Poster-Dynamic posture correcting device used for rehabilitation exercises

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Dynamic posture correcting device used for rehabilitation exercises

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Background
• Lower back problems cost the Danish society 16.8 billion DKK/year.
• Among all the musculoskeletal disorders, lower back problems is reported as the leading cause to medical attention, and the estimated lifetime prevalence is up to 84% [1].
• Exercise is a key element of the treatment plan, but there is a lack of technology to support the training.

Purpose
Develop a wearable sensor and actuator system that could help the users during rehabilitative training.

Methods
Dielectric Electro-Active Polymers can be used as stretch sensors [2]. The capacitance of the material is changing while it is being stretched.

Collaboration with physiotherapist

Results and discussion
A prototype has been developed. By measuring the degree of elongation of sensor, we could register flexion and extension on the back of the user. Lower back problems are very complicated, involving several diagnoses for each individual. A recent study categorizes lower back problems to different sub-groups [3], which may need different measuring position. A preliminary test with a focused lower back problem subgroup will be implemented in the near future.

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