

Publication

Accelerometry-based physical activity, disability and quality of life before and after lumbar decompression surgery from a physiotherapeutic perspective: An observational cohort study

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Background The effect of lumbar decompression on physical activity (PA) measures (measured as number of steps/day and as moderate to vigorous PA (MVPA)) is poorly understood. The aim of the current study was to compare PA in patients before and after lumbar decompression and to determine the association between change in steps/day and MVPA with change in disability, health-related quality of life (HRQOL) and pain. **Methods** Patients undergoing lumbar decompression surgery were recruited. Steps/day and MVPA were recorded with an accelerometer. Oswestry Disability Index (ODI), HRQOL (Short Form 36 questionnaire (SF-36)) and pain levels (visual analogue scale (VAS)) were collected prior to surgery and six and twelve weeks postoperatively. Steps/day were compared to the lower bound of steps/day in healthy persons (7,000 steps per day), and the relationship between changes in steps/day, MVPA, ODI, SF-36, and VAS were calculated. **Results** Twenty-six patients aged 37 to 75 years met inclusion criteria and were included in the study. Lumbar decompressions were performed for stenosis and/or disc herniation. Preoperatively, patients took an average 5,073±2,621 (mean±standard deviation) steps/day. At 6 weeks postoperatively, patients took 6,131±2,343 steps/day. At 12 weeks postoperatively, patients took 5,683±2,128 steps/day. Postoperative MVPA minutes per week increased compared to preoperative MVPA (preoperative: 94.6±122.9; 6 weeks: 173.9±181.9; 12 weeks: 145.7±132.8). From preoperative to 12 weeks postoperative, change in steps correlated with MVPA ($R=0.775$; $P<0.001$), but not with ODI ($R=0.069$; $P=0.739$), SF-36 ($R=0.138$; $P=0.371$), VAS in the back ($R=0.230$; $P=0.259$) or VAS in the leg ($R=-0.123$; $P=0.550$). **Conclusions** During the first 12 postoperative weeks, daily steps did not reach the lower bound of normal step activity of 7,000 steps/day, however postoperative steps/day were higher than before surgery. Steps/day and MVPA appear to be independent of ODI and SF-36 and represent additional outcome parameters in patients undergoing lumbar decompression surgery and should be considered e.g., by physiotherapists especially from 6 to 12 weeks postoperatively.

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