

# Differences in pressure pain thresholds in computer workers with chronic trapezius myalgia, non-specific chronic neck pain and healthy workers

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Topic: Clinical Diagnosis for the Assessment of Pain

## INTRODUCTION

- The annual prevalence of chronic neck pain ranges between 20-40% in computer workers (CW).
- A leading cause of disability globally.
- CW with higher levels of pain have signs of widespread hypersensitivity and impaired descending pain modulation.

## OBJECTIVES

- This study aimed to assess the differences in pressure pain thresholds (PPT) in CW with chronic trapezius myalgia (CTM-CW), non-specific chronic neck pain (CNP-CW) and asymptomatic workers (CON-CW).

## MATERIALS & METHODS

### Eligible Criteria

- Adult office workers from 25-65 years of age.
- Working at least for more than one year in the same job position.
- 3/4 of the working hours on a computer.
- + 3 months with neck pain.

### Clinic Examination

- Diagnosis of CTM was set if:
  - Neck pain mainly in the area of upper trapezius (UT).
  - Tightness in UT (i.e., a feeling of stiffness in the descending region of the UT).
  - Palpable tender points.
  - Cervical spine with normal or only slightly decrease range of motion.

### Pressure Pain Threshold (PPT)

- PPT was defined as the minimum pressure first evoking a pain sensation.
- PPT was measured:
  - Upper trapezius (UT) muscles bilateral
  - Extensor carpi ulnaris muscle (ECU)
  - Tibialis anterior muscle (TA)
- Most painful side or dominant side.
- Each point were measured twice with a 10 seconds interval.

### Statistical Analysis

- A mixed-model analysis of variance (ANOVA) to test differences between groups.
- Bonferroni Post-hoc test.

## RESULTS

**Table 1 - Descriptive characteristics of participants**

Variable	CTM-CW (n=31)	CNP-CW (N=36)	CON-CW (n=42)	P value
Age	41.0 ± 6.91	45.22 ± 7.47	43.23 ± 8.61	.061
Sex, n f/m	29/2	32/4	29/13	.012*#
Weight (kg)	61.62 ± 10.51	66.99 ± 14.18	69.88 ± 14.79	.03*
Height (cm)	162.64 ± 7.2	165.25 ± 9.7	168.73 ± 9.0	.012*
N ° working hours per week	37.22 ± 4.9	37.83 ± 6.3	39.02 ± 5.5	.383
N ° working hours per day on pc	6.82 ± 1.3	6.38 ± .9	6.61 ± 1.2	.319
N ° working years on pc	17.67 ± 6.9	17.75 ± 8.9	18.76 ± 7.9	.804
Pain last 7 days (VAS)	3.32 ± 1.83	2.92 ± 1.70	-	.351
Pain (month)	63.54 ± 51.59	92.72 ± 67.34	-	.054

\* Between CTM-CW with CON-CW

# Between CNP-CW with CON-CW

### Pressure Pain Threshold

PPT results in UT most painful or dominant side (fig. 1), UT ipsilateral (fig. 2), ECU (fig. 3) and TA (fig. 4):

### Upper Trapezius (most painful side or dominant side):

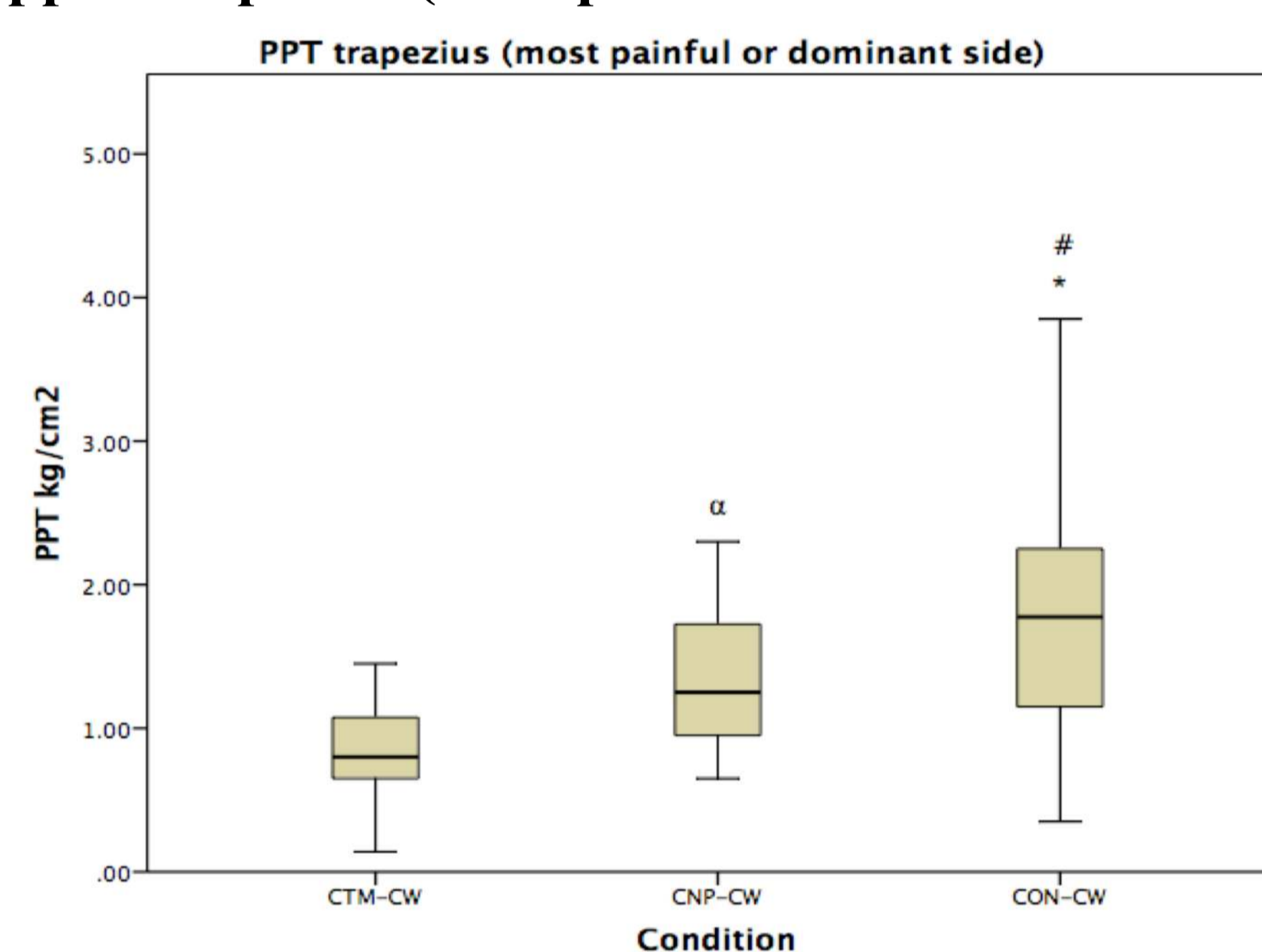


Fig 1 - CTM-CW demonstrated significantly lower PPTs compared with CNP-CW ( $p=.009$ )<sup>α</sup> and CON-CW ( $p=.000$ )\*; CNP-CW compared with CON-CW ( $p=.016$ )<sup>#</sup>.

### Upper Trapezius – Ipsilateral Point

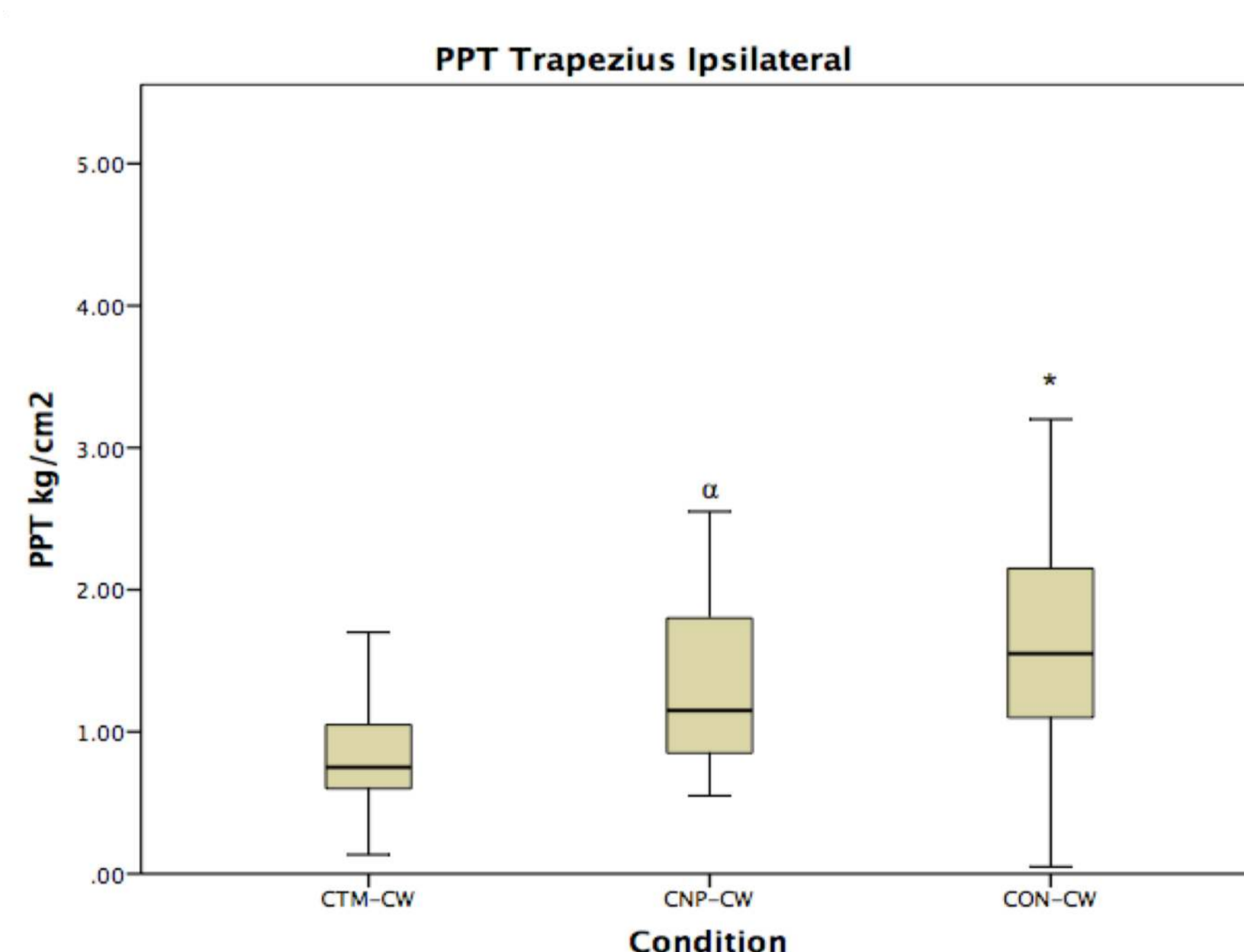


Fig. 2 - CTM-CW demonstrated significantly lower PPTs compared with CNP-CW ( $p=.006$ )<sup>α</sup> and CON-CW ( $p=.000$ )\*.

## RESULTS

### Extensor Carpi Ulnaris

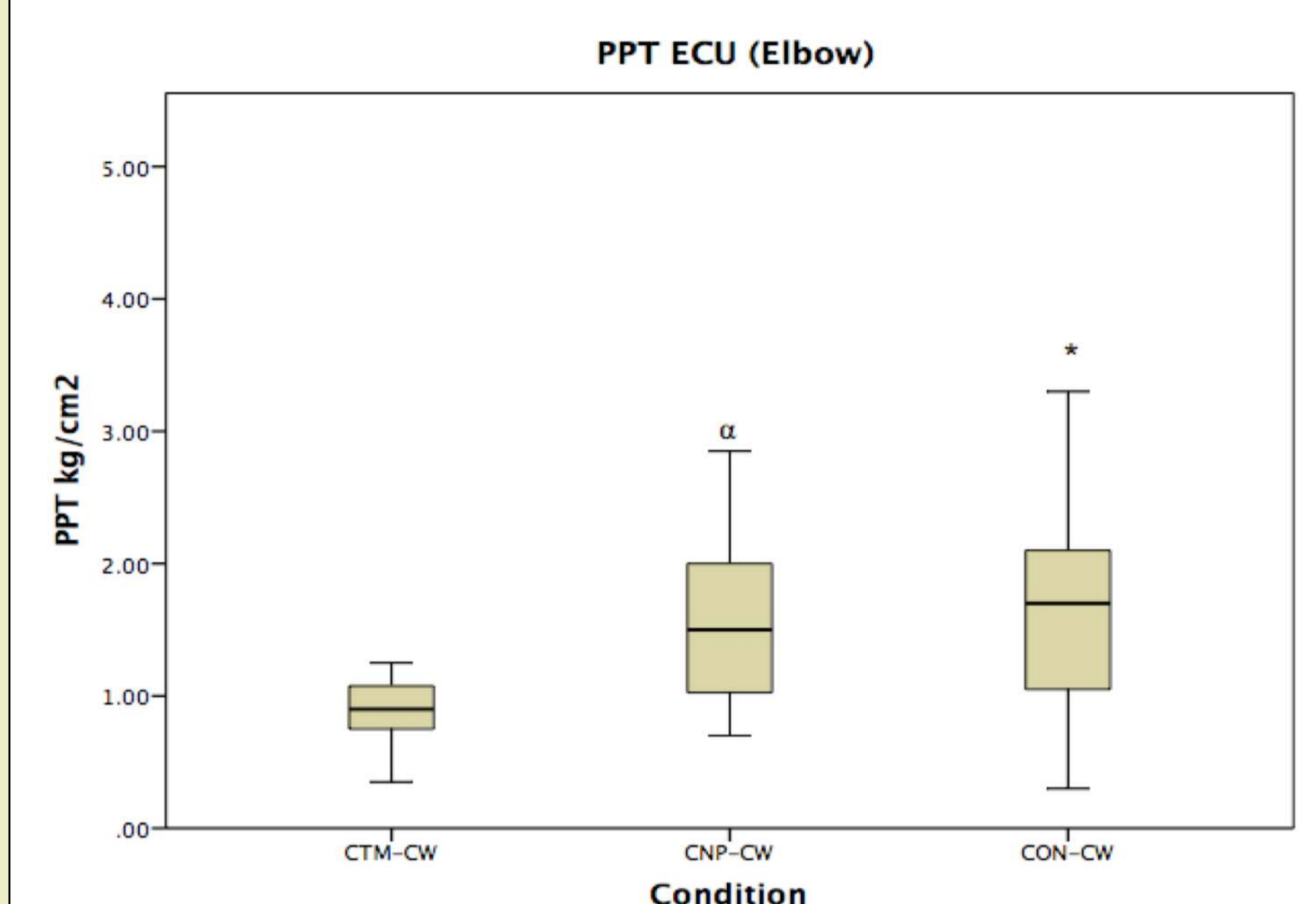


Fig. 3 - CTM-CW demonstrated significantly lower PPTs compared with CNP-CW ( $p=.007$ )<sup>α</sup> and CON-CW ( $p=.000$ )\*.

### Tibialis Anterior

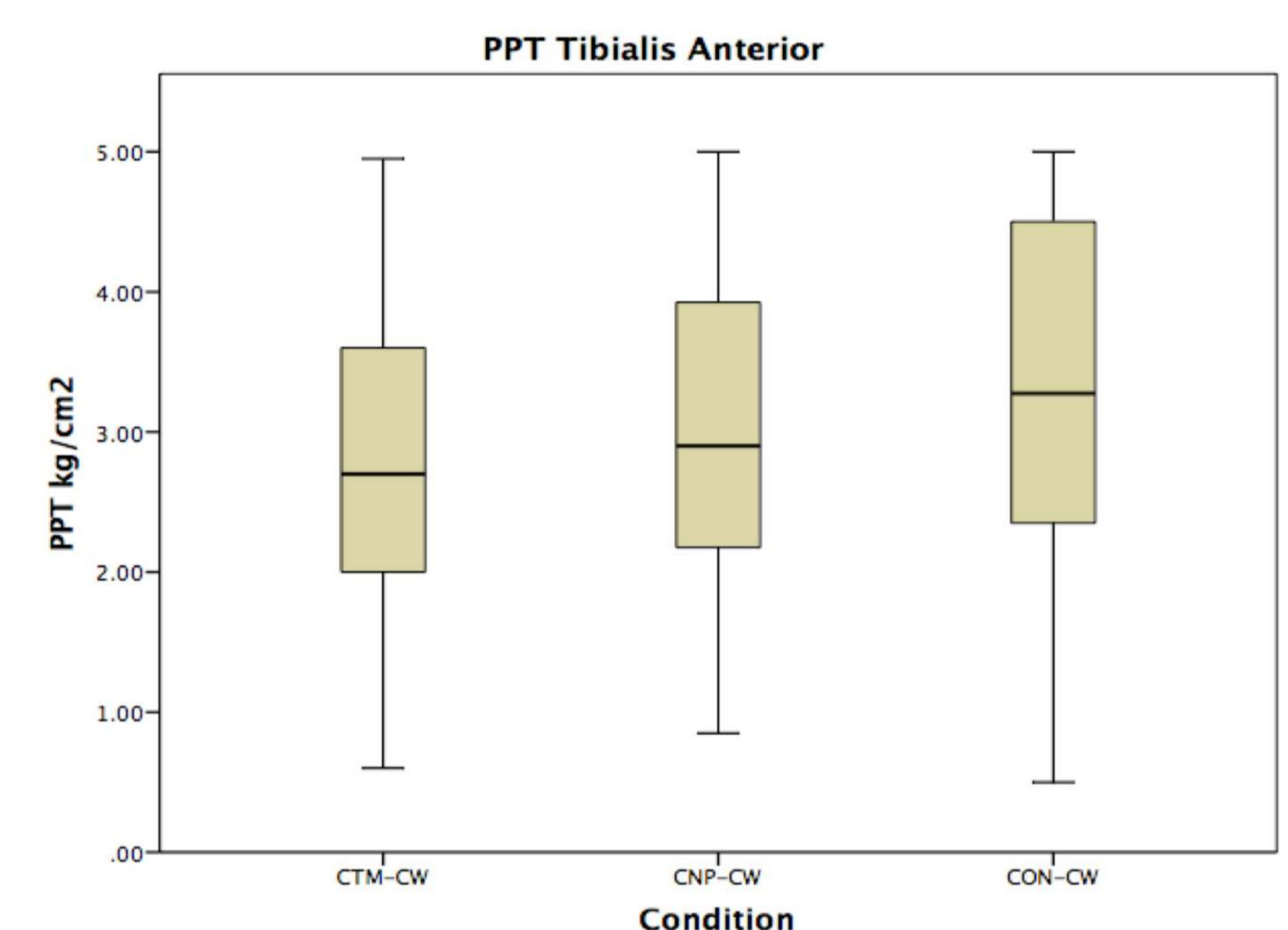


Fig. 4 - No difference between groups.

## CONCLUSION

- This preliminary analysis suggests pressure hyperalgesia in upper trapezius in computer workers in the most painful/dominant side with chronic pain.
- Computer workers with chronic trapezius myalgia demonstrated extrasegmental hyperalgesia compared with asymptomatic controls.

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