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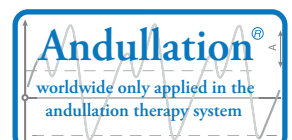
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University of Applied Sciences



> Research Andullation Therapy  
Influence on Lymphoedema of the Lower Limbs

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# Research of Andullation Therapy on the Influence on lymphoedema of the Lower Limbs

## > Introduction

When an accumulation of proteins from the blood plasma builds up in tissues between the arterial blood supply and the venous removal system (the interstitium) because the lymph system does not function correctly, then lymphoedema occurs. Due to the increased colloidal osmotic pressure, which thus arises in the interstitium, further fluid is attracted from the blood vessels, and this results in swelling of the limb.

Routine conservative treatment methods consist, among others, in raising the limb, pressotherapy, lymph draining, local pumping and manual lymph drainage. Since the feeling of well-being and relaxation is strongly increased by andullation therapy (see other studies), it was decided to try out this treatment additionally for patients with oedematous lower limbs.

## > Study Methodology

20 patients with an oedematous lower limb were divided at random into two groups. None of them had a venous oedema, varicose veins or was suffering from a heart condition. The study group consisted of 10 patients who were each treated for 15 minutes with andullation therapy on the andullation therapy system. The whole body was massaged via andullation, via the special medically established combination programme P03, 'lymph system stimulation'. The 10 patients from the control group were treated for the same period with a placebo system without vibrations and without infrared radiation. Before the test, each patient filled out a questionnaire. Personal data, possible contraindications and medication were evaluated. The participants were checked for four variables: subjective feelings of pain, swelling of the lower limb, presence of oedema (body composition) and mobility of the knee joint.

## > Instruments and Methods

- > Visual analogue scale for pain
- > Principle of Kuhnke's "4 cm disk model"
- > Body Composition Analyser Inbody 3.0 Biospace
- > "Cybex" measurement of the mobility inflexion/extension



Principle of Kuhnke's  
"4 cm disk model"



Body Composition Analyser Inbody 3.0  
Biospace

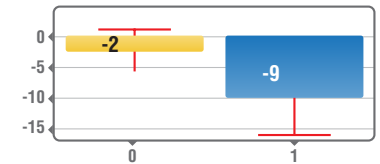


"Cybex" measurement of the mobility  
inflexion/extension

## > Results

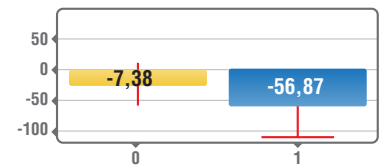
### 1. Subjective feeling of Pain

The subjective feeling of pain is noticeably reduced after andullation therapy (blue group).



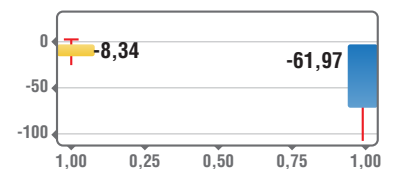
### 2. Swelling of the lower limb

The swelling has clearly reduced by andullation therapy on the andullation therapy system (blue group).



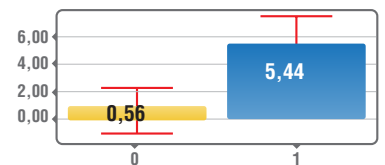
### 3. Lymphoedema and body composition

There is a visible influence by the andullation therapy on the body composition since the lymphoedema is reduced. (blue group)



### 4. Mobility of the knee joint

Has clearly increased after the intervention with the andullation therapy system (blue group).



## > Conclusion

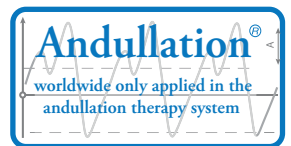
Therapy using andullation on the andullation therapy system (red group) in cases of an oedematous lower limb positively stimulates the lymph system, which can be described as a therapeutic effect.

The vibrations from the andullation, in combination with infrared deep heat, manifestly reduce the subjective feeling of pain in patients with a disturbance in lymph drainage. Objectively measurable physiological parameters (mobility of the knee joint, size and volume of the lower limb) were also very positively influenced by the andullation massage.

The heat was experienced as being very pleasant and beneficial. Due to the stimulation of the thermal receptors in the skin, afferent nerves were stimulated, and it is anticipated that they activate centres in the central nervous system, and give rise to the production of endorphins. These substances have a pain-reducing character and cause a reduction in the subjective perception of pain.

The demonstrable reduction in the size/volume of the lower limb is also the factor that causes the improved and less painful mobility of the knee joint.

On the basis of the influence on the demonstrable physiological reactions in the human body, it can also be envisaged that andullation therapy with the andullation therapy system could be employed for various other treatment schemes.



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