

The effect of sensorimotor shoes (X10D) on medial knee pain; a case-control study:

Original german version:

„Der Einfluss von sensomotorischen Schuhen auf mediale Knieschmerzen. Ein Fall-Kontroll-Studie“

Abstract

Background:

Small prescribed therapy units and short treatment times require a high degree of effectiveness of the physical therapist in the treatment of patients with symptoms of overloading of the muscles. The temporal mismatch between therapy unit and incorrect load in everyday life can often lead to a failure in long-term therapeutic success. The idea is to achieve a successful therapy through passive tools in everyday life. For patients with congestion of the lower extremity, a customized shoe provides help. The market of sensorimotor shoes is great. However, it is uncertain if wearing these shoes has positive effects on the patient's gait or in reducing pain of the musculoskeletal system.

Objective:

In this case-control study, the influence of the patient's medial non-traumatic knee pain is to be examined by wearing the sensomotoric shoe X10D.

Method:

In this study, 14 subjects (52.38 ± 5.19) by means of semi-randomization have been allocated in the intervention (IG) and the placebo group (PG) (IG 4f/3m, PG 7f/0m). The participants in the intervention group were provided with the shoe X10D and the subjects of the placebo group with the Adidas Samba. The intervention was performed for four weeks and included the wearing of the respective shoes for at least five hours a day. During the intervention the every-day, average pain and the wearing time of the subjects were documented. Before and after the intervention, a study was carried out by an algometry measurement at four defined points in the area of the medial knee joint (the most painful point, medial collateral ligament, the pes anserinus and quadriceps femoris) and by filling out the KOOS questionnaire.

Result:

The test showed that the pain intensity decreased in the IG significantly ($p=0.011$) from 5.29 ± 2.06 on the seventh day to 3.57 ± 2.51 on the 27 day. The pain of the participants in the PG reduced as well, but in comparison to the IG, was not as strong or significant with $p = 0.679$. Therefore, no relationship could be determined between wearing the shoes and the reduction of pain intensity among the participants of the IG ($R=0.348$). However, a negative correlation ($r=-0.810$) was observed in the participants of the PG. the pain tolerance of the participants of the IG on all four defined point in the area of the knee joint reduced ($p_1 = 0.056$, $p_2 = 0.115$, $p_3 = 0.338$, $p_4 = 0.302$). Similarly, in the PG the measurements of the pressure sensitivity declined ($p_1 = 0.090$, $p_4 = 0.097$). The measurements in the field of the second and third point of the knee joint were significant ($p_2 = 0.034$, $p_3 = 0.003$).

Discussion:

The study showed that the symptoms improved during the intervention. However, for stronger scientific evidence of the effectiveness of the intervention, research is still necessary with the help of a longer intervention period and a larger number of subjects.

Keywords:

sensorimotor shoes, X10D, Barefoot Shoes, nontraumatic medial knee pain

