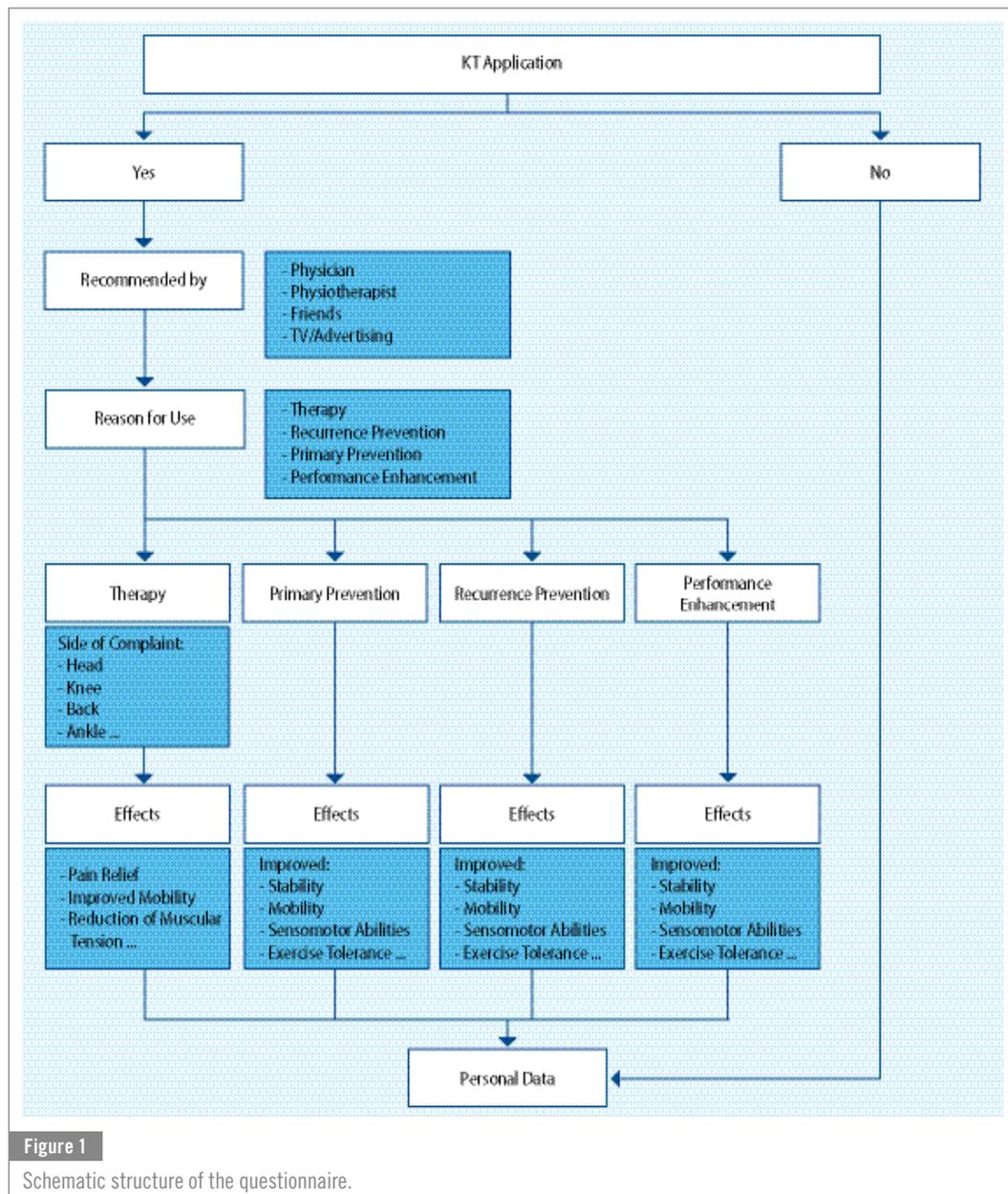


Figure 1  
Schematic structure of the questionnaire.

### Therapy

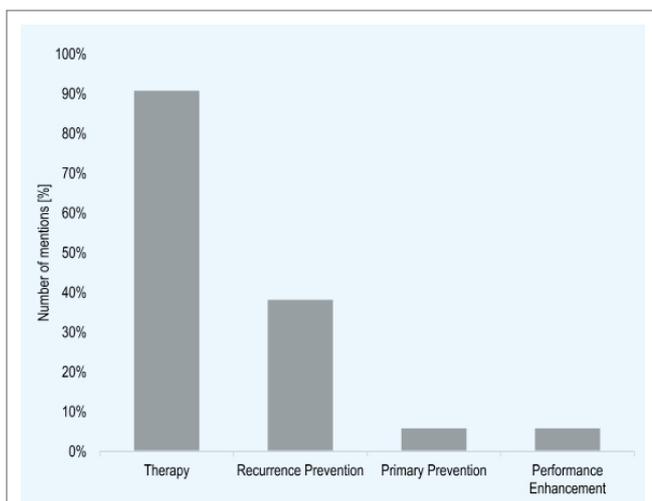
Most commonly, KT was used in therapy of knee, shoulder and ankle injuries as well as back pain (Fig. 3). Almost 3/4 (74%) of all therapeutic users reported relief of the complaint symptoms. Relief of complaints was reported significantly more often ( $p<0.05$ ) when the recommendation for application came from a physician or physiotherapist (Tab. 1). Accompanying therapeutic measures (physiotherapy (n=76), training therapy (n=36) or medications (n=36)) were prescribed/applied with equal frequency, independent of the recommendation source.

### Recurrence Prevention

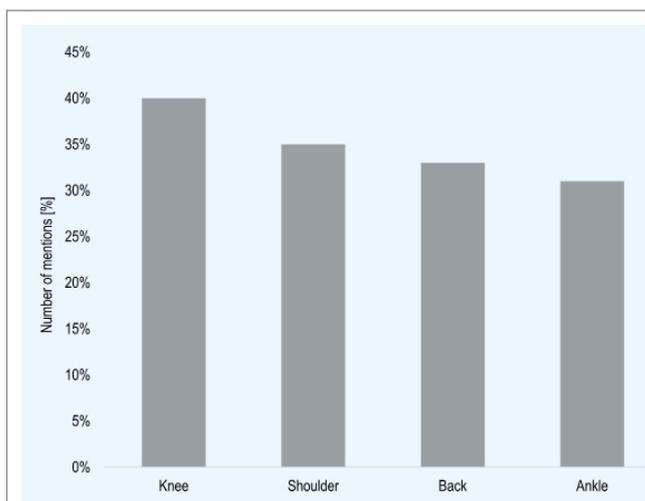
Three-quarters of those using KT with the goal of preventing re-injury reported that they suffered no re-injury while wearing KT. Overall, 31% of those questioned, who suffered a re-injury, ascribed a reduced severity of the injury to KT.

### Performance Enhancement and Primary Prevention

Of all participants using KT for performance enhancement and primary prevention, 88% reported a subjectively-perceived primary preventive effect or improvement in athletic competitive performance, respectively. >



**Figure 2**  
Goals for the use of KT (multiple answers possible).



**Figure 3**  
Site of use or application of KT in the context of therapy (multiple answers possible).

Discussion

The results of this survey on the use and subjectively-perceived effects of KT confirm previous information on popularity (5), which in most cases are based on subjective observations and the increasing media presence at important sports events.

The frequency of KT use among the survey participants was about 67%, well above the roughly 10% for other remedies and therapy-measures in the same age group (22). An increased representation of KT use and influences due to various recall periods and cohort-specific influence, such as a greater affinity for KT, cannot be ruled out.

Overall, it becomes clear that according to their own reports, the majority of those questioned did not become aware of KT via advertising or telecasts, but in most cases from a physiotherapist or friends. A therapeutically-positive effect, according to the survey results, is ascribed to KT especially with respect to perceived symptoms in musculoskeletal complaints. In a systematic review article, only one of the 10 studies examined could show significant pain reduction due to KT compared to sham-taping (30). Compared to other therapy methods, no positive effects on complaint relief could be objectively proven (23). The survey results of this study, however, clearly indicate a subjectively different perception of the presumed effect of KT. Especially the source of recommendation for KT appears to have an influence on the subjectively-perceived effects of KT. In addition to the placebo effect of KT which should be generally discussed here (28, 29), an examiner (expectation) effect, the so-called Rosenthal Effect, might have a positive effect on the perceived and/or ascribed effect of KT during the co-evaluation and indication definition by the physician or physiotherapist (21). The accompanying therapy measures, which were prescribed and/

or applied with equal frequency, independent of where the KT recommendation came from, also suggest influence of the physiotherapist or physician as a health-care provider on the subjective effect of KT. The correct application of the tape by a trained therapist rather than an inexperienced layperson could also explain the subjectively-perceived better effects. However, the question whether various application techniques as postulated also bring different effects remains unclear (24, 29).

Compared to the therapeutic application, KT was used in our sample considerably less frequently in the context of re-injury prevention (38% of the KT users). Here, positive perceived effects were also reported on re-injury and severity of injury. Thus far, the direct influence of KT on the injury incidence, as for rigid orthoses for ankle injuries (27) has not been systematically investigated. Studies examining stabilization of the ankle with KT have so far brought contradictory results (1, 4). Nonetheless, based on the subjective effects demonstrated in this present study, KT may be suitable as a supplementary measure in the prevention of sports injuries, for example as part of a multimodal intervention strategy (12). The comparatively few reports (approx. 7% of the KT users) on performance enhancement and primary prevention indicate a subordinate importance and use of KT for such goals. Possibly KT is more frequently used after it has once been used during therapy. This could explain the greater use of KT in recurrence vs. primary prevention. Postulated effects, such as improved proprioception (7, 9, 13), improved neuromuscular capacity (7, 8, 11, 17, 18) appear possible in both primary and recurrence-preventive use (20).

Conclusion

The present cohort study shows widespread application of KT among the survey participants, based primarily on therapeutic and re-injury preventive use. The majority of respondents did not use KT as self-therapy, but on the recommendation of physiotherapists. Moreover, the co-evaluation and indication definition by a physician or physiotherapist appears to have an additional positive effect on the subjectively-perceived effects of KT during therapy.

Conflict of Interest

The authors have no conflict of interest.

Table 1

Relief of complaints dependent on the source of recommendation ( $p \leq .05$ , recommendation by physician or physiotherapist vs. other sources).

	RECOMMENDATION BY PHYSICIAN OR PHYSIOTHERAPIST	OTHER RECOMMENDATIONS (FRIENDS, TV ETC.)
Complaints relieved, yes	n=75	n=15
Complaints relieved, no	n=19	n=12

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