Is resting blood pressure associated with endogenous pain modulation?

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Introduction
Cardiovascular outcomes have been associated with pain responses. For example, increased BP in response to painful stimuli has been shown to correlate with the degree of conditioned pain modulation (CPM). Furthermore, there is evidence to suggest that blood pressure (BP) responses to painful stimuli are associated with resting BP. To the best of our knowledge, no study has investigated the possible relationship between resting BP and the effectiveness of endogenous pain modulation tasks and resting BP. The current study attempts to elucidate this relationship.

Objectives
To determine whether resting blood pressure is related with endogenous pain modulation.

Participants
- Healthy Participants: N = 62
  - Male: 53.2%, White, non-Hispanic (48.4%), single (67.7%), average age = 31.11 years (SD = 13.1), completed partial college (50%).
- Exclusion Criteria:
  - <18 years of age
  - Cardiovascular, neurological, circulatory and/or chronic pain problems
  - Recent use of analgesic medication
  - Current use of anxiolytic, antidepressant, and/or antihypertensive medication

Funding Source
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Methods: Resting Blood Pressure
- Systolic and diastolic blood pressure was assessed using a DINAMAP ProCare monitor attached to the ankle.
- Blood pressure was recorded three times while participants were at rest.
- The average systolic and diastolic blood pressure used in the analysis.

Methods: Conditioned Pain Modulation (CPM)
- 3 phases of Conditioned Pain Modulation (CPM):
  - Pre — participants rated 5 electrocutaneous stimulations
  - Post — participants rated 5 electrocutaneous stimulations

Methods: Pain Ratings
- Three pain ratings were replaced with their nearest whole number.
- Two mixed repeated measures ANOVAs were used.
- Median splits were used to create:
  - 2 systolic groups (M_systolic = 105.90, SD = 5.14 vs. M_systolic = 126.64, SD = 11.05)
  - 2 diastolic groups (M_diastolic = 64.64, SD = 4.46 vs. M_diastolic = 78.61, SD = 6.21)

Data Analysis
- Three pain ratings were replaced with their nearest
- Two mixed repeated measures ANOVAs were used.
- Median splits were used to create:
  - 2 systolic groups (M_systolic = 105.90, SD = 5.14 vs. M_systolic = 126.64, SD = 11.05)
  - 2 diastolic groups (M_diastolic = 64.64, SD = 4.46 vs. M_diastolic = 78.61, SD = 6.21)

Results
- Simple effects revealed that phases in CPM were significantly different regardless of blood pressure group (ps < .05)

Conclusion
- These results suggest that resting BP is associated with the effectiveness of CPM.
- Further research is needed to determine if the relationship between resting BP and CPM is significant.

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