

***TREATMENT OF FINGER PROBLEMS IN CLIMBERS WITH THE
LOCAL-OSTEOPATHIC ISELE-METHOD: A PILOT STUDY***

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Summary

The growing number of climbers implies an increase of complaints in relation to fingers. However, the available scientific literature focuses mainly on injuries of the annular pulley-system of the flexor tendons with an emphasis on major injuries, e.g. rupture of the ring ligaments and their surgical management. Although only a minority of these cases requires surgical intervention, it seems that the field of climbing-related injuries is only insufficiently covered. Conservative finger therapy mainly focuses on the rehabilitation process. In the context of the present pilot- and feasibility study 61 patients with undefined climbing-related finger problems underwent a new local osteopathic therapy, involving the Isele-method and Isele-techniques. All patients were treated only once. The requirement after the treatment was a climbing break for a minimum of 48 hours. Changes regarding the finger injury were documented at three occasions via a questionnaire including a numerical analogue scale. A clear benefit could be observed for all surveyed areas, specifically regarding possible training intensity and volume. Furthermore, patients reported a notable relief of pain and other symptoms during climbing, as well as an increase in quality of life. Although they experienced the Isele-method to be somewhat painful, patients consistently evaluated the treatment positively.

Keywords

Isele-techniques, conservative finger therapy for climbers, finger injuries, finger therapy, sport climbing, climber's finger

Résumé

Le nombre de gens qui pratique l'escalade augment et pareillement les troubles en relation avec les doigts augment. Quand même la littérature scientifique se concentre aux blessures de la system des ligaments annulaire du tendon fléchisseur avec grand blessures, p.ex. rupture du doigts ligaments et le management chirurgicale. Alors même qu'une minorité de ces blessures ont besoin d'une intervention chirurgicale, il semble que les blessures en relation avec la grimpe est non suffisamment couvris. Le traitement conservatif des blessures des doigts se concentre le plus souvent aux procédures de la réhabilitation. Dans cette étude pilote et faisable 61 patients avec des problèmes en relation avec les doigts non défini ont participé et ont reçu un traitement nouveau ostéopathique local. Ceci a inclue la méthode Isele et les techniques Isele. Tous les patients ont été traités seulement une fois. La prémisses été que les patients n'ont pas pratiquer la grimpe pour un minimum de 48 heures. Les différences en blessures des doigts été surveillés à trois moments par un questionnaire avec une échelle numérique et analogue. Un avantage explicite été observer pour tous les critères mais spécifiquement pour l'intensité du training et le volume du training. De plus les patients ont remarqué que la douleur pendant la grimpe et la qualité de vie a été améliorer. Alors même que les patients décrivent le traitement à être douleur, le traitement est en tous évalué positivement par les patients.

Mot de clé

Techniques Isele, thérapie conservatrice des blessures de doigts on relation avec la grimpe, blessures des doigts, escalade sportive, doigts grimpe

Introduction

The number of climbers and boulderers is increasing. The access to the sport becomes easier and the highest level in climbing is increasing constantly. This development causes a higher number of specific, climbing induced complaints. These are also found in the most heavily loaded body part of climbers –their fingers. Finger anatomy shows three main structures that can be affected by overload during climbing/ bouldering: joints, ligaments and muscle insertions. There are already treatments/guidances available for climbing-induced finger complaints, as “Isa-Tape” (Schöffl & Schöffl, 2006) or operative interventions (Aurora et al., 2013), as well as osteopathic (Otepka, 2006), occupational (Seidner, 2010) and physiotherapeutic methods (Gnecchi & Moutet, 2015). Nevertheless there is still a need for a fast, simple and effective method to generally treat climbing induced finger complaints. The aim of this study is to test the effectiveness of a new local-osteopathic method that is simple, fast and can help with most kinds of finger complaints –the Isele-method. Moreover, the patient’s acceptance of the treatment is required.

Study design

This pilot study is based on the guidelines for pilot studies by Thabane et al. (2010). 60 participants took part. The including criteria were: finger complaints caused by climbing, climb a difficulty level of minimum 7 (UIAA, red point) and train regularly (minimum 3 times a month), aged > 16 years. Climbing grade and regular training should ensure that the complaints were most likely caused by the effects of climbing. More detailed information about the participants is summarized in table 1. Participants were asked three times during the study to scale the intensity of

their complaints and restrictions using a numerical rating scale (NRS) from 1: no pain/restriction to 10: worst imaginable pain/highest imaginable restriction. The scaled topics are listed in table 2 (results). The first interview took place 48-96 hours before the treatment. Secondly, participants were asked directly before the treatment. After the treatment patients had to comply with a rest period of 48-96 hours.

Participants	(%)	
Female	19.4	
Male	80.6	
Bouldering	48.4	
Lead	35.5	
Bouldering & Lead	16.1	
Duration of symptoms/complaints	0-8 weeks	54.9
	3-12 months	25.8
	>1 year	17.7

Table 1: Characteristics of participants (%)

The third interview happened after the patient’s first climbing activity after this rest period. It was held no later than six days after the treatment. The period between first and second interview was used as control time, to test if there was an improvement in complaints just by time.

Methods

Treatment: The Isele-method includes a before/after comparison. This is based on the patient’s finger position that is most painful (symptoms causing position = SCP). The SCP is used as reference for the comparison of complaints before and after the treatment. Within the treatment, three different Isele-techniques are optionally used:

1. “Mädchenthrost”

The “Mädchenthrost” affects joint structures. For this treatment an impact assessment with the patient is obligatory. If the patient feels no pain stretching the proximal part of the joint from the distal one, this technique

can be used. There are three different intensities for this treatment, increasing the traction force on the joint (figure 1). Level 1: The proximal

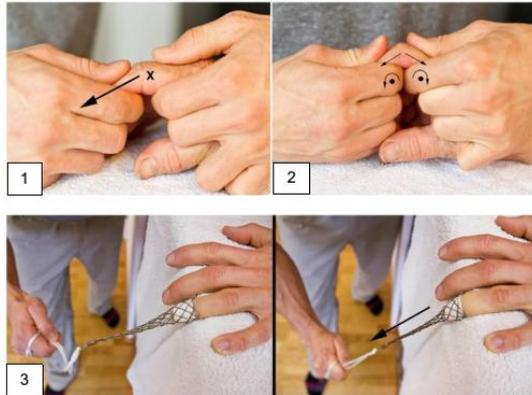


Figure 1: Isele-technique: “Mädchenthrust” in different intensity-levels (1-3) (Photo: Penzendorfer 2015)

part of the finger joint is fixated by the therapist while the distal part of the joint is pulled (figure 1-1).

Level 2: The therapist uses his fingers as a fulcrum (Index Crack Method) where the

joint of the patient is

located between the therapist's fingers. A too intense traction can thus be avoided (figure 1-2).

Level 3: A device called “Mädchenfänger” is used to allow an increased leverage on the distal part of the finger joint. This part of the finger joint is pulled by the help of the “Mädchenfänger” (figure 1-3). After the treatment, the patient demonstrates the SCP again. If no relief of pain can be reported, the treatment is repeated at different angles.

2. “Chopstick-technique”



Figure 2: Isele-technique: “Chopstick-technique”

The Chopstick-technique treats structures at muscle insertions. You trigger the most sensitive points along the finger (figure 2). The pressure is individually increased until the maximal possible and acceptable pain level of the patient is reached. After a certain time of

(Photo: Penzendorfer 2015)

pressing the currently most sensitive point, patients report an ease of pain. If the pain falls below NRS 2, the treatment is terminated.

3. “Flexor-lift”

The Flexor-lift targets tendon structures. The dorsal part of the hand is positioned at a table with soft cover. A fleece is used to increase the grip (not shown in the illustration). The therapist pinches the most painful part of the finger (figure 3, left) while the patient is flexing the finger (figure 3, right). Therapist and patient evaluate the effect on the symptoms and agree on how many repetitions shall follow.



Figure 3: Isele-technique: “Flexor-lift” (Photo: Penzendorfer 2015)

Statistical Analyses: For statistical analyses, the SPSS analysis program was used (IBM). Data were calculated with the nonparametric Wilcoxon signed rank-test for related samples. It was tested, if the change in pain/restrictions of the patients before (T2) and after the treatment (T3) was significant. The patient's acceptance of the study design was declared orally.

Results

The following table summarizes the most important numerical rating scale (NRS) values expressed by the subjects at different times T1, T2 and T3.

NRS	Questionnaire time		
	T1 (n=62)	T2 (n=61)	T3 (n=60)
	Median (IQR 25; 75)		
Pain intensity during climbing	5 (3,0; 7,0)	5 (3,0; 7,0)	2 (1,0; 4,0)
Restriction of quality of life caused by finger pain	5 (3,0; 6,0)	5 (3,0; 7,0)	2 (1,0; 3,5)
Restriction of training volume	5,5 (3,75; 7,25)	5,0 (3,0; 8,0)	2 (0,0; 3,75)
Restriction of training intensity	7 (5,0; 8,0)	7,0 (4,5; 8,0)	2 (0,0; 4,0)

Table 2: Values expressed by subjects at different times of the study in the NRS. NRS=0 represents pain free whereas NRS=10 represents maximum symptoms. The interquartile range (IQR) is given (the upper and lower quartiles are given in brackets).

The highest NRS values before treatment with the Isele-method were detected for the restriction in training intensity (T1=T2=7), pain intensity during climbing (T1=T2=5) and restriction of quality of life caused by finger pain (T1=T2=5). These findings confirm the assumption that training and climbing is an essential part of life for a climber and quality of life is closely connected to climbing practice. Between T1 and T2, no significance was found. In contrast to that, all changes of the NRS values between T2 and T3 were statistically significant with a value for $p=0.000$. Between T2 and T3, a clear decrease of the median NRS values was observed for all characteristics.

Discussion

Due to the fact that this is a pilot study its informative value is limited. Yet, according to the high number of participants, the statistical power is clear. The Isele-method showed effectiveness for chronic as well as current

complaints. For a clear statement about this, a higher number of participants for each type of complaint would be needed. The study determines the effect of one single treatment, though a second treatment could have improved symptoms to a larger extent. There are socially influencing factors, which could have affected the outcome, as motives of participation, sympathy to the therapist and the positive expectations of the participants. In addition, the therapist was interviewer at the same time, which could have influenced the patients and their statements as well. For further studies, it is recommended to use an electronic tool for interviews, increase the sample size, include more than one therapeutic intervention and test the long-term effects of the study. Furthermore, the possibility of an independent control group should be taken into account. The Isele-method is a quick, conservative intervention that allows a fast re-entry in daily training routine and therefore has a positive impact on the life quality of the patients.

References

- Aurora, R., Lutz, M., Haug, L., Struve, P., Deml, C., & Gabl, M. (2013).** Sekundäre Rekonstruktion des digitalen A2-Ringbandes. *Operative Orthopädie und Traumatologie* 5, S. 499 - 504.
- Gnecchi, S., & Moutet, F. (2015).** *Hand and Finger Injuries in Rock Climbers*. Schweiz: Springer.
- Otepka, M. (2006).** *Performance-enhancing Osteopathy in Sport Climbers with Finger Injuries*. Innsbruck: Donau Universität Krems.
- Schöffl, V. R., & Schöffl, I. (2006).** Injuries to the Finger Flexor Pulley System in Rock Climbers: Current Concepts. *The journal of hand surgery*, 31A (4), S. 647 – 654
- Seidner, E. (2010).** *Ergotherapeutische Behandlung von geschlossenen Ringbandverletzungen*. Innsbruck.
- Thabane, L., Ma, J., Chu, R., Cheng, J., Ismaila, A., Rios, L. P., Goldsmith, C. H. (2010).** A tutorial on pilot studies: the what, why and how. *Bio Med Central Medical Research Methodology*, S. 1-10.