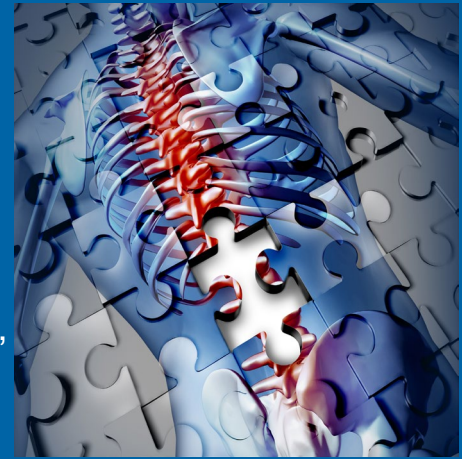


# Overactivity, not Avoidance Behavior, is Associated with Persistent Low Back Pain. An Observational Cohort Study

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## Background

In low back pain (LBP), the recovery of the nociceptive pain occurs within a few weeks. Sometimes, the pain persists beyond the expected healing time (1). This transition from acute to persistent MSP is poorly understood and may be related to how a person engages in daily activities. Activity patterns were defined as avoidance, overactivity, and pacing (2). Each describes a consistent behavior that shapes how individuals organize their occupations. These patterns play a relevant role in developing and maintaining chronic pain (3). This investigation aimed to observe avoidance and overactivity behavior in participants with acute LBP over one year and explore the association with pain persistence.

## Methods

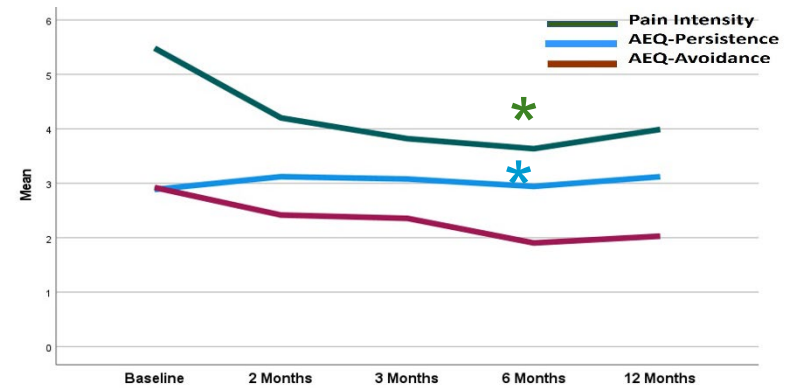
The observational cohort study comprised five measurement points: 4, 8, 12, 26, and 52 weeks after pain onset. Clinical data: Pain intensity, Avoidance-Endurance Questionnaire (AEQ), Depression (DASS), State anxiety. The score of the subscale *AEQ-Avoidance* was used to operationalize participants' avoidance responses to pain. For overactivity, the score of the subscale *AEQ-Persistence* was employed (4,5). Scales score range 0-7, higher scores indicate higher avoidance or overactivity. ANOVA and Linear mixed-effects regression models (LMM), investigated the association between baseline measures with pain intensity over 12 months.

## Results

N=165 participants, mean age 40 years (12,5), 47% females, 1.8 days work absence due to LBP, 22% first episode of LBP, low mean depression scores 5.2 (6.5), moderate mean state anxiety 43 (5.2) suggested proneness to mental distress. Frequency of activity patterns: avoidance 6%, overactivity 39%, pacing 49%.

**Figure 1**

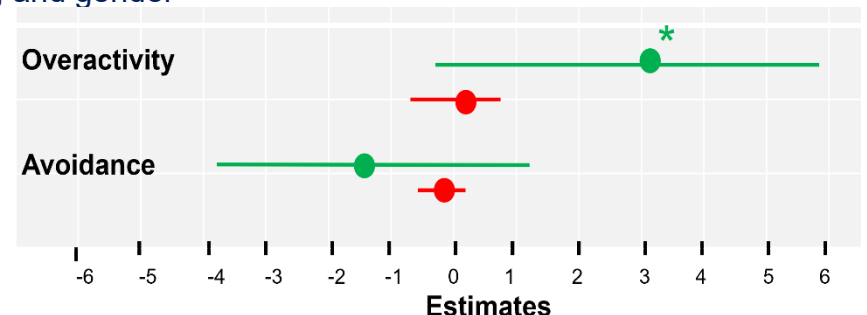
Mean Pain intensity, *AEQ-Avoidance* and *AEQ-Persistence* at 5 measurement points



\* A significant time-dependent decrease in avoidance ( $F(3.00, 285) = 28.8, p < .001, \text{partial } \eta^2 = .28$ ) paralleled the significant decrease in pain intensity  $F(3.00, 414) = 108.1, p < .001, \text{partial } \eta^2 = 0.44$ . In contrast, overactivity remained constant throughout measurement time ( $p = 0.19$ ).

**Figure 2**

Estimates for the LMM between *AEQ-Avoidance* resp. *AEQ-Persistence* and pain intensity over time, red unadjusted, green adjusted for baseline pain intensity, the interaction with state anxiety, age, and gender



\* The adjusted LMM: A one-point increase in overactivity scores at baseline resulted in a 3.31-point increase in pain intensity over 12 months ( $p = 0.008, 95\% \text{ confidence interval } 0.58 \text{ to } 6.04$ ). This association was not found for avoidance at baseline ( $p = 0.21$ ).

## Conclusion

- Association confirmed between baseline overactivity and state anxiety with pain intensity over time
- Maintaining the usual activities, thus overactivity, combined with feelings of distress, may result in persistent LBP.
- Screening of activity patterns in acute LBP recommended

## Take Home Message

Consider a multidimensional approach including the physical and psychological characteristics of patients with LBP and their behavior in everyday life.

## References

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