

# The influence of CENTRAL SENSITIZATION on REPORTED FUNCTIONING in patients with Chronic Low Back Pain: Longitudinal study

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## Background

Functioning of patients with Chronic Low Back Pain (CLBP) is restricted, reason for which patients attend rehabilitation.

Central Sensitization (CS), an increased responsiveness of nociceptive neurons in the CNS, can be present in patients with CLBP and may elicit an amplified experience of pain.

An amplified pain experience may lead to more limited functioning. It is unknown whether changes in CS are related to changes in functioning in patients with CLBP.

## Aim

To analyze whether an improvement in CS is related to an improvement functioning in patients with CLBP.

## Methods

**Participants.** Adult patients with non-radicular CLBP admitted to an outpatient interdisciplinary rehabilitation.

**Design.** Observational longitudinal; baseline (T0) and discharge (T1).

### Measurements:

- CS: Central Sensitization Inventory part-A (CSI, 0-100).
- Functioning: Pain Disability Index (PDI, 0-70), Work Ability Score (WAS, 0-100), Rand36-Physical Functioning (Rand36-PF, 0-100).
- Covariates: Pain intensity (VAS, 0-10).

### Statistical analyses:

- Paired T-test: between T0 and T1 of CS and functioning.
- Simple and multiple regressions: changes in CS (T1-T0; independent), functioning (T1-T0; dependent), and pain intensity (T1-T0; covariate).

## Results

52 patients with CLBP. Mean age 40 years; 61.5% women; pain intensity lowered (VAS=-1.0) from T0 to T1.

- Paired T-test: Significant improvement for CS (CSI=-5.1) and for functioning (PDI=-13.4; WAS=10.0; Rand36-PF=12.1). (Figure 1)
- Simple regression: Decreased CS was associated with increased functioning ( $r=0.3$  to  $r=0.4$ ). Significant for PDI and WAS ( $p=0.012$  and  $p=0.020$ , respectively) but not for physical functioning ( $p=0.061$ ).
- Multiple regression: CSI and WAS remained significantly associated ( $p=0.033$ ). (Figure 2)

## Conclusions

- CS and functioning measurements improved significantly from T0 to T1.
- Improved CS was related to improved functioning, i.e. decreased disability and increased work ability.
- The longitudinal association of CS with work ability remained after controlling for the change in pain intensity.

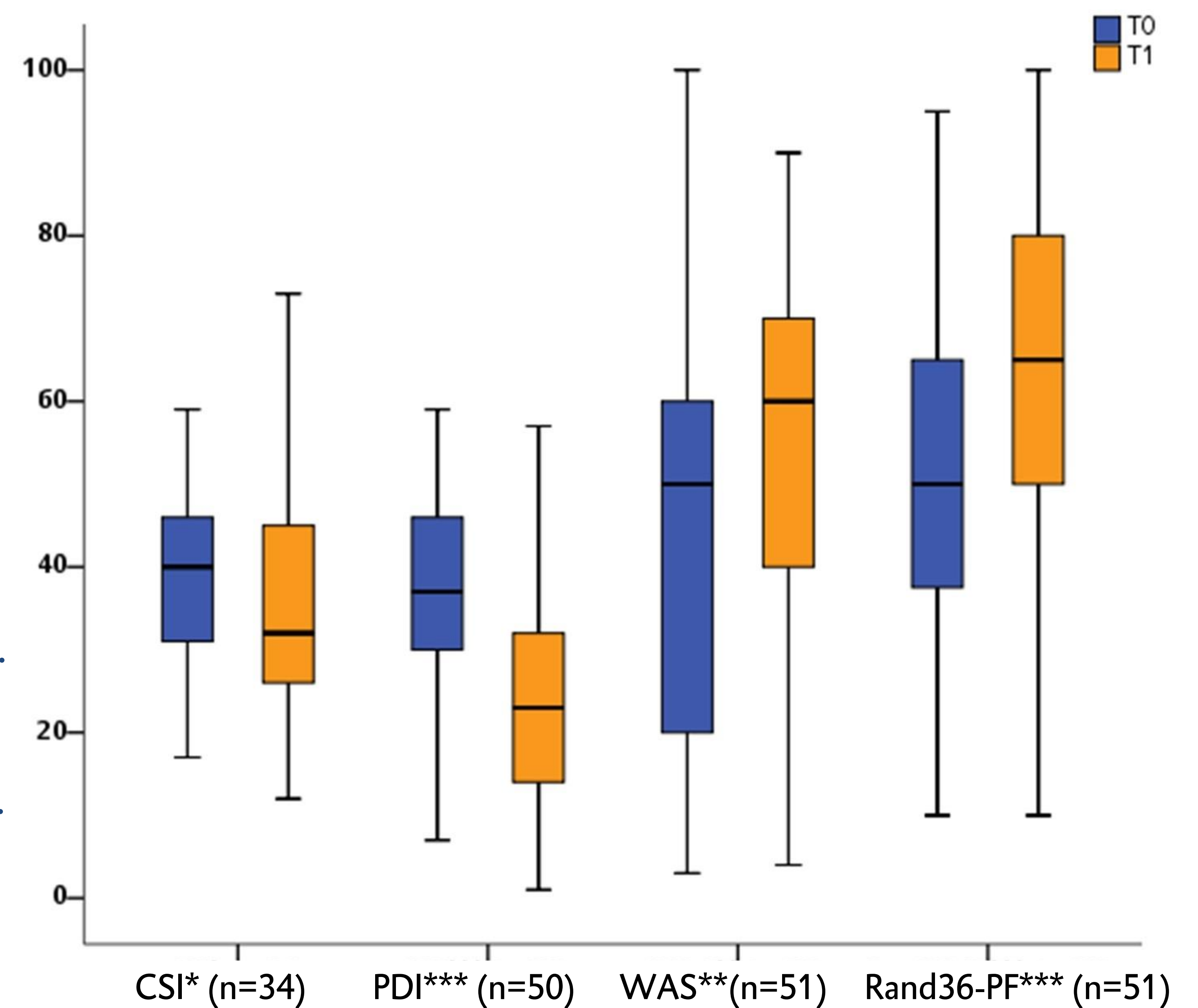


Figure 1. Boxplot of the main outcomes at T0 and T1. sig.: \*,  $p<0.05$ ; \*\*,  $p<0.01$ ; \*\*\*,  $p<0.001$ .

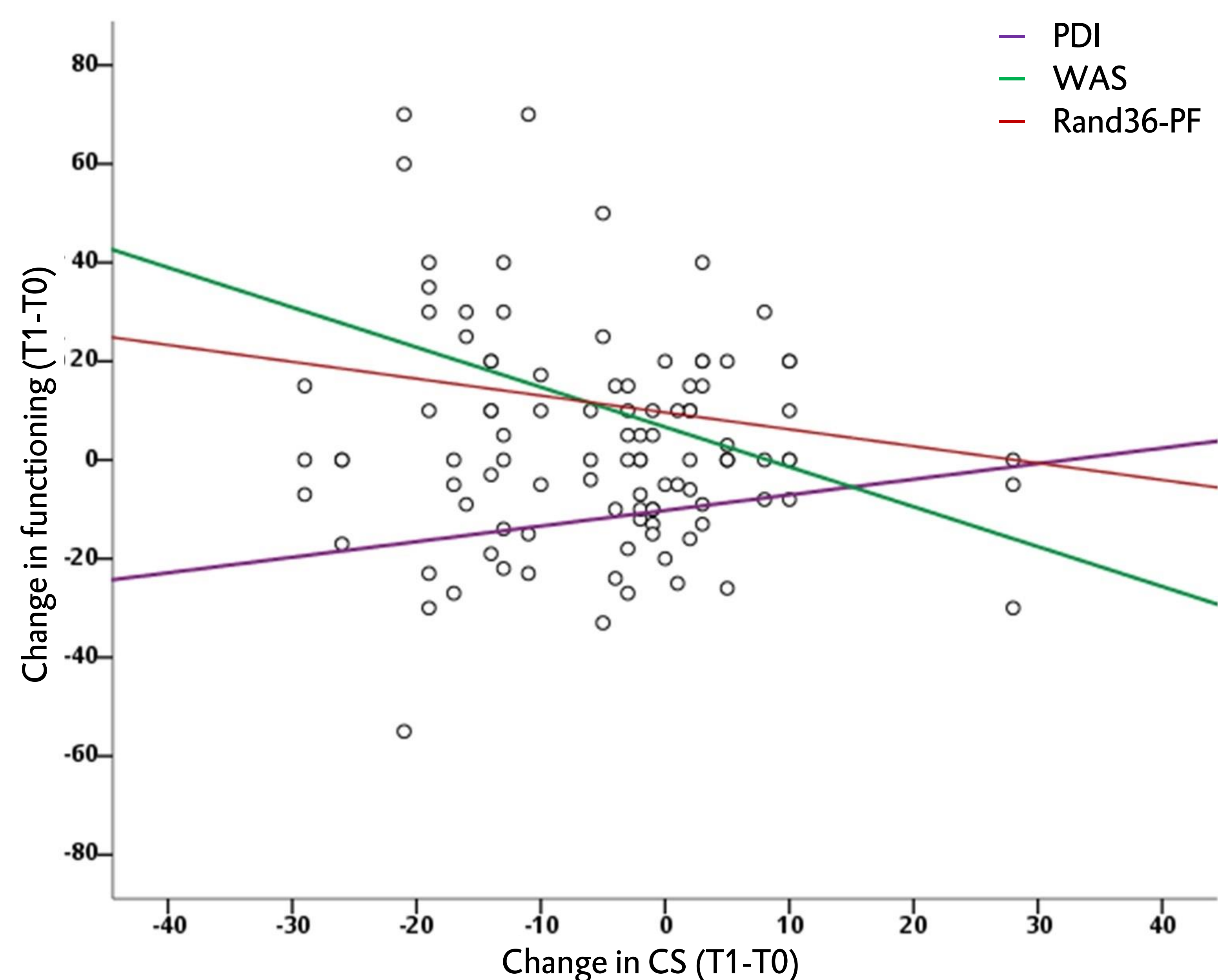


Figure 2. Regression lines of the change in functioning associated to the change in CS, and corrected for the change in pain intensity.

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