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# The Efficacy of Hypnosis on Pain Reduction

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The Efficacy of Hypnosis  
on Pain Reduction  
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RUNNING HEAD: Hypnosis on Pain



Signature Page

This thesis for honors recognition has been approved  
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## Abstract

In research and applied settings, the use of hypnosis to reduce the intensity of pain has been well-documented. This experiment was performed to determine the effect of hypnotic induction on the perception of pain and to establish whether or not the researcher could learn to effectively hypnotize subjects. Nineteen college students volunteered to be hypnotized or to participate as a control subject. In the experimental situation, subjects were exposed to hypnotic techniques and then pricked with an acupuncture needle. The control subjects were exposed to a reading on hypnosis and then pricked with an acupuncture needle. All subjects indicated their perception of pain on a pain perception rating scale. Data were classified into pain, no pain categories. Chi-square analysis ( $df=3$ ,  $\chi^2=9.6$ ) indicated that hypnotized subjects experienced pain less frequently ( $p<.05$ ) than non-hypnotized subjects.

Many studies have been conducted on the treatment effects of hypnosis on pain (Cheek, 1994; Spiegel & Spiegel, 1985; Kihlstrom & McConkey, 1990). As J.F. Kihlstrom states, "Hypnosis is a social interaction in which one person, the subject, responds to suggestions offered by another person, the hypnotist, for experiences involving alterations in perception, memory, and action" (Kihlstrom, p. 1449, 1987). Hypnosis has a variety of uses, the treatment of pain being only one. Because of the increased use of hypnosis, its efficacy on pain is explored throughout this paper.

When hypnotized, subjects register the sensory component of pain and follow it with a physiological response, e.g. numbing a specific area of pain. However, these sensations are not consciously experienced as pain. E.R. Hilgard (1969), who has published extensively on hypnosis and pain, believes failure to perceive pain occurs because of an inhibition of the cognitive interpretation of the sensation of pain. Furthermore, the trance state then inhibits reality-oriented thinking, through which sensory data are interpreted in the waking state. Thus, distortions in perception occur, leading one to believe pain cannot be felt (Brown & Fromm, 1986).

Controlling pain is one of the oldest documented uses of hypnosis. As early as 1846, a Scottish surgeon, Esdaile, used hypnosis as a surgical anesthetic with 80% of his patients (Spiegel & Spiegel, 1985). In 1877, Dolboeuf began studying thermal second-degree burns. He found that because of hypnotic suggestion in patients, the burned area was painless and healed without forming blisters. In addition, surgeon Dabney Ewin has demonstrated that

blocking the unconscious pain that stems from a burn will prevent a third-degree burn. Other examples include the use of hypnosis to relieve pain from ankle sprains. Cheek (1994) demonstrates that if unconscious pain is removed from a sprained ankle, it will heal faster. Pain includes three factors: the cognitive interpretation of pain, the emotional reaction to pain, and the sensory component (Keefe and Williams, 1992). In addition, according to LCSW, Craig Simmons, "Research and clinical practice shows that 65% of all physical pain is due to muscle tension."

An individual's hypnotizability has been demonstrated to be a significant predictor of response to treatments when using hypnosis to control pain. According to Simmons, approximately 90% of the population can be hypnotized. Those who do not enter a trance state often believe they cannot be hypnotized. This is an inhibiting factor which prevents them from entering a trance. If an individual does not want to be hypnotized, he/she will not be. Other characteristics of hypnotizability include one's ability to relax and willingness to lose control. People who have been hypnotized before also find it easier to fall into a hypnotic trance. Even though individuals may go into trance, pain may not cease because it takes practice to carry out posthypnotic suggestions. Tests are available to measure an individual's hypnotizability. In essence, hypnotizability depends on the individual.

Presently hypnosis is used for the alleviation of pain in dentistry and surgical procedures; for headaches, back pain, and cancer; and for other forms of acute or chronic pain. Because all pain experiences involve both physical and psychological components,

treatment is relatively simple (Spiegel & Spiegel, 1985). While in a trance, patients may be told to numb a particular area, as in the treatment of blisters (Cheek, 1994), to apply heat or cold to help provide relief, or to focus on a competing physical sensation, which makes the patients less aware of the pain they are experiencing (Spiegel & Spiegel, 1985). Essentially, patients are given instructions which enable them to "filter the hurt out of the pain" (Spiegel & Spiegel, p. 1450, 1985). Thus, treatment of pain through hypnosis provides an effective, brief intervention and a long term treatment plan which has been demonstrated to be effective.

One's ability to control pain is related to his/her hypnotizability. Those patients who are highly hypnotizable are able to change dramatically the perception of pain they are experiencing. On the other hand, subjects whose hypnotizability is lower may be able to exert some control over their pain, though it is usually less dramatic than that of those who are highly suggestible (Spiegel & Spiegel, 1985). The hypothesis examined in this study states that there is a difference in the perception of pain as a function of hypnotic induction. The specific objectives of this project were to 1) determine if hypnotic subjects perceive less pain than similarly treated control subjects and 2) to determine if I was effective in inducing hypnotic trance in subjects.

## Method

### Subjects

The subjects consisted of 19 undergraduate students enrolled in the fall semester of General Psychology. Subjects included 12 females and 7 males, ranging in age from 17-28. One subject did not complete the experiment because of her phobia of needles, and this datum was deleted from the study.

### Apparatus

Nineteen sterile acupuncture needles were used to prick the hands of the subjects. Padded conference chairs added comfort for the subjects as they sat during the experiment. My colleagues, other students at Carroll College, and my therapist, Craig Simmons, assisted in pricking the subjects' hands.

### Design

An easily controlled comparison design was used in this experiment. There were 2 groups, a treatment group, hypnotized;  $n=8$ , and a control group, not hypnotized;  $n=10$ . Subjects were allowed to choose a time slot to be tested as a volunteer to be hypnotized, or as a participant in the control group. Data were analyzed using the Chi-Square statistic, which compares actual group frequency with expected frequency.

### Procedure

Volunteers from the general psychology course were asked to participate in an experiment. Subjects were told they would be pricked with an acupuncture needle on the hand, causing no physical damage. Subjects met in the conference room at the Psychology house, one group every half hour.

The two groups that underwent hypnosis were told to sit down, relax, and close their eyes. The procedure of inducing hypnosis followed.

I first learned how to hypnotize during the summer of 1994 by working with Craig Simmons, a local hypnotherapist. I have been in training since April, and I have been hypnotized myself, numerous times, to better understand hypnosis. I was shown the importance of a relaxed state and how to get individuals to that point so their mind would be ready to slip into trance. I practiced my hypnotic techniques with colleagues and performed simple experiments with them such as the hand levitation experiment in which individuals are told their arm is being pulled upward. I have also been pricked with an acupuncture needle to determine if I would feel any pain.

With the aid of four assistants, subjects were approached and touched from the wrist to the end of their fingertips and told this area would feel as though there was a glove covering it. The concept of the feeling of protection over this area was continually reinforced. Subjects were then told they would be touched with a needle. The subjects were pricked simultaneously in the area between their thumb and index finger. Subjects were then touched once again from the wrist to their fingertips and told their glove would be gone. They

were then brought out of hypnosis by my counting to five and telling them they would slowly awake and open their eyes. They were then given a pain scale in which they were instructed to rate how much pain they felt (see Appendix 1). The scale ranged from no pain to extreme, intense pain. Subjects returned their pain scales and were dismissed.

The two groups that did not undergo hypnosis were also told to sit down, relax, and close their eyes. However, they were read an eight-page paper on "Hypnosis and Its Relevance to Psychotherapy." They were given the same instructions as the group under hypnosis to control for variability in preparation and procedure for being pricked with the needle. Once they were pricked with the needle, they were told to open their eyes and were then given the same instructions as the group under hypnosis to rate how much pain they felt. Once the scales were returned, the subjects were dismissed. Scales were evaluated using chi-square analysis.

### Results

A total of eight subjects were placed under hypnosis. All subjects reported feeling no pain. In contrast, seven of the ten nonhypnotized subjects reported feeling slight pain, while three of them reported feeling no pain. Statistical analysis resulted in  $\chi^2$  of 9.6 with 3 degrees of freedom which was significant at the .05 level (Table 1).

Table 1

Number of subjects hypnotized or not hypnotized who experienced pain or no pain.

	Pain	No Pain
Hypnotized	0	7 *
Not Hypnotized	8	3 *

\* Indicates significance at (p<.05).

## Discussion

The results of this experiment support documented research that hypnosis has an effect on the control of pain. The hypnotized subjects experienced pain less frequently than non-hypnotized subjects. Subjects who were read to and not inducted into hypnosis reported feeling slight pain. It is clear from this experiment that hypnosis lessens or eliminates the painful effects of an acupuncture needle prick, and that I was capable of successfully inducing hypnotic trance in eight volunteers.

Several secondary variables should be mentioned which may have influenced the experiment's result. Assistants in the experiment were trained in pricking subjects prior to the experiment. However, the assistants may have pricked the subjects differently. There was no guarantee each subject was pricked in exactly the same place or with the same amount of pressure. Another confounding variable is subjects in the control group may have had a tendency to enter a trancelike state on their own. However, this idea cannot be quantified because subjects were not questioned. One subject in the control group fell asleep, but this should not be confused with the hypnotic trance. In addition, the experiment was performed later in the evening during the week before finals, which may have contributed to the relaxation or exhaustion of the subjects. Finally, a factor needing consideration is each individual's hypnotizability. Though subjects hypnotized appeared to be hypnotizable, some individuals are more hypnotizable than others. Outside distractions, such as traffic passing

or other uncontrollable noise, may have interfered with the experiment.

If the experiment were repeated in the future, many things could be done differently. First, subjects could be hypnotized or be read to, individually. There is always the possibility that subjects perform better in an individual setting rather than in a group. This method would be very time-consuming but it would be interesting to compare its results with those outlined here. Physiological data such as heart rate and blood pressure or body temperature would be interesting to compare between groups.

As research continues on hypnosis, many are discovering the power of its effects. It may be the key to unlocking a whole new world of the unknown, existing in the unconscious and specifically related to healing of and coping with pain.

Pain Assessment Scale  
Appendix 1

Gender\_\_\_\_\_

Age\_\_\_\_\_

Year in School\_\_\_\_\_

\_\_\_\_\_1 No pain

\_\_\_\_\_2 Slight pain

\_\_\_\_\_3 Moderate pain

\_\_\_\_\_4 Strong pain

\_\_\_\_\_5 Very Strong Pain

\_\_\_\_\_6 Intense Pain

\_\_\_\_\_7 Extreme Intense Pain

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