**INTRODUCTION**

Consistent with motivational priming theory (MPT), research from our laboratory has shown that affective valence modulates subjective pain and spinal nociception. Specifically, negatively valenced affect reduces pain and nociception, whereas positively valenced affect enhances pain and nociception. These findings support the premise that affect contributes to the modulation of spinal nociception, which is consistent with motivational priming theory (MPT).

**OBJECTIVES**

- To determine the independent effects of effective valence and arousal on subjective pain and spinal nociception (nociceptive flexion reflex).
- To replicate previous findings suggesting MPT extends to modulation of pain and spinal nociception.

**PARTICIPANTS**

- 16 healthy students
  - Characteristics: Female (50%), White non-Hispanic (79%), single (93%), employed (50%) with an average age of 23 yrs
  - Exclusion Criteria:
    - <18 years of age
    - Specific phobia of snakes or spiders
    - Recent use of analgesic, antidepressant, anxiolytic, or antihypertensive medication
    - History of medication problems associated by stress
    - 3 persons excluded for equipment problems (1 no shock, 2 recording errors)

**RESULTS: Manipulation Checks**

- Pictures independently manipulated valence
- Pain ratings made following pain ratings

**PHASE 2: Picture-Viewing**

- The International Affective Picture System (IAPS; Center for the Study of Emotion and Attention, 1999)

**EMOTION-INDUCTION: Manipulation Checks**

- Self-Assessment Manikin (Lang, 1980)
  - Valence (Pleasure) Ratings: 1 (unhappy) to 9 (happy)
  - Arousal (Activity) Ratings: 1 (calm) to 9 (excited)

**EMOTION-INDUCTION: Manipulation Checks**

- NFR magnitude: mean of 90-150 ms post-stimulus interval minus mean of 90 ms pre-stimulus interval
- Pain and NFR reactions statistically compared in individuals (z score) & averaged by picture content

**CONCLUSIONS**

- Pictures effectively manipulated affective valence and arousal
- Affective valence and arousal independently contributed to the modulation of nociceptive reactions
- Generally, pleasant pictures led to inhibition of pain and NFR, whereas unpleasant pictures led to enhancement of pain and NFR
- The most arousing pictures led to the greatest modulation
- Emotion has a powerful coordinating effect on nociceptive reactions – explaining 72% of their combined variance

**RESULTS: Pain Independently Manipulated Valence**

- Attack Loss Neutral Food Erotic

**RESULTS: Pain IndependentlyManipulated Arousal**

- Attack Loss Neutral Food Erotic

**RESULTS: Pain Independently Manipulated Arousal**

- Attack Loss Neutral Food Erotic

**RESULTS: Pain Independently Manipulated Arousal**

- Attack Loss Neutral Food Erotic

**DATA REDUCTION**

- NFR magnitude = mean of 90-150 ms post-stimulus interval minus mean of 90 ms pre-stimulus interval
- Pain and NFR reactions statistically compared in individuals (z score) & averaged by picture content

**ANALYSES**

- Valence and Arousal Analyses: Individual 1-way (Picture Content) ANOVAs
- Pain and NFR Analyses: simultaneously analyzed using 2 (Reaction Type) x 5 (Picture Content) ANOVAs
- Wilk’s Lambda interpreted to overcome sphericity
- A priori comparisons made using Fisher’s LSD tests
- Partial eta squared ($\eta^2$) reported as effect size

**PREFERENCES**

- Pictures independently manipulated valence
- Pain ratings made following pain ratings

**PHASE 1: NFR Threshold Assessment**

- NFR magnitude = mean of 90-150 ms post-stimulus interval minus mean of 90 ms pre-stimulus interval
- Pain and NFR reactions statistically compared in individuals (z score) & averaged by picture content

**RESULTS: Manipulation Checks**

- Pictures independently manipulated valence
- Pain ratings made following pain ratings

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