

# Neuropathic pain in spinal cord injury and its evolution in time

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## Background

Literature has shown that neuropathic pain might be better distinguished into different clinical phenotypes than in at- level and below level pain in spinal cord injury, because of its heterogeneity and therefore relative unresponsiveness to treatment.<sup>1,2</sup>

## Objective

To get more insight into neuropathic pain after spinal cord injury and its underlying mechanisms by assessing anamnestic neuropathic (pain)symptoms and their evolution in time.

## Methods

225 patients with recent spinal cord injury rated the occurrence and severity of “pain other than musculoskeletal pain” and 7 neuropathic symptoms with self-reported questionnaires

- At the start of active rehabilitation (T1)
- 3 months later (T2)
- At discharge of active rehabilitation (T3)
- 1 year after discharge (T4)
- 5 years after discharge (T5)

### Design

Multicenter longitudinal study<sup>3</sup>

## Results

### Occurrence of symptoms

- Tingling (48-59%), cold (30-50%) and girdle sensation (35-50%) were reported most in the first 2 years.
- Tingling (53%), cold (53%) and numbness (41%) after 5 years.
- Numbness seems to increase over time.
- Girdle sensation decreases over time.
- Too cold occurs less at discharge than at other times.

### Severity of symptoms

- Girdle sensation was reported as most severe in the first 2 years.
- Too cold, numbness, tingling and too warm after 5 years.
- Girdle sensation decreases over time.
- Phantom feeling decreases till 1 year after discharge, but then increases again.
- Too cold is less severe at discharge than at other times.

### “Other pain”

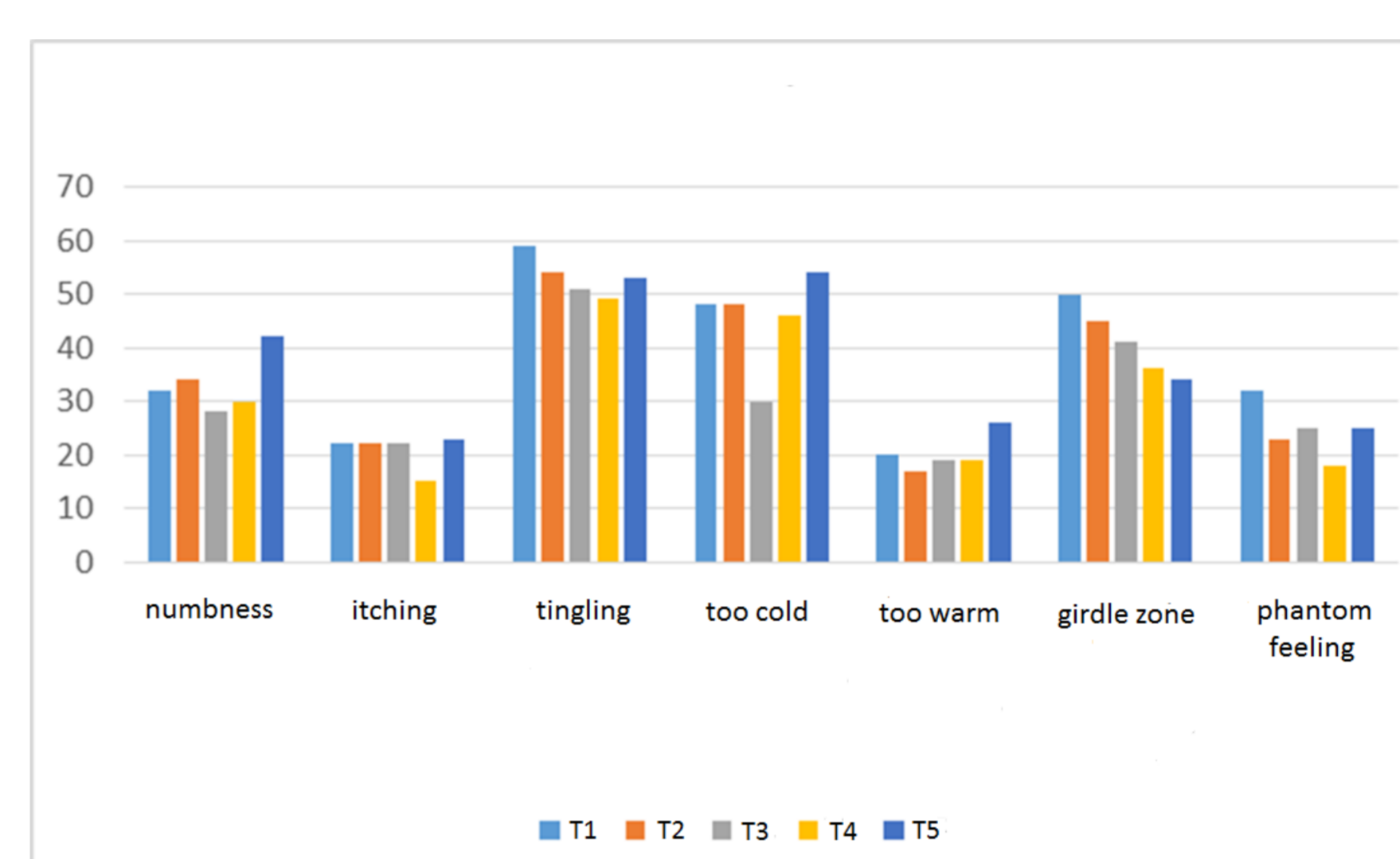
- 17-55% of people that do not report “other pain” do score one or more symptoms.

## Discussion and Conclusion

- Neuropathic pain remains relatively stable over time. Girdle sensation seems to decrease over time.
- A substantial part of patients who reported no “other pain” do report neuropathic sensations, but apparently do not describe these as being painful. Perhaps in studies and questionnaires “neuropathic sensations” should be assessed instead of “neuropathic pain” in order to get a complete picture.
- It would be interesting to see if neuropathic symptoms can be grouped into subtypes based on clinical characteristics of pain which reflect different neurobiological mechanisms.

	T1	T2	T3	T4	T5
Participants, n	225	155	199	156	140
Age (yrs, mean (SD))	40,6 (14)	42,6 (21,2)	40,9 (14,1)	41,5 (14,0)	45,1 (13,7)
Gender, % male	74,7	75,3	74,1	71,6	69,8
AIS-score %					
A	44,5	44,4	50	51,4	-
B	22,5	21,6	14,5	16,7	
C	21,1	20,9	19,9	11,8	
D	9,7	11,8	15,6	20,1	

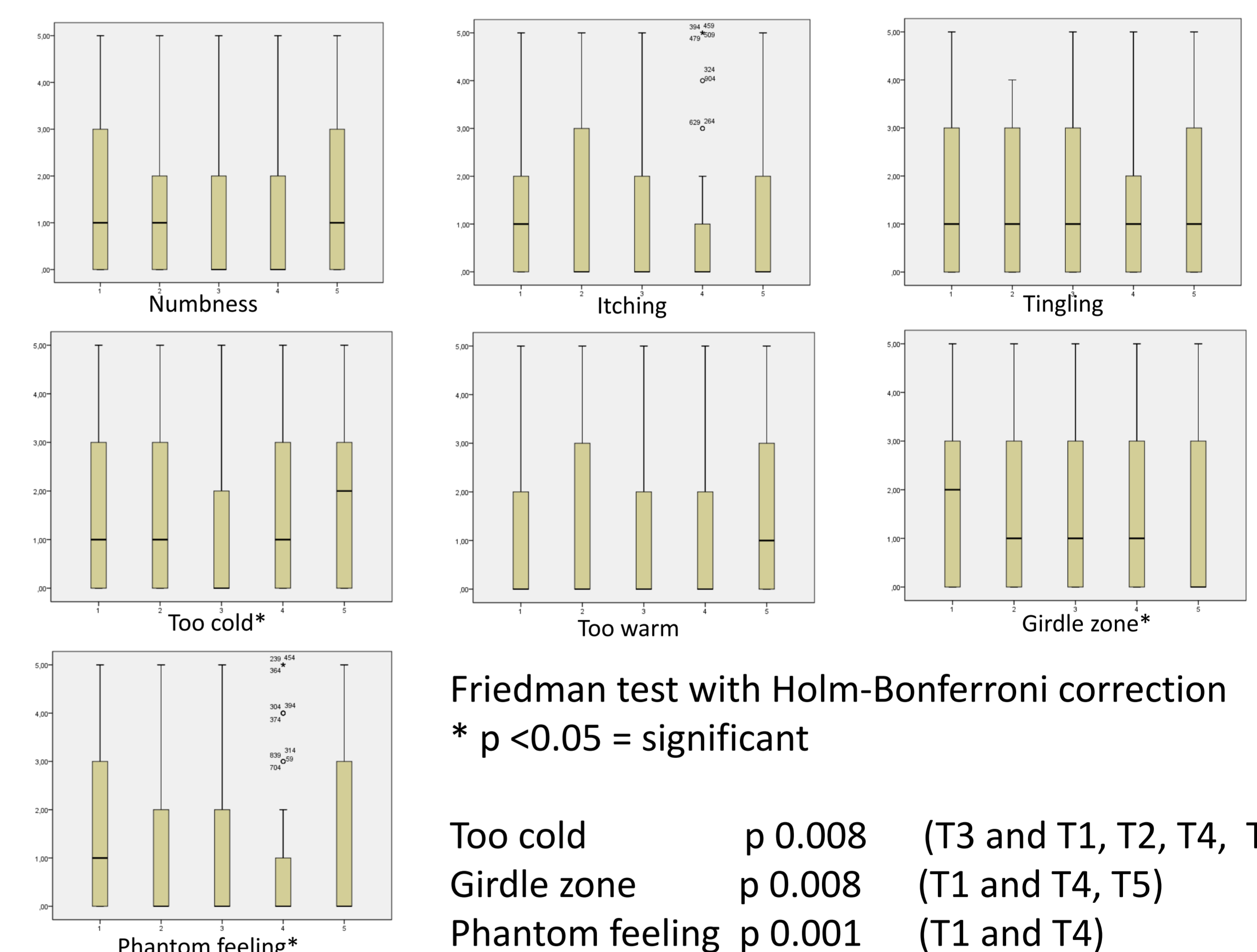
### Occurrence of symptoms (%)



General linear models  
\* p < 0.05, \*\* p < 0.01

Numbness\* T3 and T5  
Too cold\*\* T3 and rest  
Girdle zone\* T1 and T4, T5  
Phantom feeling\* T1 and T4

### Severity of symptoms



### References

1. Widerström-Noga et al. (2017). Neuropathic pain and spinal cord injury: phenotypes and pharmacological management. *Drugs*. 2017 77:967-984.
2. Soler et al. (2017). Sensory symptom profiles of patients with neuropathic pain after spinal cord injury. *Clin J Pain*. 2017; 33:827-834.
3. de Groot S, Dallmeijer AJ, Post MW, van Asbeck FW, Nene AV, Angenot EL, et al. (2006). Demographics of the Dutch multicenter prospective cohort study ‘Restoration of mobility in spinal cord injury rehabilitation’. *Spinal Cord* 2006; 44: 668–675.