

## Lower Crossed Janda's Syndrome and Myofascial Pain Syndrome at Chronic Low Back Pain

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**Introduction.** Lower crossed Janda's syndrome (LCJS) is a frequent muscular dysfunction syndrome, which may cause chronic low back pain (CLBP) due to muscular imbalance [Janda, 1987]. LCJS is characterised by alternating sides of inhibition and facilitation in the upper quarter and lower quarter of muscles by facilitation of the thoraco-lumbar extensors, rectus femoris, and iliopsoas, as well as inhibition of the abdominals (particularly transversus abdominus) and the gluteal muscles. There is a significant correlation between myofascial pain syndrome (MPS) and chronic low back pain (CLBP) [Chen, 2011; Gromakovskis, 2012].

**The aim.** The aim of the study is to identify the incidence of the LCJS in association with the MPS in patients with CLBP.

**Materials and methods.** 120 volunteer subjects, 60 men and 60 women, participated in this study. All patients were diagnosed with CLBP of at least 6-months duration. The study was carried out between 2010 and 2012 in different practices in Latvia. MPS was diagnosed according to D. G. Simons, 1999, MPS criteria [IASP, 2009] and manual muscle strength examination (MMS) after F. P. Kendall, 2005. Descriptive statistics were analysed by StatPlus 5.3 and SPSS 12.0 version. The relationship between the CLBP and MMS were analysed by Pearson's correlation coefficient (r), standard deviation (SD, σ) and p-value. Total correlation (Watanabe correlation) between MPS and LCJS was measured by Kullback-Leibler divergence (KL). The study was designed as cross-sectional observational pilot study.

**Results.** From all (n = 120) the MPS patients with CLBP, LCJS was found in 98 cases (81.6%). LCJS prevalence in females was observed at 53.2%, in males – 46.8%.  $\chi^2$  test for females – 0.94%, p = 0.4 (without statistical significance of sex). MMS at LCJS was showed as muscle shortening/tightness or facilitation of: erector spinae and deep back extensors/stabilizers as multifidus – 87.3%, rectus femoris – 75.5%, iliopsoas – 92.3%; muscle stretching/weakness or inhibition of: rectus abdominis 88.4%, oblique abdominal muscles – 94.1%, gluteus medius – 78.3%, gluteus maximus – 68.5% MPS correlate with LCJS in affected muscles: rectus femoris r = 0.63 (SD ± 0.12), p < 0.0001; iliopsoas r = 0.55 (SD ± 0.18), p < 0.0001; rectus abdominis r = 0.07 (SD ± 0.03), p < 0.0001; oblique abdominal muscles r = 0.12 (SD ± 0.08), p < 0.0001; gluteus maximus r = 0.34 (SD ± 0.11), p < 0.0001. Correlation between MPS and LCJS r = 0.34 (SD ± 0.12), p < 0.0001.

**Conclusions.** Incidence of LCJS at CLBP was 81.6% without statistical significance of sex. LCJS strongly correlate with MPS affected muscles such as: rectus femoris, iliopsoas, gluteus maxumus and relatively rarely, but also positively, correlate with abdominal muscle group: rectus abdominis and oblique abdominal muscles. Commonly MPS and LCJS showed positive correlation in patients with CLBP. LCJS phenomenon may be explained as one of possible etiological cause of MPS and can be defined as one of myogenic CLBP causes.