

POSTURES AND PAIN TOLERANCE

A Project on Experimental Social Psychology

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Introduction

Recent research(Carney, Cuddy, & Yap, 2010) has shown that adopting a **powerful pose changes people's hormonal levels** and increases their propensity to take risks in the same ways that possessing actual power does.

Pain appears to be as psychological as it is physiological and both individual differences and contextual factors affect how individuals experience pain.

Pain researchers have examined the role of self-efficacy beliefs and perceptions of control as determinants of pain tolerance.

Testosterone has been associated with expectations of success and overconfidence, as well as **higher pain tolerance**

Elevated cortisol, which is associated with low power, is a **response to pain**

Attributes related to physical toughness, such as physical strength and resistance to pain, have traditionally been seen as causes, not effects, of dominance displays.

Hypothesis

Adopting expansive postures led to the hormonal changes (i.e., increased testosterone, decreased cortisol) and increased propensity for risk-taking associated with power, while adopting constrictive positions had the opposite effect.

HYPOTHESIS 1

Posing individuals in postures associated with dominance (submissiveness) would increase (decrease) their pain thresholds.

HYPOTHESIS 2

Individuals would spontaneously adopt such postures to complement an interaction partner's behavior and would consequently experience the same physiological effects as in Hypothesis 1.

Research has shown that when one interaction partner displays a “power pose” (an expansive, open posture), the other interaction partner is likely to display a submissive pose in response (a constricted, closed posture).

Measuring Pain Thresholds

To measure pain threshold, we used the tourniquet technique, participants donned a blood pressure cuff. The experimenter then inflated the cuff at a fixed rate, which induced pain by reducing blood flow to the participant's arm.

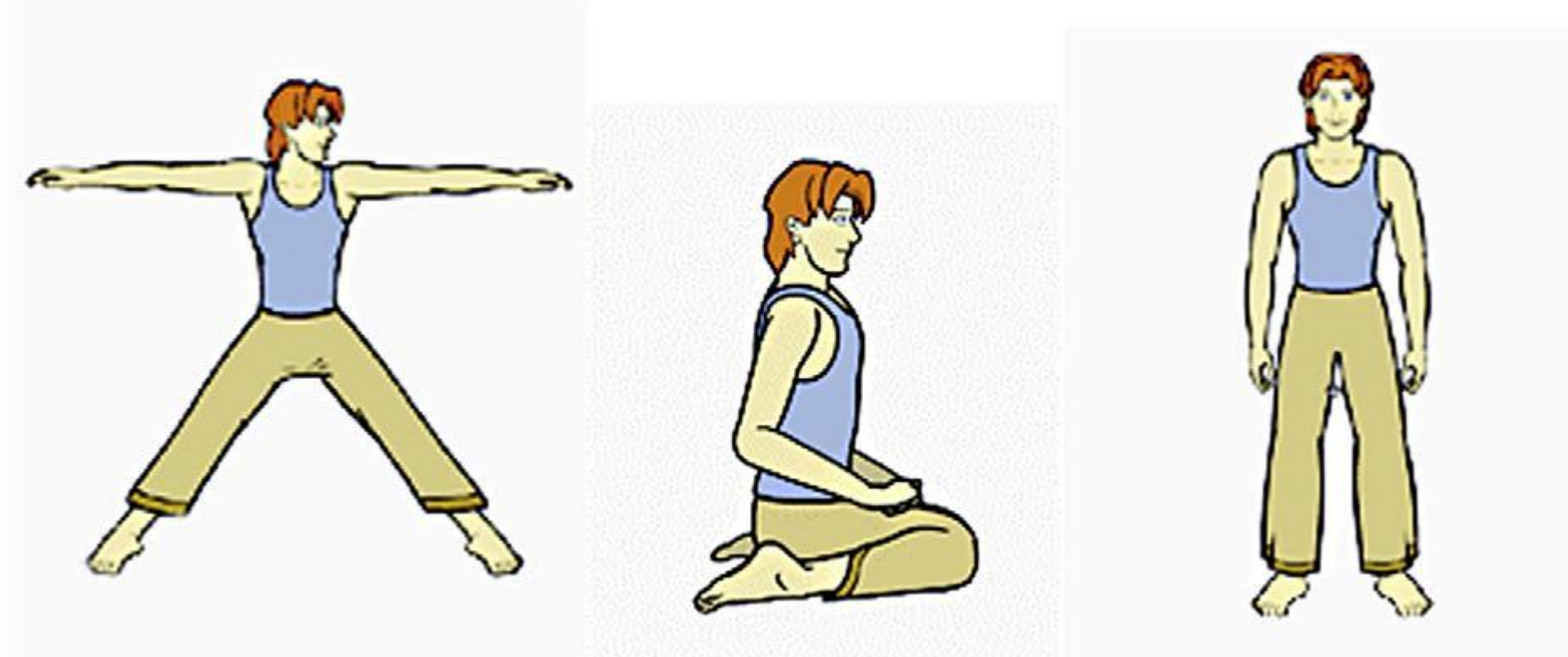
We used blood pressure cuff to get pain threshold in mmHg!



Participants were instructed to say “stop” when they experienced discomfort from the pressure.

Experiment 1

35 participants were told they were participating in a study about the health benefits of exercise at work and that they would be adopting a series of yoga poses. Participants were randomly assigned to one of two postural conditions: **an expansive posture** associated with dominance, a **constricted posture** associated with submissiveness, or control. The different postures are shown in the figure below.



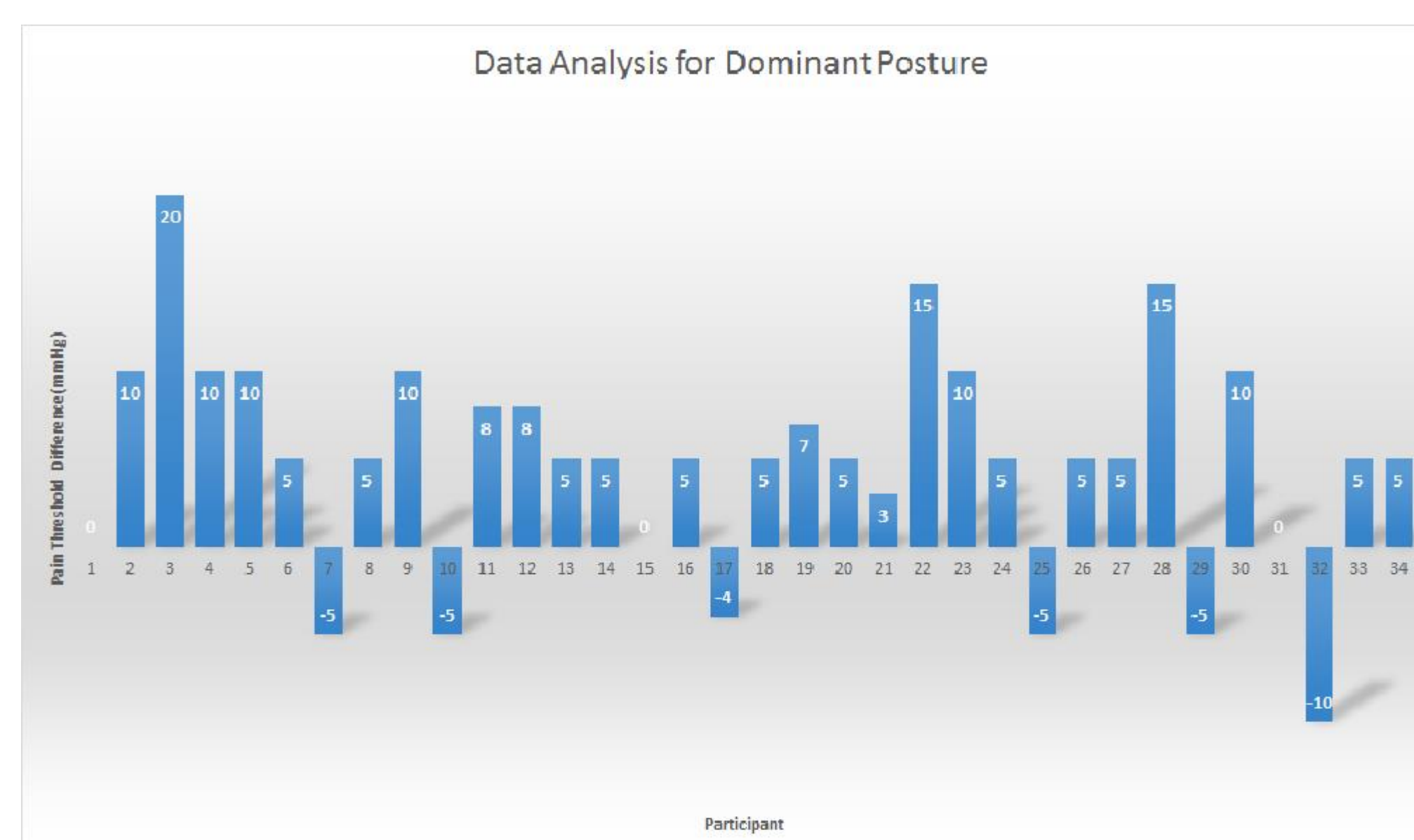
Dominant

Submissive

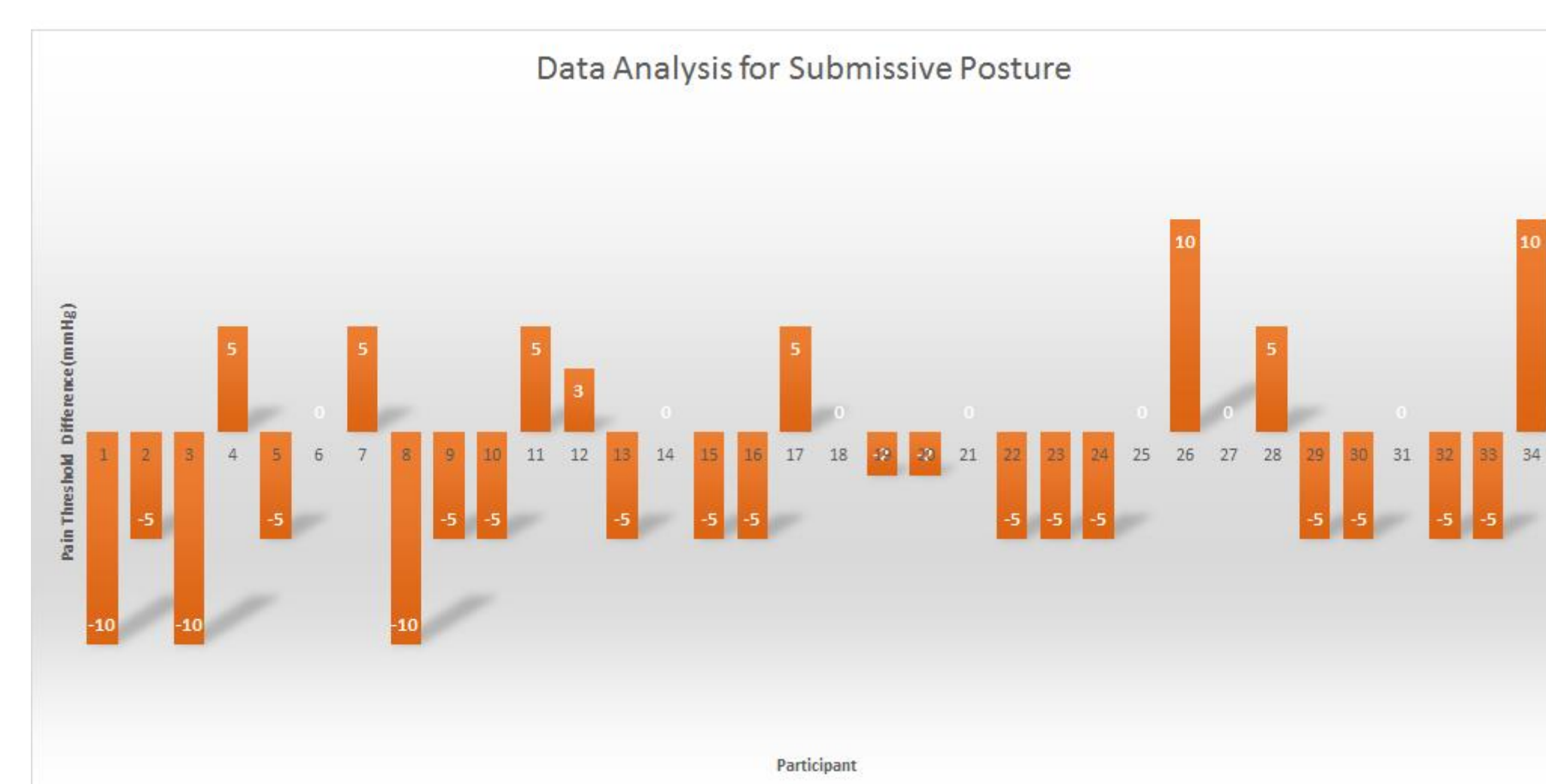
Neutral

Participants were then tasked to hold their assigned yoga pose for twenty seconds. Finally, they repeated the pain threshold test.

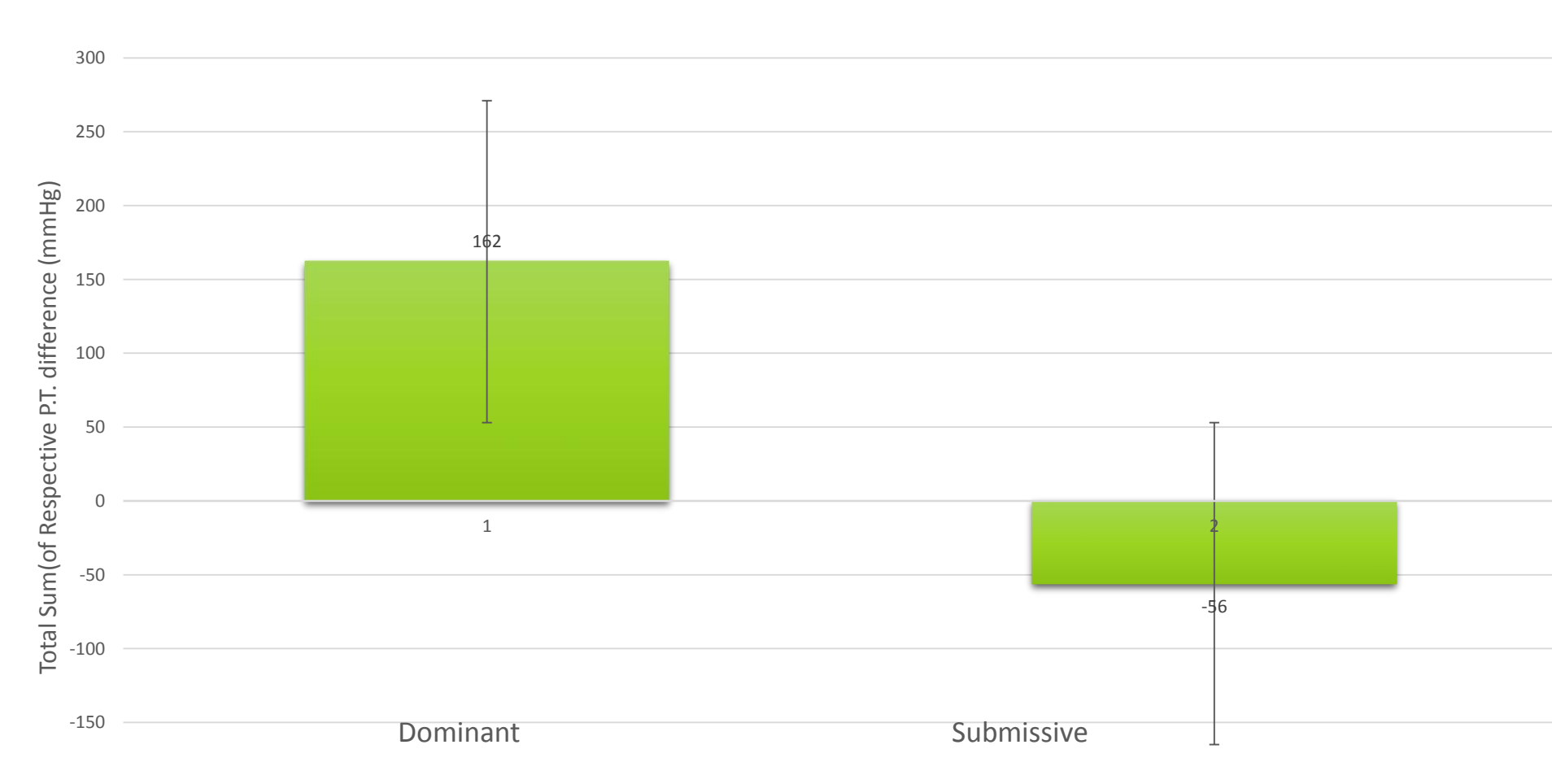
Results



The Standard Deviation comes out to be 6.47



The Standard Deviation comes out to be 5.22.

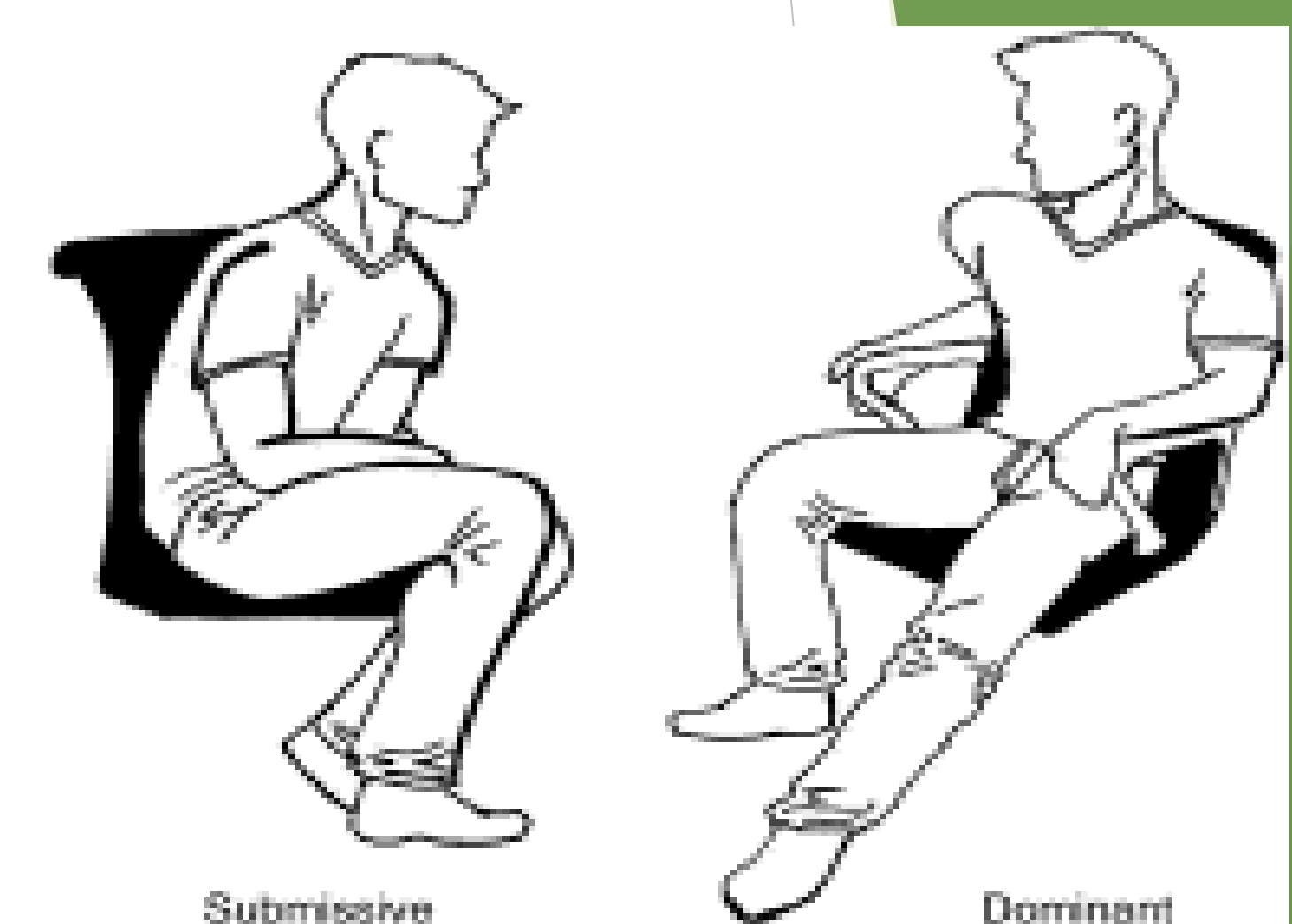


Experiment 2

12 participants were told they were participating in a study on relaxation that would require them to look at a series of nature photographs. We again measured pain threshold by means of the tourniquet technique.

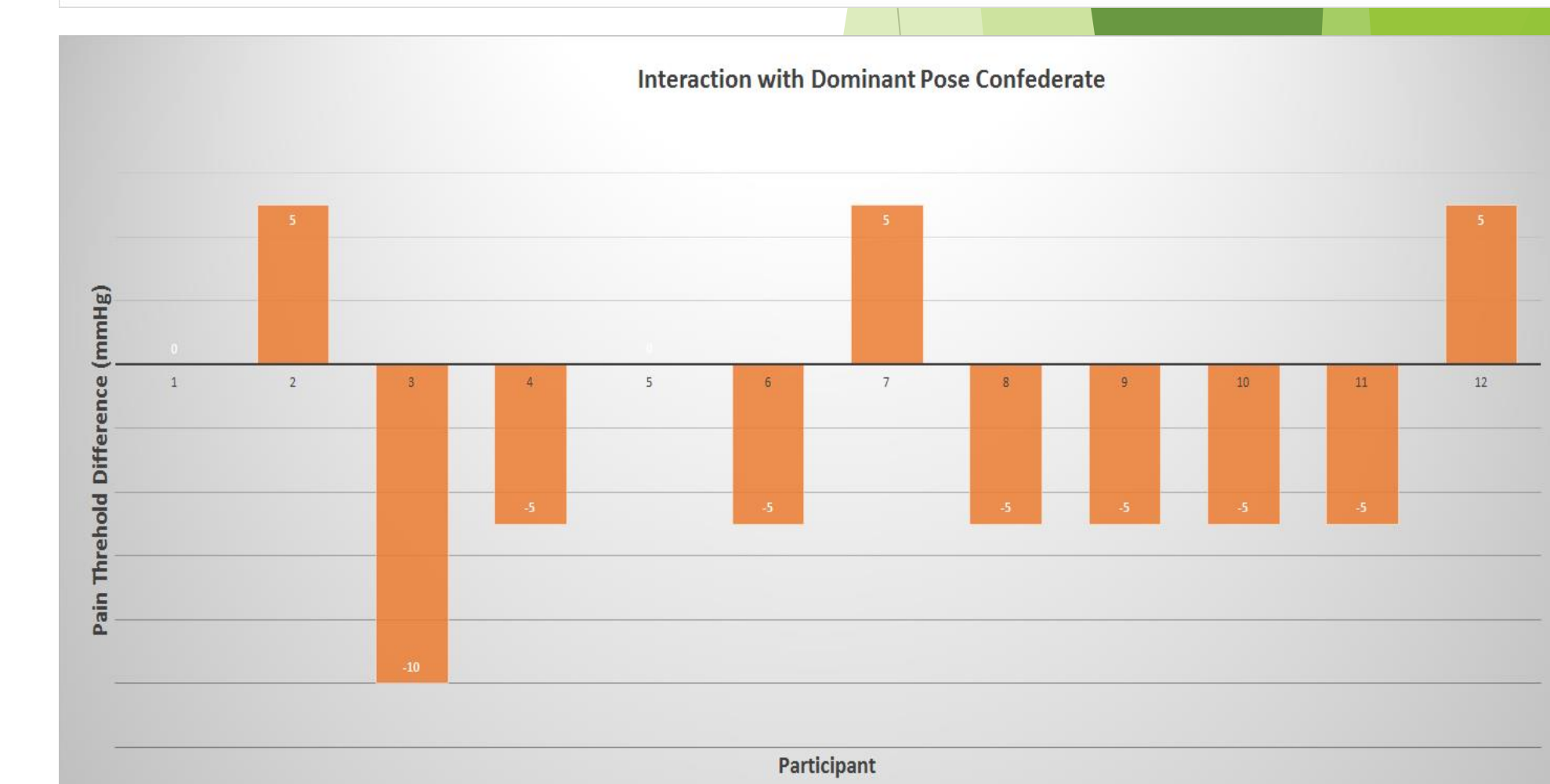
Participants then engaged in a discussion task(on a particular topic) with a confederate.

In half of the sessions, confederates displayed dominance for the duration of the interaction by enacting behaviors that showed to be associated with dominance. In the remaining sessions, confederates displayed submissiveness.



Results

Participants' pain thresholds were lower after interacting with a dominant confederate than they were after interacting with a submissive confederate.



Conclusion

In two experiments, we found that power posing was associated with higher pain thresholds when individuals (1) were instructed to adopt power poses, or (2) adopted power poses spontaneously in response to an interaction partner's behavior. Experiment 1 suggests that power posing may be a useful tool for pain management. Even individuals who do not perceive themselves as having control over their circumstances may benefit from behaving as if they do by adopting power poses. Experiment 2 suggests that subtle interpersonal interactions with caregivers and doctors may also influence an individual's pain tolerance through the process of dominance complementarity.

References

1. It hurts when I do this (or you do that):
Vanessa K. Bohns , Scott S. Wiltermuth .
4. Carney, D., Cuddy, A. J. C., & Yap, A. (2010).
Psychological Science, 21, 1363–1368.