svomp

zh aw Gesundheit Institut für Physiotherapie

Dysfunktionale Körperwahrnehmung bei Rücken-/Beckenproblematik: Praktische Konsequenzen (ZHAW-Studien)

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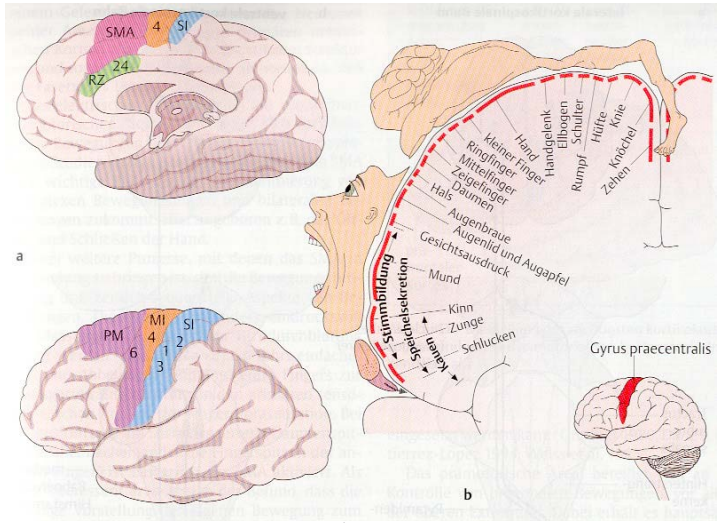
Leiter Masters Studiengang Msk PT ZHAW

Medbase Physioscience Praxis, Archhöfe, Winterthur

Inhalt

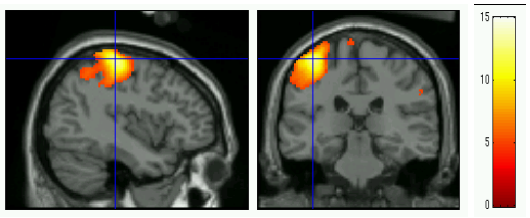
- Körperwahrnehmung
- fMri Studien
- Klinisch: wie messen?
- Ein Paar neue Studien (vA Masterarbeiten ZHAW)
- ZHAW Master msk PT = svomp OMT Ausbildung

Cortical Representation



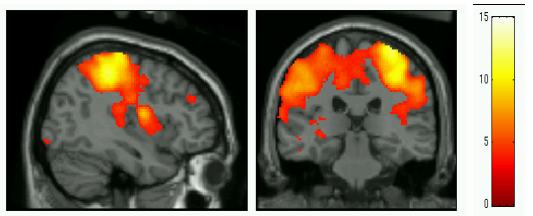
Functional magnetic resonance imaging (fMRI)

Primary Sensory Motor Cortex



before treatment:

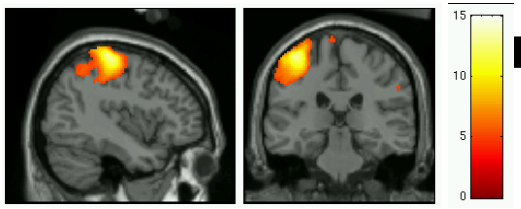
areas active during clenching the unaffected hand



before treatment:

areas active during clenching the affected hand

Primary Sensory Motor Cortex



after treatment:

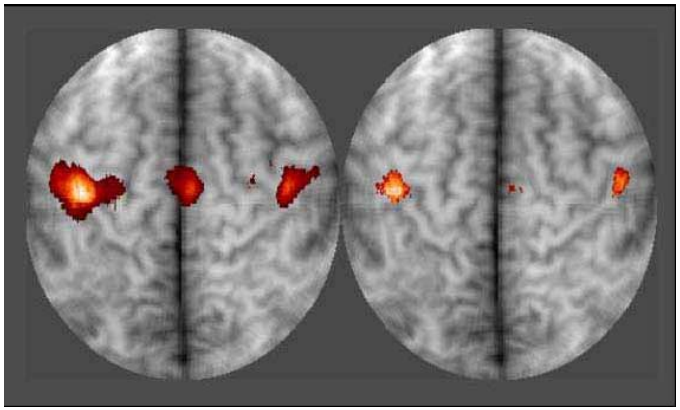
areas active during clenching the unaffected hand

after treatment:

areas active during clenching the affected hand

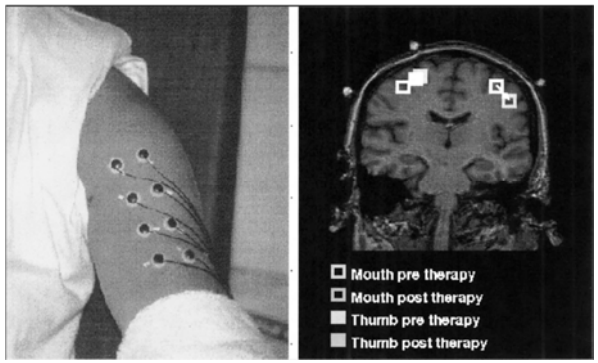
Phantom limb pain
Amputated side

No phantom limb pain
Intact side

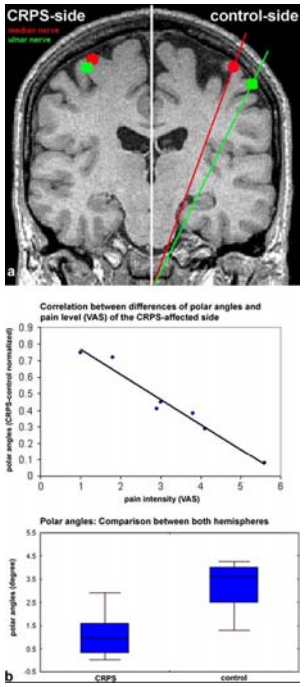


Flor 2003

Two point discrimination (TPD) = increased

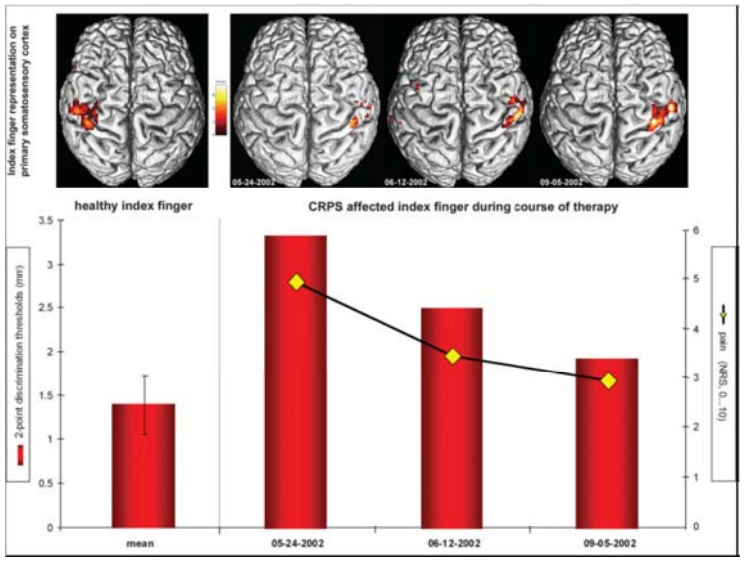


Flor 2002



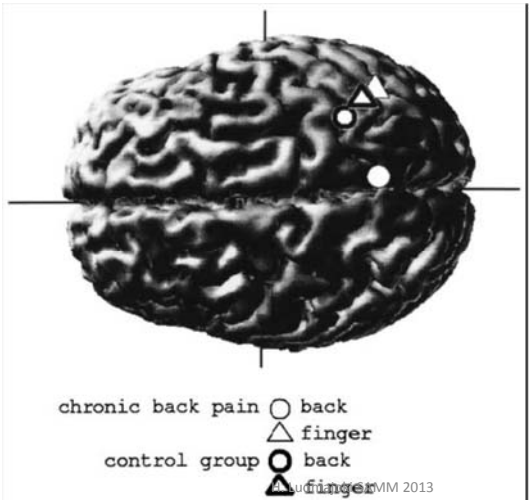
CRPS

Pleger 2004



Pleger 2005

LBP and Representation of the back in the sensory cortex… changed



Flor 1997

An easy way to test body awareness: Two Point Discrimination

Two Point Discrimination test (TPD)

BJSM The Journal of Sport & Exercise Medicine

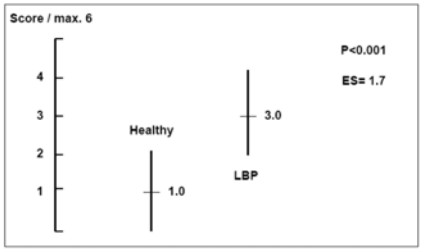
Tactile acuity and lumbopelvic motor control in patients with back pain and healthy controls

Luomajoki, H., & Moseley, G. L. (2011). Tactile acuity and lumbopelvic motor control in patients with back pain and healthy controls. *Br J Sports Med, 45*(5), 437-440

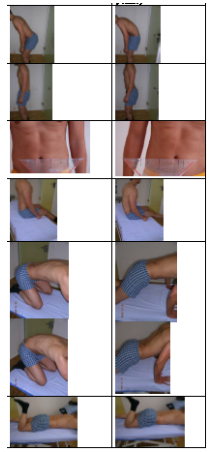
Case controls study
N=90 (LBP= 44; healthy N=46)

Two Point Discrimination (TPD)
Low Back Pain (LBP) and
Movement Control Tests (MCT)

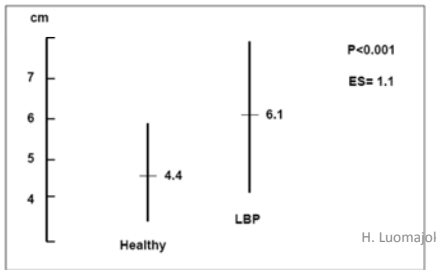
Movement control tests (MCT) N= 90 (LBP= 44; healthy N=46)



Resultate



Two point discrimination (TPD) N=90 (LBP= 44; healthy N=46)



The Intertesterreliability Of The Two Point Discrimination On The Lumbar Spine

Sandro Haller, Hannu Luomajoki (MAS Studie ZHAW)

N=30

Relativ zuverlässig...
aber z.T. grosse Messfehler...

ICC (95% CI)				0.77 0.59-0.89
SEM	11.		10.11 mm	13.91 mm
SD	17.4	17.5 mm	25.3 mm	29 mm
SDD	21.8 mm	20.6 mm	19.8 mm	27.3 mm

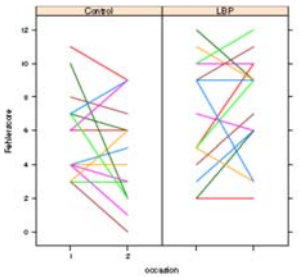
	Horizontal	Vertical	Over all
ICC (95% CI)	0.78 0.30-0.91	0.75 0.59-0.92	0.76 0.30-0.92
SEM	8.5mm	13.9mm	11.3mm
SD	18.2mm	27.75mm	23mm
SDD	16.6mm	27.2mm	22.1mm

	Horizontal Mean	Range	SD	t-Test
Over all	63.10 mm	25-130 mm	18.2 mm	
Patients	69.45 mm	25-130 mm	21.67 mm	P<0.01
Healthy	58.62 mm	35-85 mm	10.38 mm	P<0.01

	Vertical Mean	Range	SD	t-Test
Over all	51.46 mm	25-180mm	27.75 mm	
Patients	61.45 mm	25-180mm	34.04 mm	P<0.01
Healthy	39.73 mm	25-55mm	8.31 mm	P<0.01

Reliabilität eines Körperwahrnehmungsraster

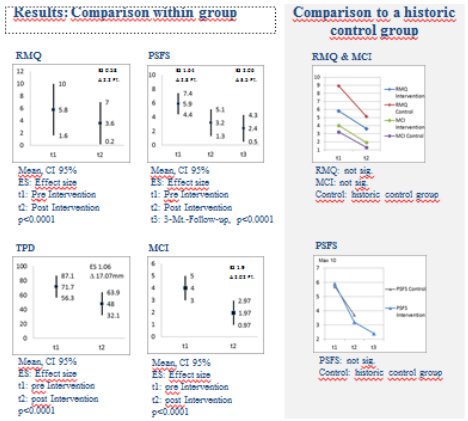
Christian Wild, Hannu Luomajoki, Andre Meichtry (MAS Studie ZHAW)



Der Test weist eine tiefe Reliabilität (ICC=0.52) bei grossem Messfehler (SEM=2.16) und grosser Fehlerbandbreite (SDD=6.01) auf.

Hat taktiles Wahrnehmungstraining (Graphästhesietraining) einen Effekt auf die Bewegungskontrolle, die Beschwerden und die Zwei-Punkte Diskrimination bei nicht-spezifischen lumbalen Rückenschmerzpatienten (MAS Studie ZHAW)

Angelika Mannig, Anja Waldvogel Strebel & Magdalena Gutknecht-Müller, Hannu Luomajoki

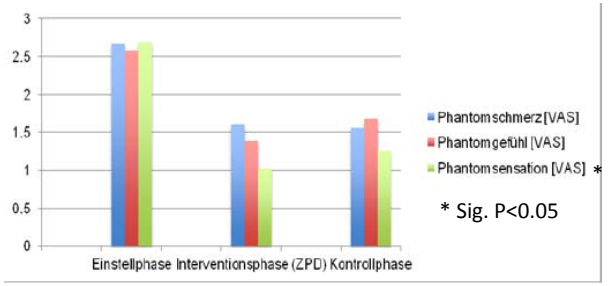


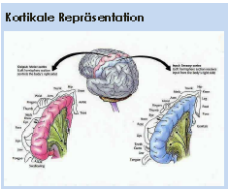
N=40

Effekt der Zweipunktediskrimination (ZPD) als Therapieintervention bei Patienten mit Amputationen an der unteren Extremität mit Phantomschmerzen

Thomas Koller, Sandra Schneider, Hannu Luomajoki
(MAS Studie ZHAW)

Crossover RCT n=8 (16)





The effect of education and sensorimotor retraining on pain and function compared to usual physiotherapy treatment in patients with chronic low back pain - a feasibility study

Philippe Wälti, Hannu Luomajoki

1. Aufklärung über Neurophysiologie chronische Rückenschmerzen
2. Sensorisches Training:
   - Punkte-Diskrimination
   - Graphästhesie
3. Motorisches Training:
   - **Computerprogramm Recognise®** [15]:
- Übertrag, Integration **gesunder Bewegungs-/Verhaltensmuster in Alltag**s-Situationen

- **RCT**
- **Schmerz** (NRS 0-10) Zwischengruppendifferenz **1.43 (SD 2.23), p=0.027 d=0.7 → mittlere Effektstärke**
- **N=28**

Alle Patienten mit chronischen lumbalen Rückenschmerzen (cLBP) sind von pathologischen Veränderungen im zentralen Nervensystem (ZNS) betroffen:

kognitiv sensorisch motorisch

Diverse Behandlungsansätze, welche konzentriert diese Veränderungen im ZNS ansprechen sollen, zeigten bereits vielversprechende Resultate [5, 6, 7, 8, 9, 10]

For the back… and otherwise

- Visualize
- Recognize
- TPD training
- Graphaestesie
- Motor imagery
- Think on ideomotor training
- … Studies are coming…

Vielen Dank für die Aufmerksamkeit!

- luom@zhaw.ch

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