

## Meeting Abstract

### **Evaluation of the uncontrolled movement of the lumbopelvic segment in individuals without low back pain**

Evaluación de movimientos no controlados del segmento lumbopélvico en individuos sin dolor lumbar

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Low back pain (LBP) is one of the most common disorders of the human body. About 85% of the population will experience LBP during their lifetime (1,2). In most cases, LBP is shown as a functional impairment that fails to show up in imaging tests (3). Nine out of ten people who experience LBP do not show an anatomical structure associated with the symptomatology (4,5).

Functional impairment is caused by the uncontrolled movement (UCM), defined as the lack of ability to actively control the joint segment or to prevent a compensatory movement, when a certain function is performed (6). Thus, the nonspecific low back pain (NSLBP) has been described, which is the result of lumbopelvic UCM (7-9).

O'Sullivan suggests analyzing the NSLBP during functional tasks by sub classifying patterns of loss of motor control of the lumbopelvic segment in the presence of pain (10,11). Currently, the patterns, which have been validated as a clinical assessment tool, are the active extension pattern and flexion pattern related to the UCM of the lumbopelvic segment (9,12).

The purpose of this study was to evaluate the lumbopelvic UCM according to the O'Sullivan classification in asymptomatic persons with LBP. Although it has been understood that clinical management of lumbopelvic UCM must be associated with LBP (9), it is important to note that this condition without symptoms represents a potential risk of injury; therefore, it is part of the preventive management of UCM present in LBP (13,14).

#### Methods

##### *Sample identification*

Male volunteers aged between 18 and 23 years old (mean=20.4), who reported no episodes of LBP in the 12 months prior to the study, were recruited. From the total of recruited participants (n=51), those volunteers with structural alterations of spine alignment (n = 7) and those classified

with an UCM lumbopelvic pattern, as described by O'Sullivan which has not been currently validated (n=2) (12), were excluded after the stage of clinical measures.

### *Clinical measures*

The clinical evaluation was conducted by a researcher who underwent a period of training, guided by an expert in the evaluation of nonspecific chronic low back pain as rated by O'Sullivan. The correlation of the data between the two evaluators was performed using Kappa index. Examiners obtained 73.33% agreement and appropriate kappa value when the clinical evaluation is performed.

Possible spinal column deviations were investigated in any of the planes using active mobility tests. According to the O'Sullivan classification for individuals with NSLBP, the UCM lumbopelvic was considered as the anterior-posterior displacement anticipatory of the low lumbar segment (L4-L5, L5-S1), visualized as a hinge effect during the performance of a biped seated transfer. Participants of the UCM group showed "Active Extension Pattern (AEP)" or "Flexion Pattern (FP)" (10).

### *Statistical analysis*

A GraphPad Prism 6 for the statistical calculations was used. Data were analyzed with descriptive statistics.

### **Results**

From the total of the volunteers (n=44), a 38.64% assessed participants experience lumbar UCM even though they do not experience LBP (n=17); 9 subjects with active extension pattern and 8 of them with flexion pattern.

### **Conclusion**

The findings shown in the clinical assessment of this study indicate that individuals without LBP may experience UCM of the lumbopelvic segment, similar to that described by O'Sullivan in subjects with NSLBP (10). This movement impairment in subjects without LBP, suggests that the development of symptoms is not unique to the loss of control of the lumbopelvic segment.

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