Wearing Video Goggles Inhibits Spinal Nociception
Edward W. Lannon, BA, & Jamie L. Rhudy, PhD
Department of Psychology, The University of Tulsa, 800 South Tucker Drive, Tulsa, OK 74104

Introduction
Viewing a stimulated body part has been shown to result in inhibition of pain and supraspinal nociception. However, it is unknown whether this involves descending inhibition of spinal nociception. The present study attempts to examine this issue by measuring the nociceptive flexion reflex (NFR), a spinally mediated reflex in the leg that is evoked by painful stimulation. Because the NFR is highly correlated with painful stimulus intensity and subjective pain report it is often used as an indirect measure of spinal nociception that can be influenced by descending modulatory pathways. The current study used a within-subjects design to manipulate the participant’s visual input while pain report (intensity/unpleasantness) and the NFR were measured in response to painful electric stimulations to the sural nerve.

Participants

- Participant Characteristics (N = 21): 9 Male (42.9%), 15 White, non-Hispanic (71.4%), 19 single (90.5%), 14 completed partial college (14%) average age = 21 years (SD = 4.47).
- Exclusion Criteria: < 18 years old, medical conditions that could interfere with testing (e.g., chronic pain, neurological, cardiovascular, and/or circulatory problems), use of medications that could interfere with testing (e.g., analgesics, antidepressants, anxiolytics, anti-hypertensives) and body mass index > 35.

Objectives
To determine whether the effects of viewing a stimulated body part inhibits pain perception by activating the descending pathway.

Procedures
Participants signed informed consent
Completed the NFR threshold procedure:
Stimulating electrode is placed on the sural nerve of the left ankle. Painful electrocutaneous stimulations delivered until Biceps Femoris EMG meets NFR threshold criteria.
Participants receive 5 stimulations in three conditions in which the point-of-view was manipulated:
Facing Forward - No Goggles - Participants concentrate on viewing the rating screen
Facing Forward - Goggles - Participants concentrate on viewing the rating screen through the video goggles
Leg - Goggles - Participants view their left leg through the video goggles

Nociceptive Flexion Reflex
- Nociceptive Flexion Reflex (NFR) Threshold: biceps femoris EMG activity in the 90-150 ms post-stimulus window
- NFR is a spinally-mediated protective withdrawal reflex elicited by Aδ fiber activation
- NFR magnitude = mean of biceps femoris EMG in 90-150 ms post-stimulus interval minus mean of 60 ms pre-stimulus interval

Data Analysis
Three two-level hierarchical models assessed the effects of visual input on pain ratings and NFR magnitude. The following two comparisons were made as follow up tests: (1) Effect of viewing leg: Facing Forward - No Goggles - Facing Forward - Goggles, and (2) Effect of wearing goggles: Facing Forward - No Goggles vs. Facing Forward - Goggles and Leg - Goggles.

Pain Intensity
Viewing the leg had no effect, but wearing goggles had a marginally significant effect at reducing pain intensity.

NFR Magnitude
Viewing the leg did not modulate NFR, but wearing goggles inhibited NFR.

Pain Unpleasantness
Neither viewing the leg, nor wearing goggles had an effect on pain unpleasantness.

Conclusion
In summary, the present study adds to the literature by suggesting that wearing video goggles can activate the descending pathway. However, the preliminary findings suggest that this change in nociceptive processing does not appear to modulate pain perception.

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