

## **Mechanical characterization of lumbar belts by measuring stress and interface pressure**

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**Objective.** Efficacy of lumbar belt in the treatment of low back pain has been already proven. Nevertheless, both mechanical and physiological effects remain unclear. A pilot study has been carried out to assess the mechanical effect of lumbar belts.

**Methods.** Measurement protocol has been developed. It includes morphologic measurements (high, weight, waist and chest size), comfort evaluation of the lumbar belt, when worn, by using a visual analogic scale (VAS) and coupling measurement of both the lumbar belt stress and the interface pressure. This method has been applied on 15 healthy subjects to compare six lumbar belts.

**Results.** Belts are different in terms of distribution of the lumbar belt stress and the interface pressure. Comfort only depends on the tightening of the belt. Morphology of the subject has no significant effect on results.

**Discussion.** This is a first study that proves the feasibility of the protocol on a small number of healthy subjects. This protocol is currently realized on thirty low back pain patients.