



an innovative, inexpensive and portable movement laboratory

zhaw - Valedo Movement Lab - Hocoma

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Project Number: 12413.1. / August 2011 - December 2013

Aim: Developing a measurement tool which supports the physiotherapist by identifying movement dysfunctions and planning the therapy.

1. Background

- 43% of the Swiss population suffers from low back pain.
- Costs for treatment are 4 billion CHF/year.
- Patients show following movement dysfunctions:

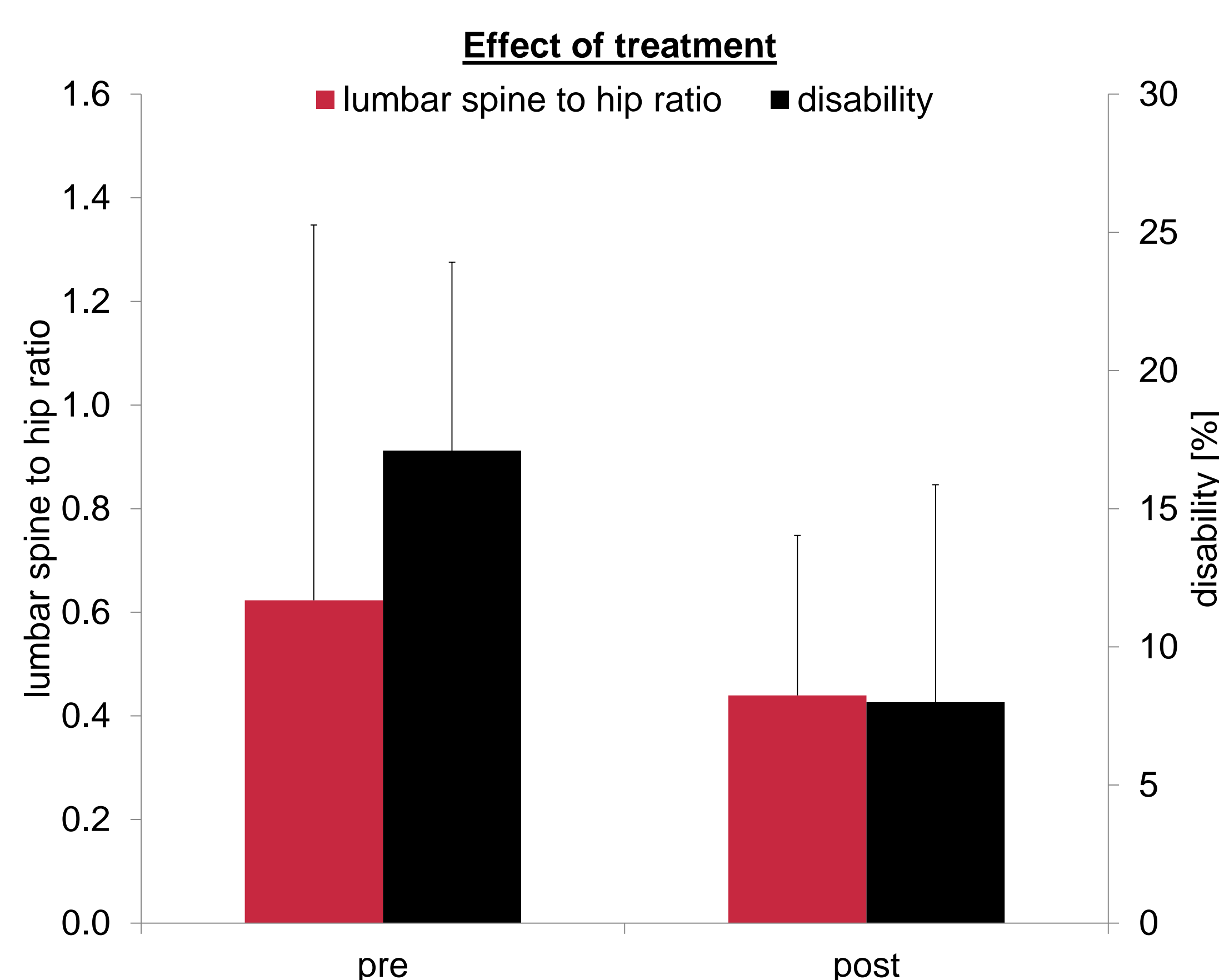


- reduced movement control
- reduced proprioception
- reduced flexibility
- reduced balance.

- Physiotherapists are unable to detect these movement dysfunctions by eye – is the Valedo Movement Lab?

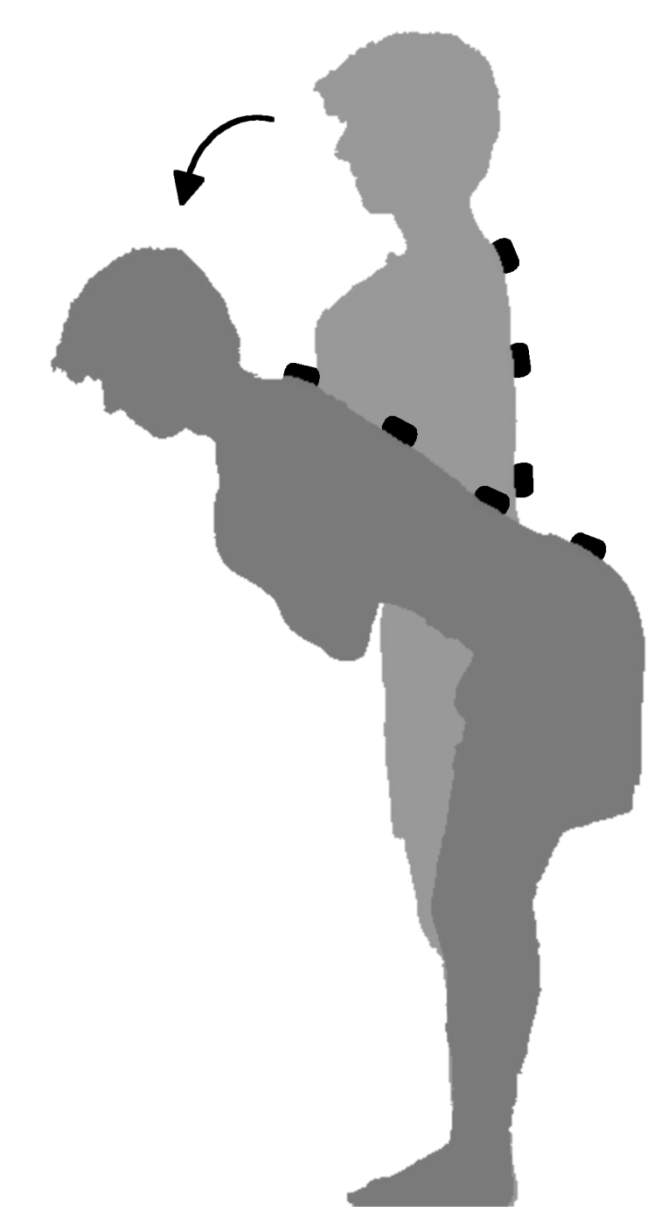
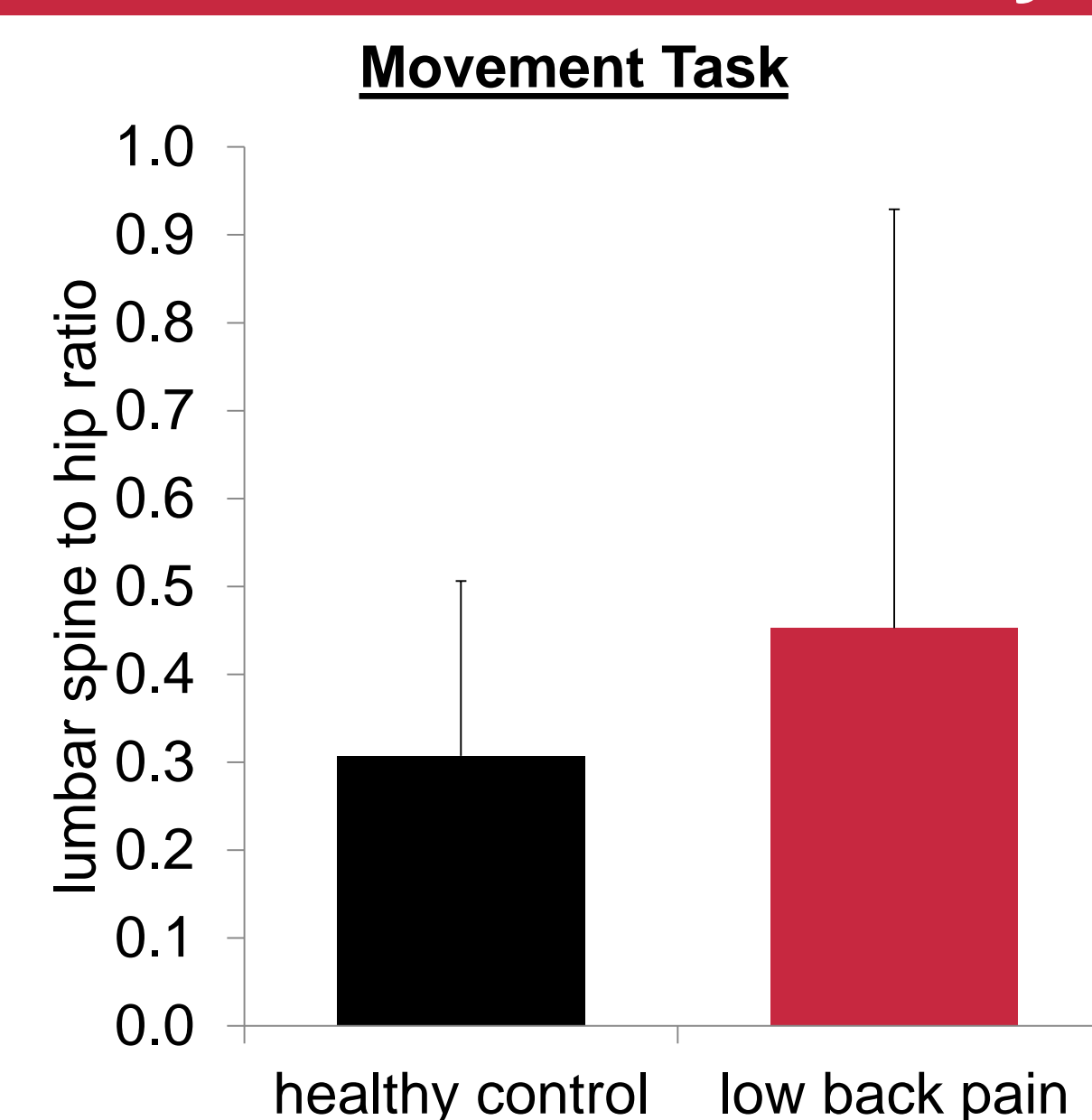
3. Are these movement parameters treatable?

- 20 patients were recruited.
- They received nine physiotherapy sessions.
- Motion analysis was conducted before and after the therapy.



The correlation between disability and movement parameter equals 0.445 ($p = 0.06$).

2. Are these movement dysfunctions measurable?



Movement analysis of 27 tasks and 1572 parameters with 30 healthy subjects and 60 patients.

- => Selection of 274 parameters which ...
- ... proved to be reliable
 - ... were able to classify low back pain
 - ... had odds ratio larger than 2:1.

4. Conclusion

- There's a need to identify movement dysfunctions in low back pain patients.
- The Valedo Movement Lab is able to detect the relevant movement parameters.
- There are more than 7'000 potential customers in Switzerland.