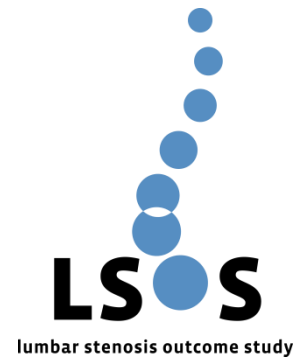


## Abstract

# Correlation of body mass index with paraspinal muscle atrophy in patients with lumbar spinal canal stenosis (LSS)



Bolog N, Burgstaller JM, Held U, Finkenstaedt T, Del Grande F, Steurer J, Andreisek G, Winklhofer SFX

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### Purpose

Aim of the study was to investigate the degree of paraspinal muscle atrophy assessed with magnetic resonance imaging (MRI) in a large patient group with lumbar spinal stenosis (LSS) and to assess for body-mass index (BMI) related differences.

### Methods/Materials

MRI images of 763 patients (395 female, mean age 73 years) with LSS from the multicenter lumbar stenosis outcome study (LSOS) were analyzed in this institutional review board–approved study. Atrophy of the lumbar paraspinal musculature was staged independently by two radiologists according to an adapted Goutallier classification (grades 0 to 4) and correlation between degree of atrophy and BMI was assessed.

### Results

The mean BMI was  $27.5 \pm 5.1$  (range 15-49.3). The median muscle atrophy grade was 1 (interquartile range 1 to 2). Muscle grade was assessed as follows: grade 0: n=153 (20%), grade 1: n=292 (38%), grade 2: n=245 (32%), grade 3: n=48 (6%), grade 4: n=25 (3%). Pearson correlation analysis demonstrated a significant positive correlation between BMI and muscle atrophy ( $p > 0.01$ ). The BMI was significantly higher in patients with remarkable muscle atrophy (grade 2-4) (mean BMI  $28.3 \pm 5.6$ ) compared to patients without remarkable muscle atrophy (grade 0-1) (mean BMI  $26.9 \pm 4.6$ ).

### Conclusion

The positive correlation between higher BMI and higher degrees of muscle atrophy implies that overweight is an important potential source of paraspinal muscle atrophy in patients with LSS.