



AALBORG UNIVERSITY
DENMARK

Department of Health Science
and Technology
Fredrik Bajers Vej 7 D2
9220 Aalborg East
Denmark

Contact person:
Prof P Madeleine, PhD, dr scient
Head of Physical Activity and
Human Performance group
Phone: +45 9940 8833
E-mail: pm@hst.aau.dk

Invited Lecture by Dr Sharon Tsang, PhD

**Department of Rehabilitation Sciences,
The Hong Kong Polytechnic University
HONG KONG**

Time: 16 June 2017 at 13.00-14.00

Place: Aalborg University, Fredrik Bajers Vej 7, room no. B2-107

Evaluation and monitoring of movement and motor control of the lumbo-pelvic region in chronic low back pain

Abstract

Low back pain (LBP) is a highly prevalent musculoskeletal dysfunction which contributes to substantial demand on the medical care and rehabilitation globally. Impaired movement kinematics in the lumbar spine and hip joint when performing the functional activities had been frequently reported in LBP population. However, it remains controversial whether regional mobility is sensitive to identify the impaired movement control of the lumbo-pelvic region in symptomatic individuals. To better enhance the accuracy of the evaluation and monitoring of the rehabilitation outcome for LBP, examination of the differential kinematics and motor control of the lumbo-pelvic movement was studied using the three-dimensional motion tracking system and electromyography. Our recent studies revealed that individuals with chronic LBP moved with significantly compromised performance in movement velocity and acceleration of the lumbar spine and hip joint during forward bending task executed in standing. With the forward bending tasks being executed at a wide range of speed level, pain-free individuals were able to modify their lumbo-pelvic movement pattern in response to the variation of speed. In contrary, individuals with LBP adopted a uniform pattern of movement at their lumbo-pelvic region across all the speed levels examined. These findings contribute to the understanding of the adaptive changes of the movement and motor control of the lumbo-pelvic region adopted by individuals with chronic LBP while executing this simple but usually symptom-provocative task. This specific aberrant lumbo-pelvic movement pattern may have a crucial role in the maintenance of the chronicity in LBP.

All interested are welcome!

Yours sincerely,

Prof. Pascal Madeleine, PhD, dr. scient.