

# The Effect of Mental Defeat on Pain Threshold, Pain Anticipation and Pain Rating: An Experimental Study with Pain-Free, Young Adults



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## Background

Mental defeat is defined as the perceived loss of autonomy in the face of uncontrollable, traumatic events (1). Applied to the context of chronic pain this can be explained as a loss of identity and self in relation to repeated episodes of pain.

Mental defeat captures the deeper psychological response to chronic pain that is absent in both current cognitive- and cognitive behavioural process explanations, including pain catastrophising. Previous research has also established that mental defeat is a construct distinct from helplessness, hopelessness and self efficacy (2). It may be an important construct in explaining response variation to chronic pain (3).

## Research Aims

- To explore the effect of activated mental defeat on pain rating, pain threshold and pain anticipation in pain-free, young adults.
- To explore and differentiate the effects of mental defeat and pain catastrophising on pain anticipation.

Previous research has demonstrated strong associative and predictive findings between mental defeat and relevant constructs captured in the immediate pain experience and chronic pain (4). Current research investigates the potential of a causal relationship between these. This study also serves as a pilot for the paradigm to be further refined and used in a chronic pain population to investigate the effects of activated mental defeat on pain threshold (PTh). Furthermore, this paradigm also has scope to incorporate conditioned pain modulation (CPM) measures.

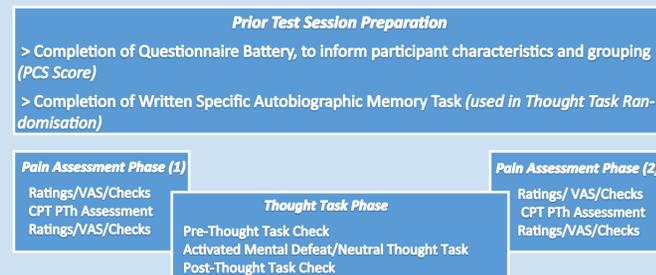
## Experimental Design and Stimuli

- N=59:** Allocated to high- or low-pain catastrophising groups (PCS healthy cut-off score= 18.3).
- Randomised:** activated mental defeat or neutral thought tasks. Induced via specific, personal autobiographic memory recall task.
- Identical pain assessments:** taken pre- and post-thought task to index change.
  - VAS measurements (**pain rating ,pain anticipation**) taken alongside with other appropriate attention and mood ratings as well as thought task checks.
  - CPT utilised to measure cold PTh, pre- and post thought task.

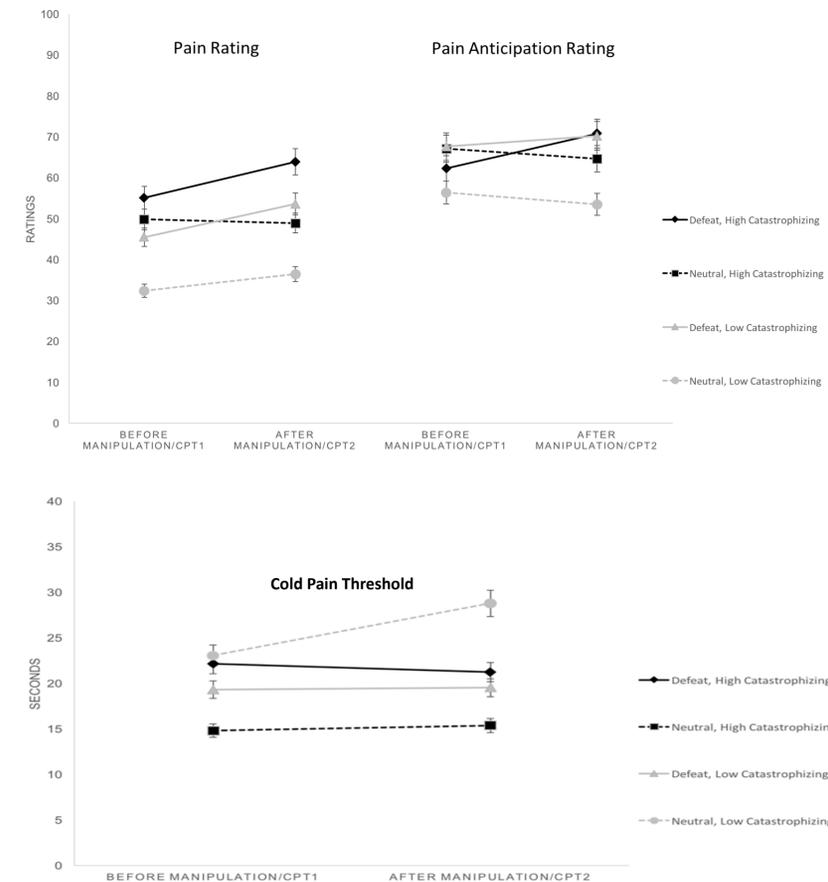


Fig 1. Cold Pressor Task (CPT), an established measure of temperature PTh. Temperature set at 4°C.

## Study Procedure



## Results



A significant main effect for time, and trend towards significant interaction between time and defeat in pain rating was found. Such that the increase in overall pain rating in the defeat condition was greater than that in the neutral condition, irrespective of pain catastrophising grouping. There was a marginally significant interaction between time and defeat for pain anticipation, but no significant effect found for time, pain catastrophising or thought task. No significant main effect or interaction was found for time, pain catastrophising or thought task on pain threshold.

## Discussion and Conclusions

Findings indicate that activated mental defeat may have a marked impact on pain rating and pain anticipation as there are trends towards significance in both with regards to successful activation of mental defeat. However, findings also suggest that further paradigm refinement is needed. Additionally, employing a non-clinical population may account for lack of significance, given that mental defeat has shown utility in chronic pain populations. However, as a novel, exploratory study it shows promise for future studies of this nature. Thus, future studies should look to verify these current findings and expand the scope with relevant chronic pain groups. An emphasis on employing other measures for pain threshold and CPM within chronic pain groups may also demonstrate casual association.

### Key Citations:

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